DEPARTMENT OF THE NAVY
FISCAL YEAR (FY) 2011
BUDGET ESTIMATES

JUSTIFICATION OF ESTIMATES
FEBRUARY 2010

RESEARCH, DEVELOPMENT, TEST & EVALUATION, NAVY
BUDGET ACTIVITY 7

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Research, Development, Test and Evaluation, Navy

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, $17,693,496,000, to remain available for obligation until September 30, 2012.

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Department of the Navy
FY 2011 President's Budget
Exhibit R-1 FY 2011 Base and Overseas Contingency Operations (OCO) Request
Summary
(Dollars in Thousands)

19 Jan 2010

Summary Recap of Budget Activities	FY 2009 (Base & OCO)	FY 2010 Base & OCO Enacted	FY 2010 Supplemental Request	FY 2010 Total	FY 2011 Base	FY 2011 OCO	FY 2011 Total Request
Operational Systems Development	4,565,932	4,302,580		4,302,580	4,116,711	39,801	4,156,512
Total Research, Development, Test & Eval, Navy	4,565,932	4,302,580		4,302,580	4,116,711	39,801	4,156,512
Summary Recap of FYDP Programs							
Strategic Forces	176,187	157,072		157,072	133,327		133,327
General Purpose Forces	1,050,336	1,169,133		1,169,133	1,065,720		1,065,720
Intelligence and Communications	1,461,210	1,284,537		1,284,537	1,298,323	6,900	1,305,223
Research and Development	310,819	304,907		304,907	266,368		266,368
Central Supply and Maintenance	71,587	97,088		97,088	68,072		68,072
Classified Programs	1,495,793	1,289,843		1,289,843	1,284,901	32,901	1,317,802
Total Research, Development, Test & Eval, Navy	4,565,932	4,302,580		4,302,580	4,116,711	39,801	4,156,512

Department of the Navy
FY 2011 President's Budget
Exhibit R-1 FY 2011 Base and Overseas Contingency Operations (OCO) Request
(Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy — Date: 19 Jan 2010

Line No	Program Element Number	Item	Act	FY 2009 (Base & OCO)	FY 2010 Base & OCO Enacted	FY 2010 Supplemental Request	FY 2010 Total	FY 2011 Base	FY 2011 OCO	FY 2011 Total Request	Sec
160	0604227N	HARPOON Modifications	07	44,350							U
161	0604402N	Unmanned Combat Air Vehicle (UCAV) Advanced Component and Prototype Development	07	266,469	304,907		304,907	266,368		266,368	U
162	0101221N	Strategic Sub & Weapons System Support	07	95,017	69,385		69,385	81,184		81,184	U
163	0101224N	SSBN Security Technology Program	07	33,029	34,336		34,336	34,997		34,997	U
164	0101226N	Submarine Acoustic Warfare Development	07	7,150	7,181		7,181	6,815		6,815	U
165	0101402N	Navy Strategic Communications	07	40,991	46,170		46,170	10,331		10,331	U
166	0203761N	Rapid Technology Transition (RTT)	07	40,493	38,963		38,963	35,120		35,120	U
167	0204136N	F/A-18 Squadrons	07	70,757	121,093		121,093	148,438		148,438	U
168	0204152N	E-2 Squadrons	07	52,327	62,796		62,796	19,011		19,011	U
169	0204163N	Fleet Telecommunications (Tactical)	07	28,031	36,799		36,799	26,894		26,894	U
170	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07	17,556	17,077		17,077	10,587		10,587	U
171	0204311N	Integrated Surveillance System	07	28,677	26,225		26,225	23,464		23,464	U
172	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07	2,271	2,314		2,314	4,357		4,357	U
173	0204571N	Consolidated Training Systems Development	07	24,646	41,511		41,511	50,750		50,750	U

Exhibit R-1G: FY 2011 President's Budget (Published), as of January 19, 2010 at 15:26:35

Department of the Navy
FY 2011 President's Budget
Exhibit R-1 FY 2011 Base and Overseas Contingency Operations (OCO) Request
(Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy — Date: 19 Jan 2010

Line No	Program Element Number	Item	Act	FY 2009 (Base & OCO)	FY 2010 Base & OCO Enacted	FY 2010 Supplemental Request	FY 2010 Total	FY 2011 Base	FY 2011 OCO	FY 2011 Total Request	Sec
174	0204574N	Cryptologic Direct Support	07	1,437	1,602		1,602	1,519		1,519	U
175	0204575N	Electronic Warfare (EW) Readiness Support	07	23,537	37,368		37,368	39,398		39,398	U
176	0205601N	HARM Improvement	07	39,261	29,920		29,920	14,207		14,207	U
177	0205604N	Tactical Data Links	07	4,053	14,948		14,948	28,854		28,854	U
178	0205620N	Surface ASW Combat System Integration	07	21,807	41,630		41,630	32,877		32,877	U
179	0205632N	MK-48 ADCAP	07	25,994	34,235		34,235	26,234		26,234	U
180	0205633N	Aviation Improvements	07	95,112	134,612		134,612	133,611		133,611	U
181	0205658N	Navy Science Assistance Program	07	6,152	3,701		3,701	3,535		3,535	U
182	0205675N	Operational Nuclear Power Systems	07	71,382	71,732		71,732	74,229		74,229	U
183	0206313M	Marine Corps Communications Systems	07	356,571	279,222		279,222	245,298		245,298	U
184	0206623M	Marine Corps Ground Combat/Supporting Arms Systems	07	103,050	108,857		108,857	100,424		100,424	U
185	0206624M	Marine Corps Combat Services Support	07	10,307	20,479		20,479	19,466		19,466	U
186	0206625M	USMC Intelligence/ Electronic Warfare Systems (MIP)	07		29,776		29,776	20,316		20,316	U
187	0207161N	Tactical AIM Missiles	07	8,419	2,288		2,288	912		912	U
188	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	6,902	3,589		3,589	2,633		2,633	U

Exhibit R-1G: FY 2011 President's Budget (Published), as of January 19, 2010 at 15:26:35

Department of the Navy
FY 2011 President's Budget
Exhibit R-1 FY 2011 Base and Overseas Contingency Operations (OCO) Request
(Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy — Date: 19 Jan 2010

Line No	Program Element Number	Item	Act	FY 2009 (Base & OCO)	FY 2010 Base & OCO Enacted	FY 2010 Supplemental Request	FY 2010 Total	FY 2011 Base	FY 2011 OCO	FY 2011 Total Request	Sec
189	0208058N	Joint High Speed Vessel (JHSV)	07	11,594	8,396		8,396	3,586		3,586	U
194	0303109N	Satellite Communications (SPACE)	07	625,193	471,917		471,917	422,268		422,268	U
195	0303138N	Consolidated Afloat Network Enterprise Services (CANES)	07		45,324		45,324	63,563		63,563	U
196	0303140N	Information Systems Security Program	07	31,828	29,049		29,049	25,934		25,934	U
197	0303158M	Joint Command and Control Program (JC2)	07	1,849							U
198	0303158N	Joint Command and Control Program (JC2)	07	4,045							U
199	0303238N	Consolidated Afloat Network Enterprise Services (CANES) - MIP	07					8,375		8,375	U
201	0305149N	COBRA JUDY	07	100,814	61,804		61,804	36,527		36,527	U
202	0305160N	Navy Meteorological and Ocean Sensors-Space (METOC)	07	7,673	28,774		28,774	63,878		63,878	U
203	0305192N	Military Intelligence Program (MIP) Activities	07	4,579	6,386		6,386	4,435		4,435	U
204	0305204N	Tactical Unmanned Aerial Vehicles	07	53,493	8,834		8,834	35,212		35,212	U
205	0305205N	Endurance Unmanned Aerial Vehicles	07	423,996							U
206	0305206N	Airborne Reconnaissance Systems	07	58,793	55,327		55,327				U
207	0305207N	Manned Reconnaissance Systems	07	62,753	36,716		36,716	19,263		19,263	U

Exhibit R-1G: FY 2011 President's Budget (Published), as of January 19, 2010 at 15:26:35

Department of the Navy
FY 2011 President's Budget
Exhibit R-1 FY 2011 Base and Overseas Contingency Operations (OCO) Request
(Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy — Date: 19 Jan 2010

Line No	Program Element Number	Item	Act	FY 2009 (Base & OCO)	FY 2010 Base & OCO Enacted	FY 2010 Supplemental Request	FY 2010 Total	FY 2011 Base	FY 2011 OCO	FY 2011 Total Request	Sec
208	0305208M	Distributed Common Ground/Surface Systems	07					8,377		8,377	U
209	0305208N	Distributed Common Ground/Surface Systems	07	44,222	12,228		12,228	16,665		16,665	U
210	0305220N	RQ-4 UAV	07		439,010		439,010	529,250		529,250	U
211	0305231N	MQ-8 UAV	07		25,533		25,533	10,665		10,665	U
212	0305232M	RQ-11 UAV	07		551		551	512		512	U
213	0305233N	RQ-7 UAV	07		982		982	934	6,900	7,834	U
214	0305234M	Small (Level 0) Tactical UAS (STUASL0)	07		18,685		18,685	26,209		26,209	U
215	0305234N	Small (Level 0) Tactical UAS (STUASL0)	07		23,496		23,496	18,098		18,098	U
216	0307207N	Aerial Common Sensor (ACS)	07	34,235							U
217	0307217N	EP-3E Replacement (EPX)	07		11,926		11,926				U
218	0308601N	Modeling and Simulation Support	07	7,737	7,995		7,995	8,158		8,158	U
219	0702207N	Depot Maintenance (Non-IF)	07	9,839	14,614		14,614	18,649		18,649	U
220	0702239N	Avionics Component Improvement Program	07	1,772	3,511		3,511	3,250		3,250	U
221	0708011N	Industrial Preparedness	07	59,976	74,880		74,880	46,173		46,173	U
222	0708730N	Maritime Technology (MARITECH)	07		4,083		4,083				U
9999	9999999999	Classified Programs		1,495,793	1,289,843		1,289,843	1,284,901	32,901	1,317,802	U
		Operational Systems Development		4,565,932	4,302,580		4,302,580	4,116,711	39,801	4,156,512	

Exhibit R-1G: FY 2011 President's Budget (Published), as of January 19, 2010 at 15:26:35

Department of the Navy
FY 2011 President's Budget
Exhibit R-1 FY 2011 Base and Overseas Contingency Operations (OCO) Request
(Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

Date: 19 Jan 2010

Line No	Program Element Number	Item	Act	FY 2009 (Base & OCO)	FY 2010 Base & OCO Enacted	FY 2010 Supplemental Request	FY 2010 Total	FY 2011 Base	FY 2011 OCO	FY 2011 Total Request	Sec
Total Research, Development, Test & Eval, Navy				4,565,932	4,302,580		4,302,580	4,116,711	39,801	4,156,512	

Exhibit R-1G: FY 2011 President's Budget (Published), as of January 19, 2010 at 15:26:35

Program Element Table of Contents (by Budget Activity then Line Item Number)

Budget Activity 07: Operational Systems Development

Budget Activity 07: Operational Systems Development

Budget Activity 07: Operational Systems Development

Budget Activity 07: Operational Systems Development

Program Element Table of Contents (Alphabetically by Program Element Title)

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0604227N: *Harpoon Modifications*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	44.350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	110.324
1843: *Harpoon Block III*	44.350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	110.324

A. Mission Description and Budget Item Justification

The Harpoon Block III Weapons System was intended to upgrade and expand the capabilities of the Navy's only anti-ship, all weather missile to improve its precision in a congested, littoral environment. Modification of the RGM-84D and AGM-84D Harpoon 1C baseline missile will provide for Global Positioning System (GPS) accuracy, target selectivity in a littoral environment, and in-flight target position update solutions as well as positive terminal control. It would provide total organic capability (i.e. Autonomous Surface Group capability). Specific improvements would enable significant target discrimination as well as minimized target-to-shore separation capability, Battle Hit Indications (BHI), connectivity with future network architecture, and Land Blanking capability. Harpoon Block III would provide for a concept of operations that will take advantage of existing Intelligence, Surveillance and Reconnaissance (ISR) Platform target detection and target/weapon position updates (i.e. UAV, Helo, Fixed wing).

The Department of the Navy cancelled the Harpoon Blk III program via Acquisition Decision Memorandum dated 14 April 2009. Assistant Secretary of the Navy for Research Development and Acquisition directed the use FY2009 funds to execute an orderly program cancellation and fund external program linkages cost share commitments (F/A-18 H8E Operational Flight Program (OFP), Next Generation Command and Control Processor (NGC2P) and Strike Common Weapon Data Link (SCWDL)). Additionally, PEO(U&W) was directed to coordinate with OPNAV N4 to resource those tasks required to ensure Harpoon Block IC sustainment of current fleet readiness. The Air Harpoon Shipping Container (MK607) has been identified as a degrader to current fleet readiness due to moisture intrusion problems which have resulted in the total loss of 30 missiles since 1998.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0604227N: *Harpoon Modifications*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	67.845	0.000	0.000	0.000	0.000
Current President's Budget	44.350	0.000	0.000	0.000	0.000
Total Adjustments	-23.495	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-9.999	0.000			
• SBIR/STTR Transfer	-2.046	0.000			
• Congressional Recision Adjustments	-11.450	0.000	0.000	0.000	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604227N: *Harpoon Modifications*	PROJECT 1843: *Harpoon Block III*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1843: *Harpoon Block III*	44.350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	110.324
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Harpoon Block III Weapons System was intended to upgrade and expand the capabilities of the Navy's only anti-ship, all weather missile to improve its precision in a congested, littoral environment. Modification of the RGM-84D and AGM-84D Harpoon 1C baseline missile will provide for Global Positioning System (GPS) accuracy, target selectivity in a littoral environment, and in-flight target position update solutions as well as positive terminal control. It would provide total organic capability (i.e. Autonomous Surface Group capability). Specific improvements would enable significant target discrimination as well as minimized target-to-shore separation capability, Battle Hit Indications (BHI), connectivity with future network architecture, and Land Blanking capability. Harpoon Block III would provide for a concept of operations that will take advantage of existing Intelligence, Surveillance and Reconnaissance (ISR) Platform target detection and target/weapon position updates (i.e. UAV, Helo, Fixed wing).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SURFACE HARPOON BLOCK III DESIGN/DEVELOPMENT	22.457	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY09: Funding is for missile and ship kit design, prototype development and fabrication, Missile Guidance Control Unit design and integration, data link and GPS integration and missile Operational Flight Program (OFP) software design and development. Following the cancellation of Harpoon Block III program, funding also supports design and development cost share with the Strike Common Weapon Data Link (SCWDL) and Next Generation Command and Control Processor (NGC2P) that had been agreed upon prior to program cancellation.					
AIR HARPOON BLOCK III DESIGN/DEVELOPMENT	19.678	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604227N: *Harpoon Modifications*	PROJECT 1843: *Harpoon Block III*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY09: Funding is for missile kit design and development, prototype development and fabrication, Missile Guidance Control Unit design and integration, data link and GPS integration, aircraft OFP software development and integration and missile OFP software design and development. Following the cancellation of Harpoon Block III program, funding also supports design and development cost share with F/A-18 Software Configuration Suite (SCS) H8E that had been agreed upon prior to program cancellation.					
LAUNCH CONTROL SYSTEM INTERFACE DESIGN *FY 2009 Accomplishments:* FY09: Harpoon Shipboard Command Launch Control Set (HSCLCS) interface design. Harpoon Embedded Trainer (HET), Harpoon Operational Tactical Training System (HOTTS), and Harpoon Guided Missile Simulator (HGMS) upgrade development. Following the cancellation of Harpoon Block III program, funding also supports design and development cost share for the replacement of HOTTS that had been agreed upon prior to program cancellation.	2.215	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	44.350	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The Department of the Navy cancelled the Harpoon Blk III program via Acquisition Decision Memorandum dated 14 April 2009. Assistant Secretary of the Navy for Research Development and Acquisition directed the use FY-09 funds to execute an orderly program cancellation and fund external program linkages cost share commitments (F/A-18 H8E OFP, NGC2P CDLMS 3.8 and SCWDL datalink). Additionally, PEO(U&W) was directed to coordinate with OPNAV N4 to resource those tasks required to ensure Harpoon Block IC sustainment of current fleet readiness.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0604227N: *Harpoon Modifications*	**PROJECT** 1843: *Harpoon Block III*

E. Performance Metrics

Project cancelled successfully,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	266.469	304.907	266.368	0.000	266.368	215.974	165.243	51.281	52.662	Continuing	Continuing
3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	259.427	304.907	196.068	0.000	196.068	133.574	99.243	21.281	21.862	Continuing	Continuing
3191: *UCAS Technical Maturation*	7.042	0.000	70.300	0.000	70.300	82.400	66.000	30.000	30.800	Continuing	Continuing

A. Mission Description and Budget Item Justification

The 2005 Quadrennial Defense Review (QDR) published February 2006 and OSD AT&L EXCOM Memorandum of February 06 supported direction to restructure the Joint Unmanned Combat Air System (J-UCAS) program into a new Navy UCAS program. The Navy UCAS program will develop an unmanned, longer-range, carrier-based aircraft capable of being air-refueled to provide greater standoff capability, to expand payload and launch options, and to increase naval reach and persistence. The Navy was directed to demonstrate carrier operations, including Autonomous Aerial Refueling (AAR), of a Low Observable (LO) Unmanned Combat Air System and to mature required technologies to a Technology Readiness Level (TRL)-6 supporting a potential follow on acquisition program.

The Navy Unmanned Combat Air System (UCAS) designed for autonomous launch and recovery as well as operations in the Carrier Control Area (CCA), is comprised of an Air Vehicle Segment, a Mission Control Segment (MCS) and a government led Aircraft Carrier Integration Segment. The scope of the Navy UCAS effort includes design, development, integration, and validation of an unmanned, LO planform Air Vehicle Segment and MCS in the land-based and shipboard environments. Evaluations will be conducted to investigate MCS interfaces with shipboard systems such as primary flight control (PRI-FLY) displays, Landing Safety Officer (LSO) displays, and Carrier Air Traffic Control Center (CATCC) stations.

The Navy UCAS program will be structured to match program resources to United States Navy (USN) objectives/constraints with the goals of identifying and maturing critical technologies and reducing the risk of carrier integration of a UCAS. Candidate Technology Maturation efforts include transformational communications, advanced integrated propulsion, CV suitable materials, LO sensors and apertures, sense and avoid functionality (all operating in a LO environment), autonomous operations (software algorithms and interfaces), and computer resource data storage and access systems. Modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs are being developed as a result of the demonstration. Maturation of candidate technologies support the evaluation of alternatives needed for a future milestone decision and subsequent entry into Engineering and Manufacturing Development (EMD). The Navy consolidated Project 3191 into Project 3178 in FY10 and subsequently separated them in FY11. EMD funding is not covered, nor described in this exhibit.

This program element includes $.998 million for the Defense Acquisition Development Fund (DAWDF) in FY 2009.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	274.714	311.204	0.000	0.000	0.000
Current President's Budget	266.469	304.907	266.368	0.000	266.368
Total Adjustments	-8.245	-6.297	266.368	0.000	266.368
• Congressional General Reductions		-1.270			
• Congressional Directed Reductions		-5.000			
• Congressional Rescissions	0.000	-0.027			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-8.245	0.000			
• Program Adjustments	0.000	0.000	266.368	0.000	266.368

Change Summary Explanation

Schedule: Airworthiness Testing moved from 1st QTR to 2nd QTR FY10. Sea Trials moved to 2nd QTR FY12.
The Navy consolidated Project 3191 into Project 3178 in FY10 and subsequently separated them in FY11.

Technical: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	259.427	304.907	196.068	0.000	196.068	133.574	99.243	21.281	21.862	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Navy Unmanned Combat Air System (UCAS), designed for autonomous launch and recovery as well as operations in the Carrier Control Area (CCA), is comprised of an Air Vehicle Segment, a Mission Control Segment (MCS) and a government led Aircraft Carrier Integration Segment. The scope of the Navy UCAS effort includes design, development, integration, and validation of an unmanned, Low Observable (LO) planform Air Vehicle Segment and MCS in the land-based and shipboard environments. Evaluations will be conducted to investigate MCS interfaces with shipboard systems such as primary flight control (PRI-FLY) displays, Landing Safety Officer (LSO) displays, and Carrier Air Traffic Control Center (CATCC) stations.

The Navy consolidated Project 3191 into Project 3178 in FY10 and subsequently separated them in FY11. Navy UCAS technology maturation efforts are contained within this project for FY10.

This project unit includes $.8 million for the Defense Acquisition Development Fund (DAWDF) in FY 2009.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Product Development	243.879	285.332	173.188	0.000	173.188
The primary effort in the Navy UCAS program is design, development, integration and validation of Air Vehicle Segment, Mission Control Segment and government led Aircraft Carrier Segment leading to a Carrier demonstration of an unmanned, LO planform UCAS system, and development of internal/ external interface documents. In addition, design and development of hardware/software to support Automated Air Refueling (AAR) will be conducted. Shipboard evaluation of the Navy UCAS includes					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
integration of the Navy UCAS with shipboard systems such as PRI-FLY displays, LSO displays and CATCC stations. *FY 2009 Accomplishments:* Continued efforts in the Navy UCAS program designing, developing, integrating and validating the Navy UCAS Air Vehicle Segment, Mission Control Segment and government led Aircraft Carrier Integration Segment. Completed air vehicle 1 proof load testing, final assembly, integration and checkout. Completed systems engineering technical reviews leading to taxi testing and first flight. Continued assembly of air vehicle 2. Installation of UCAS-D shipboard components on CVN-72. Design and development of hardware/software to support Autonomous Aerial Refueling (AAR). *FY 2010 Plans:* Continue efforts in the Navy UCAS program designing, developing, integrating and validating the Navy UCAS Air Vehicle Segment, Mission Control Segment and government led Aircraft Carrier Integration Segment. Complete air vehicle 2 assembly, integration, and check out. Continue technology maturation, modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs previously included under PU 3191. Installation of UCAS-D shipboard components on Nimitz class aircraft carrier. Continue design and development of hardware/software to support AAR. *FY 2011 Base Plans:* Continue efforts in the Navy UCAS program designing, developing, integrating and validating the Navy UCAS Air Vehicle Segment, Mission Control Segment and government led Aircraft Carrier Integration Segment. Technical reviews required before sea-trials will be conducted. Installation of UCAS-D shipboard components on Nimitz class aircraft carrier. Continue design and development of hardware/software to support AAR.					
Management	10.701	10.526	11.543	0.000	11.543

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Government management, engineering and contract support. *FY 2010 Plans:* Government management, engineering and contract support. *FY 2011 Base Plans:* Government management, engineering and contract support.					
Test and Evaluation Support *FY 2009 Accomplishments:* Completed detailed test and evaluation plan development. Completed initial test site (Edwards AFB) facility preparation. Completed air vehicle 1 ground test. *FY 2010 Plans:* Air vehicle 1 will conduct its first flight and complete airworthiness testing. Commence F/A-18D surrogate aircraft testing with CVN-72. Air vehicle 1 will transfer to NAWCAD Patuxent River, MD for further carrier suitability testing. *FY 2011 Base Plans:* Continue landbased build-up testing leading to sea-trials. Complete catapult, arresting gear, and jet blast deflector testing. Air vehicle 2 will conduct its first flight and after airworthiness envelope validation will transfer to NAWCAD Patuxent River, MD. Continue F/A-18D surrogate testing on Nimitz class aircraft carrier.	4.047	9.049	11.337	0.000	11.337
DAWDF Realignment *FY 2009 Accomplishments:* DAWDF Realignment	0.800	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	259.427	304.907	196.068	0.000	196.068

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

In the 2005 QDR, the Navy was directed to restructure the J-UCAS program and develop an unmanned, longer-range carrier-based aircraft capable of being air-refueled to provide greater (CV) standoff capability, to expand payload and launch options, and to increase naval reach and persistence. The primary goal is risk reduction for carrier integration while developing the critical data necessary to support a potential follow on acquisition milestone decision. The Navy UCAS effort will focus on designing, developing, and evaluating the core capabilities which safely demonstrate carrier interoperability. Currently, primary hardware development for the Navy UCAS effort is being performed under a FAR-based, cost plus incentive fee-type contract competitively awarded to a single contractor.

E. Performance Metrics

Successfully complete taxi test and first flight of air vehicle 1. Complete air vehicle 2 assembly. Conduct F/A-18D surrogate aircraft testing with Nimitz class aircraft carrier.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aviation/ Ship Integration	C/CPFF	Rockwell/AFRL Rome, NY	6.385	1.200	Dec 2009	0.950	Dec 2010	0.000		0.950	0.950	9.485	9.485
Aviation/ Ship Integration	C/CPFF	L-3 Com Titan MD	6.344	1.538	Dec 2009	2.396	Dec 2010	0.000		2.396	4.898	15.176	15.176
Aviation/Ship Integration	WR	NAWCAD MD	17.098	10.917	Nov 2009	11.611	Nov 2010	0.000		11.611	0.000	39.626	Continuing
Aviation/Ship Integration	C/CPIF	TBD Various	0.000	2.142	Feb 2010	2.100	Feb 2011	0.000		2.100	1.300	5.542	5.542
Primary Hardware Development	C/CPIF	NGC CA	367.030	214.298	Nov 2009	144.464	Nov 2010	0.000		144.464	169.900	895.692	903.122
Advanced Development Eng	Various/ Various	NSMA VA	0.000	23.403	Dec 2009	0.000	Dec 2010	0.000		0.000	0.000	23.403	Continuing
Systems Engineering	WR	NAWCAD MD	11.433	9.437	Nov 2009	8.916	Nov 2010	0.000		8.916	0.000	29.786	Continuing
Product Development	Various/ Various	Various Various	69.007	2.540		2.601		0.000		2.601	0.000	74.148	Continuing
		Subtotal	477.297	265.475		173.038		0.000		173.038	177.048	1,092.858	933.325

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies & Analyses	C/CPFF	Various Various	0.000	1.338	Feb 2010	0.000		0.000		0.000	0.000	1.338	1.338
Concept Development	WR	NAWCAD MD	0.000	7.400	Nov 2009	0.000		0.000		0.000	0.000	7.400	Continuing
Concept Development	C/CPIF	Various Various	0.000	11.000	Mar 2010	0.000		0.000		0.000	14.000	25.000	25.000
Support	Various/ Various	Various Various	1.004	0.119		0.150		0.000		0.150	0.000	1.273	Continuing
		Subtotal	1.004	19.857		0.150		0.000		0.150	14.000	35.011	26.338

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MIPR	Edwards AFB CA	2.928	3.214	Nov 2009	3.333	Nov 2010	0.000		3.333	0.000	9.475	Continuing
Developmental Test & Evaluation	WR	NAWCAD MD	3.258	5.483	Nov 2009	7.633	Nov 2010	0.000		7.633	0.000	16.374	Continuing
Test & Evaluation	Various/ Various	Various Various	0.283	0.352		0.371		0.000		0.371	0.000	1.006	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	6.469	9.049		11.337		0.000		11.337	0.000	26.855	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor SEPM Support	C/CPIF	Various Various	10.745	3.800	Dec 2009	4.200	Dec 2010	0.000		4.200	0.000	18.745	18.745
Government Engineering Support	WR	NAWCAD MD	7.505	3.533	Nov 2009	3.604	Nov 2010	0.000		3.604	0.000	14.642	Continuing
Program Management Support	WR	NAWCAD MD	5.115	2.750	Nov 2009	3.250	Nov 2010	0.000		3.250	0.000	11.115	Continuing
Management	Various/ Various	Various Various	1.025	0.443		0.489		0.000		0.489	0.000	1.957	Continuing
DAWDF Realignment	Various/ Various	Various Various	0.800	0.000		0.000		0.000		0.000	0.000	0.800	Continuing
		Subtotal	25.190	10.526		11.543		0.000		11.543	0.000	47.259	18.745

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	509.960	304.907		196.068		0.000		196.068	191.048	1,201.983	978.408

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**PROJECT** 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*

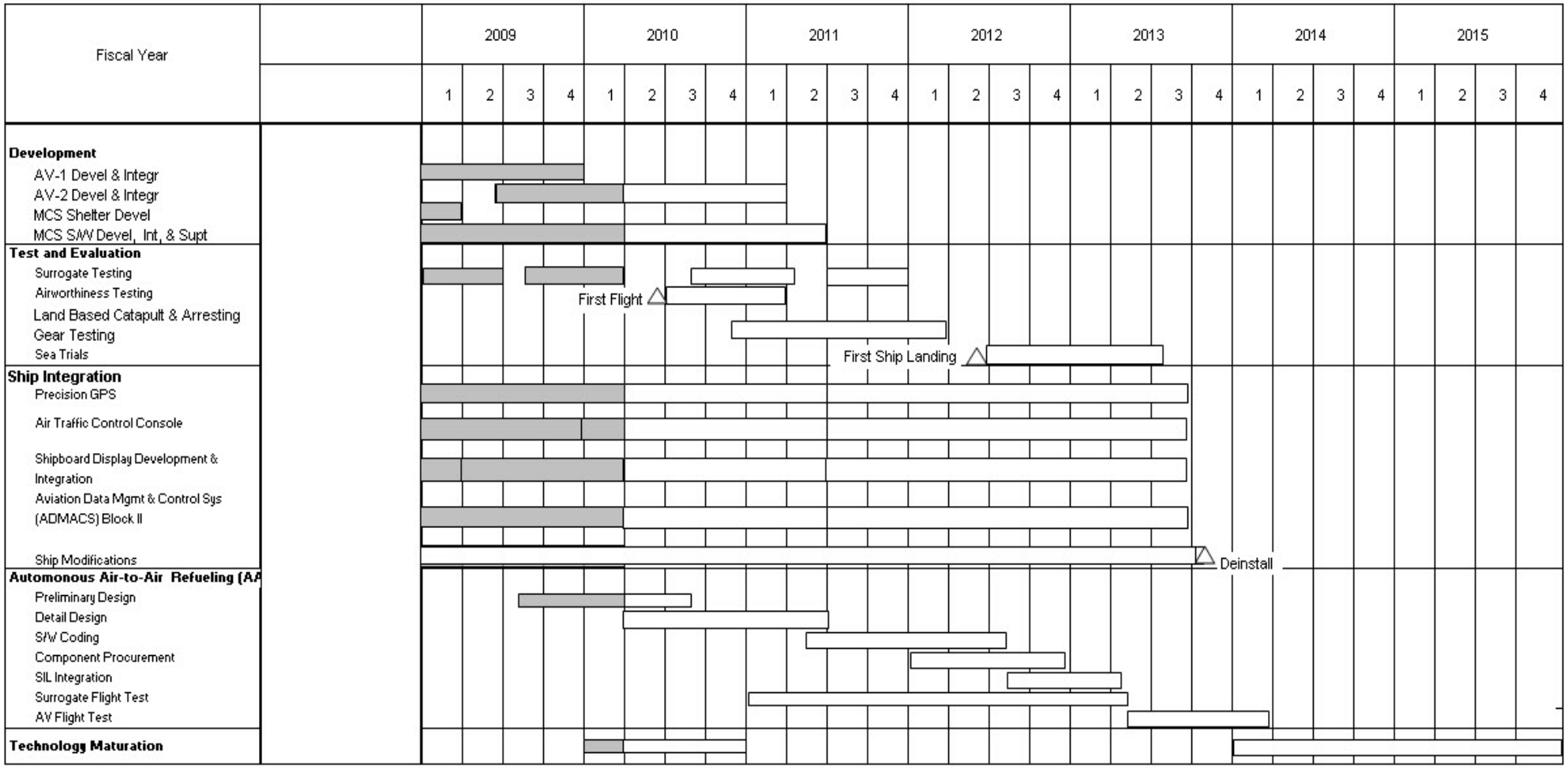

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**PROJECT** 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
AV-1 Devel & Integr	1	2009	4	2009
AV - 2 Devel & Integr	2	2009	1	2011
MCS Shelter Devel	1	2009	1	2009
MCS S/W Devel, Int, & Supt	1	2009	2	2011
Surrogate Testing (FY 09)	1	2009	2	2009
Surrogate Testing (FY09-FY10)	3	2009	1	2010
Surrogate Testing (FY11-FY12)	3	2010	2	2011
Surrogate Testing (FY11)	3	2011	4	2011
Airworthiness Testing - First Flight	2	2010	2	2010
Airworthiness Testing	2	2010	1	2011
Land Based Catapult & Arresting Gear Testing	4	2010	1	2012
Sea Trials - First Ship Landing	2	2012	2	2012
Sea Trials	2	2012	3	2013
Precision GPS	1	2009	3	2013
Air Traffic Control Console	1	2009	3	2013
Shipboard Display Development and Integration	1	2009	3	2013
Aviation Data Management and Control System (ADMACS) Block II	1	2009	3	2013
Ship Modifications	1	2009	4	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**PROJECT** 3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Ship Modifications - Deinstall	4	2013	4	2013
AAR Preliminary Design	3	2009	3	2010
AAR Detail Design	2	2010	2	2011
AAR S/W Coding	2	2011	3	2012
AAR Component Procurement	1	2012	4	2012
AAR SIL Integration	3	2012	2	2013
AAR Surrogate Flight Test	1	2011	2	2013
AAR X-47B Flight Test (AV Flight Test)	2	2013	1	2014
Technology Maturation	1	2010	4	2010
Technology Maturation (FY14-FY15)	1	2014	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3191: *UCAS Technical Maturation*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3191: *UCAS Technical Maturation*	7.042	0.000	70.300	0.000	70.300	82.400	66.000	30.000	30.800	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Navy Unmanned Combat Air System (N-UCAS) program is an Advanced Development effort. The Navy UCAS program will be structured to match program resources to United States Navy (USN) objectives/constraints with the goals of identifying and maturing critical technologies and reducing the risk of carrier integration of a UCAS. Candidate technology maturation efforts include transformational communications, advanced integrated propulsion, CV suitable materials, LO sensors and apertures, sense and avoid functionality (all operating in a LO environment), autonomous operations (software algorithms and interfaces), and computer resource data storage and access systems. Modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs are being developed as a result of the demonstration. Maturation of candidate technologies support the evaluation of alternatives needed for a future milestone decision and subsequent entry into Engineering and Manufacturing Development (EMD). EMD funding is not covered, nor described in this exhibit.

The Navy consolidated Project 3191 into Project 3178 in FY10 and subsequently separated them in FY11. Navy UCAS technology maturation efforts are contained within project 3178 for FY10.

This project unit includes $.198 million for the Defense Acquisition Development Fund (DAWDF) in FY 2009.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Product Development	6.844	0.000	70.300	0.000	70.300
Identification and maturation of technologies required to support the demonstration of an unmanned, LO planform Navy UCAS on an aircraft carrier including modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs to support the evaluation of alternatives needed for a future milestone decision and subsequent entry into EMD.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued technology maturation, modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs. *FY 2011 Base Plans:* Continue technology maturation, modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs.					
DAWDF Realignment *FY 2009 Accomplishments:* DAWDF Realignment	0.198	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	7.042	0.000	70.300	0.000	70.300

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

In the 2005 QDR, the Navy was directed to restructure the J-UCAS program and develop an unmanned, longer-range carrier-based aircraft capable of being air-refueled to provide greater (CV) standoff capability, to expand payload and launch options, and to increase naval reach and persistence. The primary goal is risk reduction for maturation of critical technologies, while developing the critical data necessary to support a potential follow on acquisition milestone decision. The Navy UCAS effort will focus on designing, developing, and evaluating the core capabilities which safely demonstrate carrier interoperability. As part of this effort, individual contracts will be awarded either competitively or sole sourced in a firm fixed price or cost plus arrangement to evolve various technologies to meet the Technology Readiness Level (TRL)-6 to support the Advanced Development effort.

E. Performance Metrics

The goal of the Technology Maturation project unit is to identify and mature critical technologies and reduce the risk of carrier integration of a UCAS.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Development Eng	Various/ Various	NSMA VA	0.000	0.000		43.200	Dec 2010	0.000		43.200	0.000	43.200	Continuing
		Subtotal	0.000	0.000		43.200		0.000		43.200	0.000	43.200	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies & Analyses	C/CPFF	Various Various	0.000	0.000		1.500	Feb 2011	0.000		1.500	0.000	1.500	1.500
Concept Development	WR	NAWCAD MD	0.000	0.000		7.500	Nov 2010	0.000		7.500	0.000	7.500	Continuing
Concept Development	C/CPIF	Various Various	0.000	0.000		18.100	Jan 2011	0.000		18.100	0.000	18.100	18.100
		Subtotal	0.000	0.000		27.100		0.000		27.100	0.000	27.100	19.600

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3191: *UCAS Technical Maturation*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		70.300		0.000		70.300	0.000	70.300	19.600

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	PROJECT 3191: *UCAS Technical Maturation*	

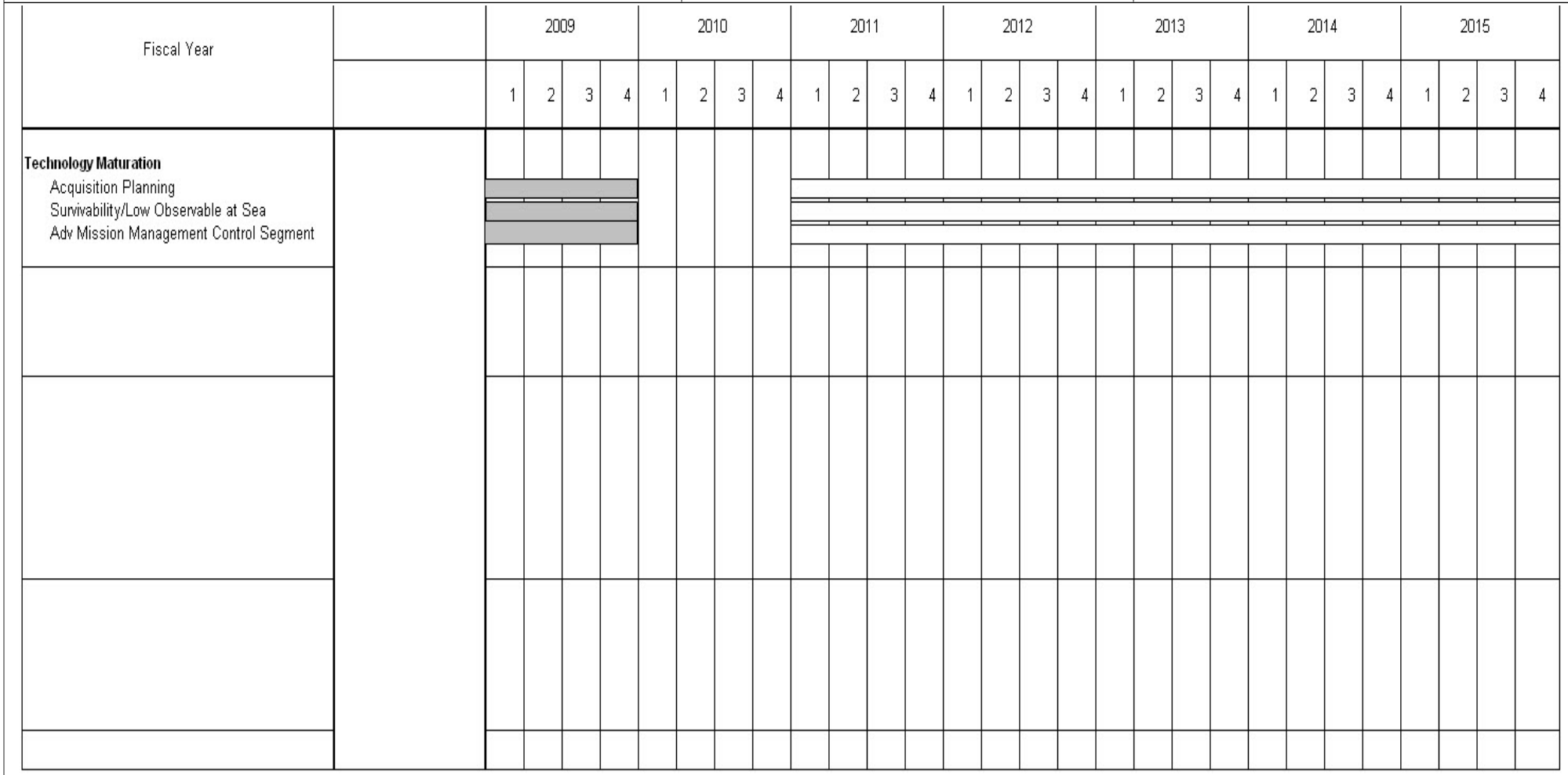

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0604402N: *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**PROJECT** 3191: *UCAS Technical Maturation*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Planning (FY09)	1	2009	4	2009
Survivability/Low Observable at Sea (FY09)	1	2009	4	2009
Adv Mission Management & Control (FY09)	1	2009	4	2009
Acquisition Planning	1	2011	4	2015
Survivability/Low Observable at Sea	1	2011	4	2015
Adv Mission Management & Control	1	2011	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	95.017	69.385	81.184	0.000	81.184	83.089	76.127	77.413	53.547	Continuing	Continuing
0004: *TRIDENT Submarine System Improvement*	0.347	0.384	0.431	0.000	0.431	0.438	0.443	0.453	0.463	Continuing	Continuing
0951: *Joint Warhead Fuze Sustainment Program*	0.000	14.008	33.100	0.000	33.100	33.300	23.600	23.800	24.000	Continuing	Continuing
2228: *Technical Applications Programs*	42.099	45.448	43.015	0.000	43.015	44.708	47.450	48.516	24.435	Continuing	Continuing
3158: *Integrated Nuclear Weapons Security Sys Dev*	20.904	5.801	4.638	0.000	4.638	4.643	4.634	4.644	4.649	Continuing	Continuing
3198: *Underwater Launch Missile System (ULMS)*	9.726	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.726
9999: *Congressional Adds*	21.941	3.744	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.648

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The TRIDENT operational systems development program results in improvements to the baseline TRIDENT Combat System. Current TRIDENT Combat Systems were first developed in the early 1970s and are becoming increasingly difficult to maintain and offer comparatively less performance than more recently designed systems. Previous efforts to upgrade portions of the TRIDENT Combat System include improvements via sonar and combat control hardware and software (e.g., QE2 programs), feasibility of increased countermeasure capability and a concept evaluation of an Submarine Fleet Mission Program Library (SFMPL) interface. Due to the sensitivity of TRIDENT programs it is assessed that international technology will not have a major impact or be a recipient of the benefits derived from this effort. Development strategies will significantly enhance the sustainability and operability of the sonar, communications and Combat Control Systems on TRIDENTs by evaluating both Obsolete Equipment Replacement (OER) possibilities and potential improvements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*

The TRIDENT Submarine System Improvement Program develops and integrates command and control improvements needed to maintain TRIDENT Submarine operational capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce lifecycle costs through Obsolete Equipment Replacement (OER) and commonality.

The Advanced Technologies for Arming, Fuzing, and Firing (AF&F)/Joint Warhead Fuze Sustainment program supports efforts to develop, proof, and demonstrate advanced technologies that will be leveraged and incorporated into future AF&Fs. The focus is on technologies that have multi-service (Navy and Air Force) and Multi-Nation (US and UK) applicability. $10M of 2009 funding was appropriated as a Congressional add to support advance technologies for the Mk5 Arming, Fuzing, and Firing (AF&F). The Joint Warhead Fuze Sustainment Program will commence in FY2010 as a development and studies program which integrates modern technologies into the Arming, Fuzing, and Firing (AF&F) development and modernization to improve reliability, safety and security, and develop common fuze components adaptable to current and future warheads.

A study will be conducted to determine what surety, safety, and ambiguity issues may exist if SSBNs were outloaded with both conventional and nuclear payloads.

The Technology Applications Program supports the TRIDENT II (D5) Submarine Launched Ballistic Missile (SLBM) that provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence providing a survivable sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. This Program Element supports investigations into new technologies which would help mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base. These efforts include Reentry System Applications and Guidance System Applications.

The Integrated Nuclear Weapons Security System (INWSS) efforts support the Nuclear Weapons Security program and SSBN Escort mission. The policies and requirements regarding the safeguard of nuclear weapons within the Department of Defense is established by DoD S5210.41M. Within the Department of the Navy, nuclear weapons are limited to TRIDENT Fleet Ballistic Missiles (FBM), either deployed aboard TRIDENT submarines or located landside at Naval Submarine Base, Kings Bay, or Naval Submarine Base, Bangor where missiles are first assembled as well as repaired. The Chief of Naval Operations (CNO) has assigned the Strategic Systems Programs, the FBM program manager, with mission responsibility for the safeguard of FBM nuclear technologies. This budget supports efforts directed at improving the current technological baseline through a series of studies focusing on land and waterside requirements, including both surface and underwater. Collectively, these efforts will improve countermeasure technologies addressing detection, delay and denial. INWSS efforts include the development of the the Palletized Protection System (PPS), a self contained, autonomous, readily transportable, limited area defense anti-missile system designed to protect high value critical assets from threat missiles by either disrupting their guidance and control systems, or physically intercepting and destroying them in flight. PPS development efforts funded in FY2007 and FY2008 were delayed due to technical and developmental issues. An above threshold reprogramming action was processed to fund additional

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
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FY2009 efforts required to complete test and evaluation efforts. Subsequent to the reprogramming, the PPS contract was terminated and all PPS development efforts have been cancelled. A portion of the FY09 funidng is required to address contract termination costs.

The Underwater Launch Missile System (ULMS) effort develops capabilities definitions and assessments, science & technology development strategies, and conceptual work to prepare for R&D and future prototyping.

The Advanced LINAC Facility Program seeks to develop and complete the design for an advanced Linear Accelerator Facility to perform radiation simulation of transient dose rate events. This facility will perform with advanced capabilities to overcome limitations of existing facilities, allowing for greater efficiency in testing and reducing costs.

The Adelos National Security Sensor System effort develops an advanced fiber optic sensor system for counterterrorism and antiterrorism operations to meet rigorous performance metrics necessary for nuclear facility, material, and weapons protection. The Adelos component will evaluate the use of advanced classification algorithms for reduction of false positive detections of objects in proximity to fiber optic sensing elements. Adelos program also seeks to expand the application of a unique fiber optic sensor system designed to provide covert surveillance and intelligence gathering of potential threats to our nation's nuclear activity.

The Enhanced Special Weapons/Nuclear Weapons Security effort supports the development of the Adelos fiber optic sensor system for the advanced detection, tracking, and classification of potential threat targets by employing advanced digital acoustic watermarking algorithms within a secure network for steganographic techniques to convey the classification and location information within the digital audio signal produced by the Adelos application software.

The Covert Robust Location Aware Wireless Network (CROWN) program develops a key foundation technology enabler to provide communication between multiple assets for a covert network capability that could be used on the submarine as a wireless network, and as a method to improve relative terminal accuracy that cannot be met today, especially in jammed or spoofed battlefields. The CROWN program provides the military precision relative location determination, tracking in a jammed environment, and high data rate communications with a low probability of being detected or intercepted by adversaries.

The Maritime Security- Surface and Sub-Surface Surveillance effort supports the development of the Quad-S Seaport Security System. The Quad-S Program develops a tactical surveillance and reconnaissance system in support of real-time monitoring of the complete spectrum of the maritime domain underwater, surface, air,

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101221N: *Strategic Sub & Wpns Sys Supt*

associated landside environments and individuals within those environments. This funding will also develop a needed year-round test bed, to evaluate and test emerging maritime technologies against the operational capabilities needed by the U.S. Navy.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	78.537	74.939	0.000	0.000	0.000
Current President's Budget	95.017	69.385	81.184	0.000	81.184
Total Adjustments	16.480	-5.554	81.184	0.000	81.184
• Congressional General Reductions		-0.289			
• Congressional Directed Reductions		-9.000			
• Congressional Rescissions	0.000	-0.025			
• Congressional Adds		3.760			
• Congressional Directed Transfers		0.000			
• Reprogrammings	18.240	0.000			
• SBIR/STTR Transfer	-1.760	0.000			
• Program Adjustments	0.000	0.000	81.184	0.000	81.184

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *ADVANCED LINEAR ACCELERATOR (LINAC) FACILITY*	3.191	0.956
Congressional Add: *Adelos National Security Sensor System*	1.995	2.788
Congressional Add: *Enhanced Special Weapons/Nuclear Weapons Security*	1.596	0.000
Congressional Add: *Advanced Technology for Mk5 AF&F*	9.973	0.000
Congressional Add: *Covert Robust Location Aware Wireless Network*	1.596	0.000
Congressional Add: *Maritime Security-Surface and Sub-surface Surveill*	3.590	0.000
Congressional Add Subtotals for Project: 9999	21.941	3.744
Congressional Add Totals for all Projects	21.941	3.744

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101221N: *Strategic Sub & Wpns Sys Supt*

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0004: *TRIDENT Submarine System Improvement*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0004: *TRIDENT Submarine System Improvement*	0.347	0.384	0.431	0.000	0.431	0.438	0.443	0.453	0.463	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The TRIDENT operational systems development program results in improvements to the baseline TRIDENT Combat System. Current TRIDENT Combat Systems were first developed in the early 1970s and are becoming increasingly difficult to maintain and offer comparatively less performance than more recently designed systems. Previous efforts to upgrade portions of the TRIDENT Combat System include improvements via sonar and combat control hardware and software (e.g., QE2 programs), feasibility of increased countermeasure capability and a concept evaluation of an Submarine Fleet Mission Program Library (SFMPL) interface. Due to the sensitivity of TRIDENT programs it is assessed that international technology will not have a major impact or be a recipient of the benefits derived from this effort. Development strategies will significantly enhance the sustainability and operability of the sonar, communications and Combat Control Systems on TRIDENTs by evaluating both Obsolete Equipment Replacement (OER) possibilities and potential improvements.

The TRIDENT Submarine System Improvement Program develops and integrates command and control improvements needed to maintain TRIDENT Submarine operational capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce lifecycle costs through Obsolete Equipment Replacement (OER) and commonality.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
TRIDENT Submarine System Improvement	0.347	0.384	0.431	0.000	0.431
FY 2009 Accomplishments: (U) Conducted Commercial Off The Shelf (COTS)/emergent technology and Command Control System (CCS) performance requirements evaluations supporting Trident modernization program/ plans. Researched and evaluated effectiveness of proposed new technology over the ships' life					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0004: *TRIDENT Submarine System Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
cycle. Analyzed impacts on platform performance with proposed new technology changes using architecture models and tests. Studied and identified options in selecting and installing new technology improvements. Evaluated Navigation data interface requirements to meet Electronic Chart Display and Information System Navy (ECDIS-N) compliance on Trident hulls. Completed Communication Command and Control (CCC) Concept of Operations (CONOPS) study to accommodate Revision 7.3 (MK2 ECP4) installation. Provided arrangement layouts Government Furnished Information (GFI) to Electric Boat (EB) Ship Design Agent (SDA). *FY 2010 Plans:* (U) Conduct Commercial Off The Shelf (COTS)/emergent technology and Command Control System (CCS) performance requirements evaluations supporting Trident modernization program/plans. Research and evaluate effectiveness of proposed new technology over the ships' life cycle. Analyze impacts on platform performance with proposed new technology changes using architecture models and tests. Study and identify options in selecting and installing new technology improvements. Evaluate Navigation data interface requirements to meet Electronic Chart Display and Information System Navy (ECDIS-N) compliance on Trident hulls. Provide arrangement layouts Government Furnished Information (GFI) to Electric Boat (EB) Ship Design Agent (SDA). *FY 2011 Base Plans:* (U) Conduct Commercial Off The Shelf (COTS)/emergent technology and Command Control System (CCS) performance requirements evaluations supporting Trident modernization program/plans. Research and evaluate effectiveness of proposed new technology over the ships' life cycle. Analyze impacts on platform performance with proposed new technology changes using architecture models and tests. Study and identify options in selecting and installing new technology improvements. Evaluate Navigation data interface requirements to meet Electronic Chart Display and Information System Navy (ECDIS-N) compliance on Trident hulls. Provide arrangement layouts Government Furnished Information (GFI) to Electric Boat (EB) Ship Design Agent (SDA).					
Accomplishments/Planned Programs Subtotals	0.347	0.384	0.431	0.000	0.431

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0004: *TRIDENT Submarine System Improvement*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Efforts conducted by U.S. Navy laboratories.

E. Performance Metrics

Not applicable

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0951: *Joint Warhead Fuze Sustainment Program*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0951: *Joint Warhead Fuze Sustainment Program*	0.000	14.008	33.100	0.000	33.100	33.300	23.600	23.800	24.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Joint Warhead Fuze Sustainment Program is a development and studies program which integrates modern technologies into the Arming, Fuzing, and Firing (AF&F) development and modernization to improve reliability, safety and security, and develop common fuze components adaptable to current and future warheads. The Joint Warhead Fuze Sustainment Program will focus on technologies that have multi-service (Navy and Air Force) and Multi-Nation (US and UK) applicability. Examples of the technologies to be investigated are advance safety systems architectures, improved radar performance, multi-chip radar integration, radiation hardened electronics, radiation hardened non-volatile memory, advance power systems, identification of component qualification techniques, and preliminary testing of alternative components (primarily circuit elements.)

A study will be conducted to determine what surety, safety, and ambiguity issues may exist if SSBNs were outloaded with both conventional and nuclear payloads.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
TRIDENT II	0.000	14.008	33.100	0.000	33.100
Identify, prioritize, develop, proof, and demonstrate advanced technologies that will be leveraged and incorporated into future AF&Fs. *FY 2010 Plans:* (U) FY 2010 PLAN (U) ($14.008) Joint Warhead Fuze Sustianment Program (U) Support USN, USAF, and UK engineer working group. (U) Perform component level testing of potential arming/fuzing devices and technologies.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0951: *Joint Warhead Fuze Sustainment Program*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(U) Develop approach to address radiation hardening issues in electronic AF&F components. *FY 2011 Base Plans:* (U) FY 2011 PLAN (U) ($23.100) Joint Warhead Fuze Sustianment Program (U) Develop, proof, and demonstrate identified advanced technologies for future AF&Fs (U) Support USN, USAF, and UK engineer working group. (U) Perform component level testing of potential arming/fuzing devices and technologies. (U) Develop safety architecture solution. (U) ($10.0M) Global Strike (U) Conduct a study to determine what surety, safety, and ambiguity issues may exist if SSBNs were outloaded with both conventional and nuclear payloads.					
Accomplishments/Planned Programs Subtotals	0.000	14.008	33.100	0.000	33.100

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Contracts will continue to be awarded to those sources who were engaged in the Mk4LE Reentry Body development program and are currently engaged in the production and/or operational support of the deployed Mk4LE Reentry Body on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4

E. Performance Metrics

Not applicable

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0951: *Joint Warhead Fuze Sustainment Program*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Joint Warhead Fuze Sustainment DOE	MIPR	DOE NM	0.000	12.541	Jan 2010	20.600	Oct 2010	0.000		20.600	Continuing	Continuing	Continuing
Joint Warhead Fuze Sustainment ITT	SS/CPFF	ITT VA	0.000	0.610	Jan 2010	1.000	Oct 2010	0.000		1.000	Continuing	Continuing	Continuing
Joint Warhead Fuze Sustainment LMMS	SS/CPFF	LMMS CA	0.000	0.857	Jan 2010	1.500	Oct 2010	0.000		1.500	Continuing	Continuing	Continuing
Global Strike Study	MIPR	DOE NM	0.000	0.000		3.000	Oct 2010	0.000		3.000	3.000	6.000	6.000
Global Strike Study	SS/CPFF	LMMS CA	0.000	0.000		7.000	Oct 2010	0.000		7.000	7.000	14.000	14.000
		Subtotal	0.000	14.008		33.100		0.000		33.100			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	14.008		33.100		0.000		33.100			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0951: *Joint Warhead Fuze Sustainment Program*	

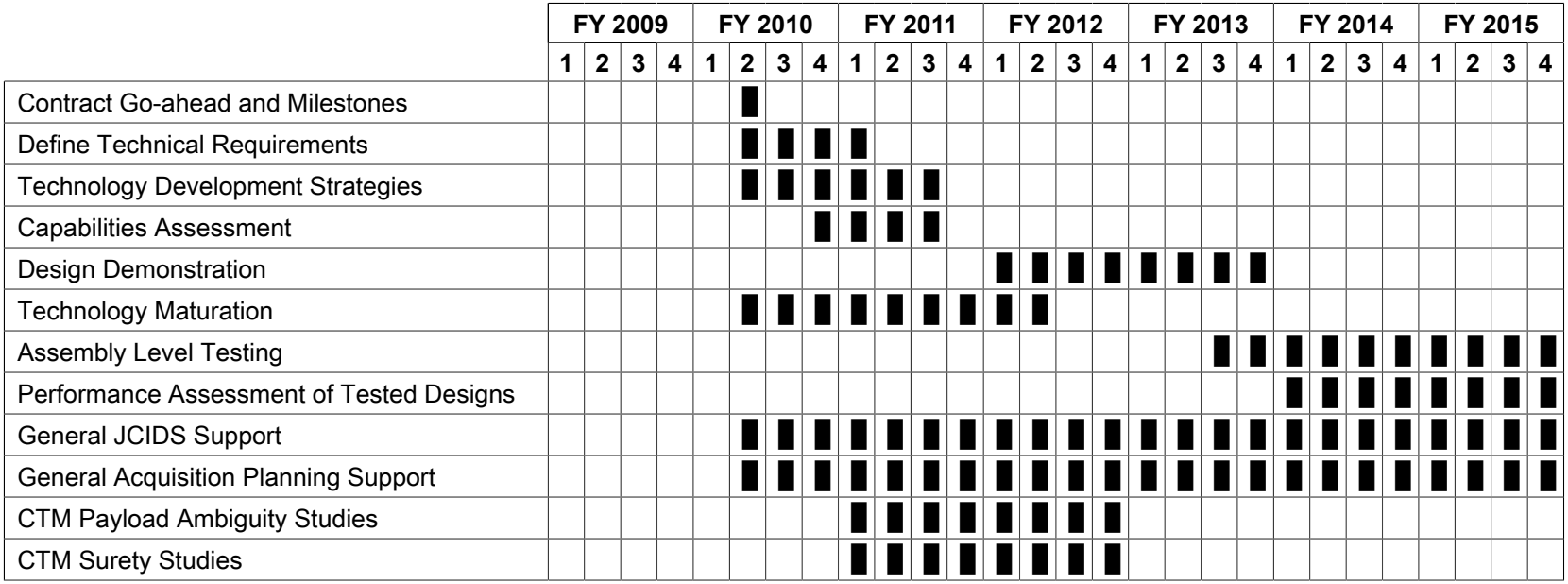

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101221N: *Strategic Sub & Wpns Sys Supt*	**PROJECT** 0951: *Joint Warhead Fuze Sustainment Program*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Contract Go-ahead and Milestones	2	2010	2	2010
Define Technical Requirements	2	2010	1	2011
Technology Development Strategies	2	2010	3	2011
Capabilities Assessment	4	2010	3	2011
Design Demonstration	1	2012	4	2013
Technology Maturation	2	2010	2	2012
Assembly Level Testing	3	2013	4	2015
Performance Assessment of Tested Designs	1	2014	4	2015
General JCIDS Support	2	2010	4	2015
General Acquisition Planning Support	2	2010	4	2015
CTM Payload Ambiguity Studies	1	2011	4	2012
CTM Surety Studies	1	2011	4	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2228: *Technical Applications Programs*	42.099	45.448	43.015	0.000	43.015	44.708	47.450	48.516	24.435	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 supports implementation of a coordinated Navy/Air Force Reentry System Applications Program (RSAP), and a coordinated Navy/Air Force Strategic Guidance Applications Program (GAP). Reentry vehicle and guidance technology had been rapidly eroding beyond the point of being capable to respond to increasing aging phenomena and future requirements. The December 2001 DOD Nuclear Posture Review determined that infrastructure is a critical part of the new triad and these efforts form part of the infrastructure that supports the nuclear force structure.

The RSAP program, through sustainment of the reentry vehicle technology base, will maintain confidence in the dependability and reliability of strategic SLBM and ICBM weapon systems over the long term when no new systems will be in development. Critical and unique attributes necessary for the design, development and in-service support of current and modernized SLBM reentry systems have been defined and will be maintained to ensure a functioning readiness application technical capability in reentry is preserved. Working closely with the Air Force, Navy and Air Force requirements have been integrated into a comprehensive program. The program maintains close coordination with the DOD Science and Technology (S&T) community in order to: leverage S&T programs, ensure system driven technology base requirements are considered in contract awards, eliminate duplication of effort and provide an opportunity to demonstrate appropriate emerging technologies through a reentry flight test evaluation process.

The GAP program provides a minimum strategic guidance core technology development capability consistent with the Strategic Advisory Group (SAG) recommendations to COMSTRATCOM. The SAG recommended that SSP establish a program which preserves this critical design and development core. It is a basic bridge program which develops critical guidance technology applicable to any of the existing Air Force/Navy strategic missiles. The objective is to transition from current capability to a long term readiness status required to support deployed systems. Air Force and Navy guidance technology requirements are integrated and needs prioritized. Efforts are focused on alternatives to technologies identified as system "weak links." Currently system accuracy and functionality depends upon key technologies which provide radiation hardened velocity, attitude and stellar sensing capabilities. As the underlying technologies that currently provide these capabilities age and are no longer technically supportable, modern alternatives must be made available in order to allow for orderly replacement. There is no commercial market for these technologies and their viability depends on the strategic community.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Reentry Vehicle Sustainment Tech	42.099	45.448	43.015	0.000	43.015

FY 2009 Accomplishments:

(U) ($.199) Acquisition Workforce Fund-2009
FY 2009 efforts included:
(U) Acquisition Workforce Fund-2009

(U) ($24.727) Continued Reentry System Applications Program.
FY 2009 efforts included:
(U) Maintained the current capability and supported the planned service life extension of Navy reentry systems.
(U) Continued development and ground testing of reentry vehicle candidate heat shield and nose tip materials including those available from Science & Technology (S&T)
(U) Conducted flight tests on alternative low-cost heat shield and replacement nose tip material.
(U) Conducted flight tests on operationally aged heat shields to support aging trends and replacement materials assessments.
(U) Completed development and flight tested advanced reentry instrumentation such as inertial sensor avionics computer, encapsulated on the updated engineering instrumentation package.
(U) Maintained RSAP technical program plan, conducted system assessments and continued Vulnerability & Hardening certification process development in absence of Nuclear Under Ground Testing (UGT) facilities.
(U) Continued Reentry Body material development and advanced flight test instrumentation activities.
(U) Continued development of advanced GPS receiver.
(U) Conducted ground test on advanced reentry material systems and advanced instrumentation components.
(U) Developed test instrumentation to demonstrate D5LE missile reentry body interface compatibility.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(U) ($17.173) Continued Strategic Guidance Applications Programs (GAP). FY 2009 efforts included: (U) Developed new architectures using telecom-based optical components for high-precision strategic gyro. (U) Continued to evaluate emergent alternate sensor technologies, (accelerometer, gyro, and stellar) with an emphasis on providing existing performance in a significantly reduced form factor. (U) Assessed feasibility of advanced stellar sensor technologies for use in strategic applications; specifically, active pixel and camera-on-a-chip architectures were evaluated. (U) Utilized the capabilities of the Virtual System Simulation (VSSim) to conduct system trade studies that support precision guidance application for boost phase and boost-thru-reentry scenarios. (U) Conducted investigations to improve circumvention and recovery performance. (U) Continued design, build, evaluate and demonstrate SOA as a strategic grade accelerometer. *FY 2010 Plans:* (U) ($23.953) Continue Reentry System Applications Program. FY 2010 efforts include: (U) Maintain the current capability and support the planned service life extension of Navy reentry systems. (U) Continue development and ground testing of reentry vehicle candidate heat shield and nose tip materials including those available from Science & Technology (S&T) (U) Flight test alternative low-cost heat shield and replacement nose tip material. (U) Flight test operationally aged heat shields to support aging trends and replacement materials assessments.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(U) Maintain RSAP technical program plan, conduct system assessments and continue Vulnerability & Hardening certification process development in absence of Nuclear Under Ground Testing (UGT) facilities. (U) Continue Reentry Body material development and advanced flight test instrumentation activities. (U) Continue development of advanced GPS receiver. (U) Ground test advanced reentry material systems and advanced instrumentation components. (U) Develop test instrumentation to demonstrate D5LE missile reentry body interface compatibility.					
(U) ($21.495) Continue Strategic Guidance Applications Programs (GAP). FY 2010 efforts include: (U) Develop new architectures using telecom-based optical components for high-precision strategic gyro. (U) Continue to evaluate emergent alternate sensor technologies, (accelerometer, gyro, and stellar) with an emphasis on providing existing performance in a significantly reduced form factor. (U) Assess feasibility of advanced stellar sensor technologies for use in strategic applications; specifically, active pixel and camera-on-a-chip architectures will be evaluated. (U) Utilize the capabilities of the Virtual System Simulation (VSSim) to conduct system trade studies that support precision guidance application for boost phase and boost-thru-reentry scenarios. (U) Conduct investigations to improve circumvention and recovery performance. (U) Continue design, build, evaluate and demonstrate SOA as a strategic grade accelerometer.					
FY 2011 Base Plans: (U) ($22.574) Continue Reentry System Applications Program. FY 2011 efforts include:					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(U) Maintain the current capability and support the planned service life extension of Navy reentry systems. (U) Continue development and ground testing of reentry vehicle candidate heat shield and nose tip materials including those available from Science & Technology (S&T) (U) Flight test alternative low-cost heat shield and replacement nose tip material. (U) Analyze advanced aging material to determine its effectiveness. (U) Flight test operationally aged heat shields to support aging trends and replacement materials assessments. (U) Maintain RSAP technical program plan, conduct system assessments and continue Vulnerability & Hardening certification process development in absence of Nuclear Under Ground Testing (UGT) facilities. (U) Continue Reentry Body material development and advanced flight test instrumentation activities. (U) Flight Test the advanced radiation tolerant GPS receiver (U) Ground test advanced reentry material systems and advanced instrumentation components.					
(U) ($20.441) Continue Strategic Guidance Applications Programs (GAP). FY 2011 efforts include: (U) Continue to develop new architectures using telecom-based optical components for high-precision strategic gyro. (U) Continue to evaluate emergent alternate sensor technologies, (accelerometer, gyro, and stellar) with an emphasis on providing existing performance in a significantly reduced form factor. (U) Assess feasibility of advanced stellar sensor technologies for use in strategic applications; specifically, active pixel and camera-on-a-chip architectures will be evaluated. (U) Utilize the capabilities of the Virtual System Simulation (VSSim) to conduct system trade studies that support precision guidance application for boost phase and boost-thru-reentry scenarios. (U) Investigate concepts for enhanced system test and analysis (U) Conduct investigations to improve circumvention and recovery performance.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	42.099	45.448	43.015	0.000	43.015

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Contracts will continue to be awarded to those sources who were engaged in the TRIDENT II (D5) development program and are currently engaged in the production and/or operational support of the deployed D5 Strategic Weapons Systems on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4

E. Performance Metrics

Not applicable

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Applications LMSS	SS/CPFF	LMSS CA	129.883	10.471	Jan 2010	11.340	Oct 2010	0.000		11.340	Continuing	Continuing	Continuing
Technology Applications NSWC	C/FP	NSWC VA	73.843	5.216	Jan 2010	3.780	Oct 2010	0.000		3.780	Continuing	Continuing	Continuing
Technology Applications DOE	C/FP	DOE NM	27.518	1.573	Jan 2010	0.945	Oct 2010	0.000		0.945	Continuing	Continuing	Continuing
Technology Applications ITT	C/FP	ITT CO	7.700	1.488	Jan 2010	0.945	Oct 2010	0.000		0.945	Continuing	Continuing	Continuing
Technology Applications CSDL	C/FP	CSDL MA	231.807	25.189	Jan 2010	24.569	Oct 2010	0.000		24.569	Continuing	Continuing	Continuing
Technology Applications VAR	Various/ Various	VARIOUS VARIOUS	16.713	1.511	Jan 2010	1.436	Oct 2010	0.000		1.436	Continuing	Continuing	Continuing
		Subtotal	487.464	45.448		43.015		0.000		43.015			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	487.464	45.448		43.015		0.000		43.015			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

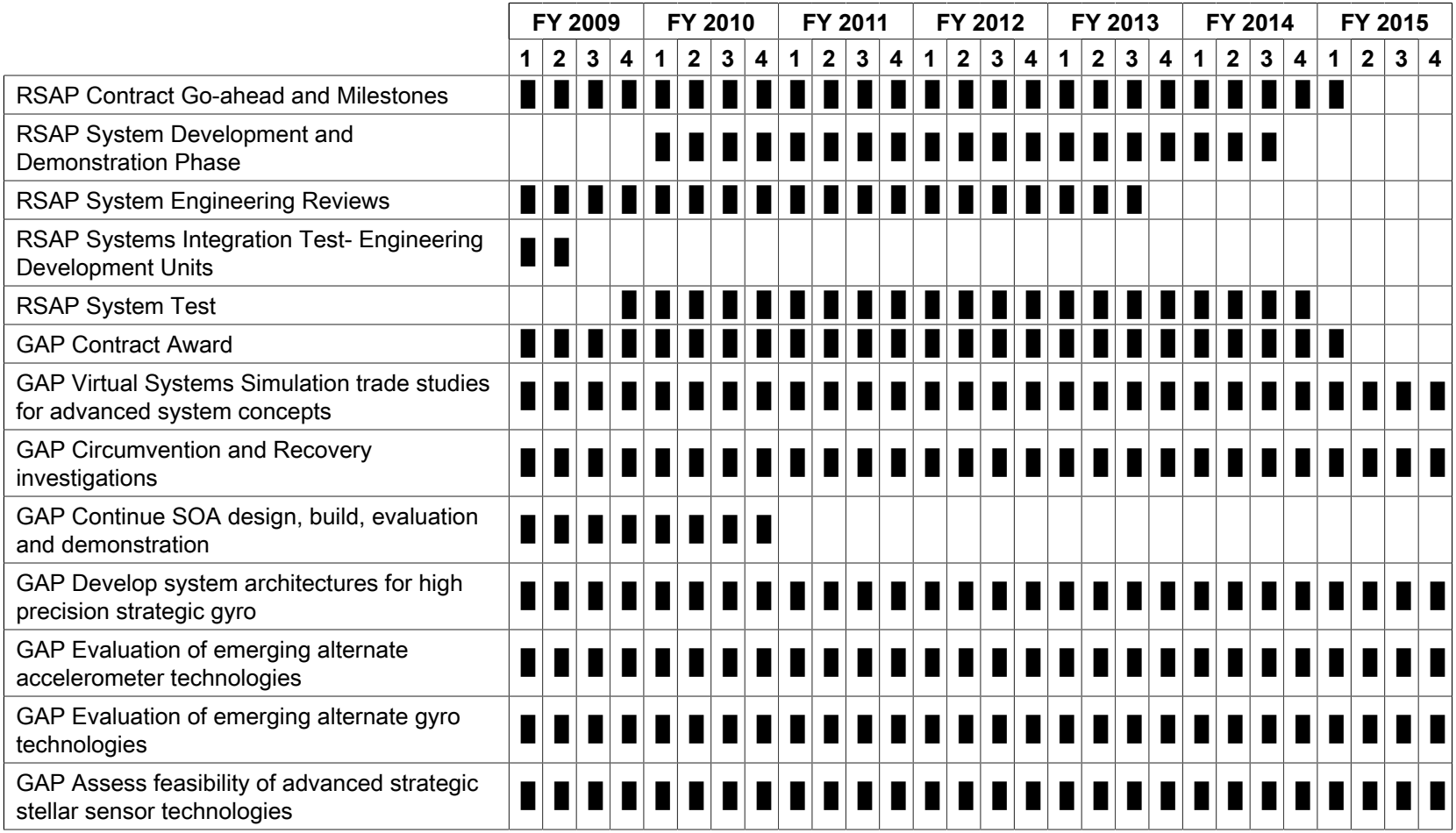

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101221N: *Strategic Sub & Wpns Sys Supt*	**PROJECT** 2228: *Technical Applications Programs*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
RSAP Contract Go-ahead and Milestones	1	2009	1	2015
RSAP System Development and Demonstration Phase	1	2010	3	2014
RSAP System Engineering Reviews	1	2009	3	2013
RSAP Systems Integration Test- Engineering Development Units	1	2009	2	2009
RSAP System Test	4	2009	4	2014
GAP Contract Award	1	2009	1	2015
GAP Virtual Systems Simulation trade studies for advanced system concepts	1	2009	4	2015
GAP Circumvention and Recovery investigations	1	2009	4	2015
GAP Continue SOA design, build, evaluation and demonstration	1	2009	4	2010
GAP Develop system architectures for high precision strategic gyro	1	2009	4	2015
GAP Evaluation of emerging alternate accelerometer technologies	1	2009	4	2015
GAP Evaluation of emerging alternate gyro technologies	1	2009	4	2015
GAP Assess feasibility of advanced strategic stellar sensor technologies	1	2009	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3158: *Integrated Nuclear Weapons Security Sys Dev*	20.904	5.801	4.638	0.000	4.638	4.643	4.634	4.644	4.649	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Enhanced Special Weapons effort supports the Nuclear Weapons Security program and SSBN Escort mission. The policies and requirements regarding the safeguard of nuclear weapons within the Department of Defense is established by DoD S5210.41M. Within the Department of the Navy, nuclear weapons are limited to TRIDENT Fleet Ballistic Missiles (FBM), either deployed aboard TRIDENT submarines or located landside at Naval Submarine Base, Kings Bay or Naval Submarine Base, Bangor where missiles are first assembled as well as repaired. The Chief of Naval Operations (CNO) has assigned the Strategic Systems Programs, the FBM program manager, with mission responsibility for the safeguard of FBM nuclear assets. More specifically, the mission includes landside and pier operations as well as transits to and from the dive point, each of which present challenges to personnel as well as existing technologies. This budget supports efforts directed at improving the current technological baseline through a series of studies focusing on land, waterside, and in transit requirements, including both surface and underwater. Collectively, these efforts will improve countermeasure technologies addressing detection, delay and denial.

The Palletized Protection System (PPS) is a self contained, autonomous, readily transportable, limited area defense anti-missile system designed to protect high value critical assets from threat missiles by either disrupting their guidance and control systems, or physically intercepting and destroying them in flight. PPS is designed to be emplaced on an escort vessel and two U.S. Coast Guard 87-foot Coastal Patrol Boats. PPS development efforts funded in FY2007 and FY2008 were delayed due to technical and developmental issues. An above threshold reprogramming action was processed to fund additional FY2009 efforts required to complete test and evaluation efforts. Subsequent to the reprogramming, the PPS contract was terminated and all PPS development efforts have been cancelled. A portion of the FY09 funding is required to address contract termination costs.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NWSPE Development	20.904	5.801	4.638	0.000	4.638

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: (U) ($0.004) Acquisition Workforce Fund-2009 (U) ($20.900) Enhanced Special Weapons/Nuclear Weapons Security program. FY 2009 efforts included: (U) Underwater Close-in Defense: This effort focused on developing an advanced underwater vehicle and diver detection and deterrence system for the protection of high value maritime assets while they are in port. The conceptual system involved a physical net-like barrier that combines use of fiber-optic sensing and alerting technology to provide an extremely high positive detection rate and extremely low false alarm rate. The concept design also included increased alert time to improve positive identification of intruders and for activation of response systems. (U) Technology Reviews: This program investigated subsurface sensors in multi-sensor configurations, continued taut wire defeat barrier research and researched low frequency subsurface sensors. The underwater denial system design is ongoing and lethality testing has begun. (U) PPS development efforts funded in FY2007 and FY2008 were delayed due to technical and developmental issues. An above threshold reprogramming action was processed to fund additional FY2009 efforts required to complete test and evaluation efforts. Subsequent to the reprogramming, the PPS contract was terminated and all PPS development efforts have been cancelled. A portion of the FY09 funding is required to address contract termination costs. *FY 2010 Plans:* (U) FY 2010 PLAN (U) ($5.801) Enhanced Special Weapons/Nuclear Weapons Security program. FY 2010 efforts include: (U) Continue efforts focused on developing an advanced underwater vehicle and diver detection and deterrence system, and enhanced underwater and surface barriers.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(U) Develop advanced technologies for Site-Wide Nuclear Weapons Security Systems including a secure wireless command network and enhanced automated security systems. (U) Develop advanced technologies for Limited Area/Convoy Route Nuclear Weapons Security Systems including extended perimeter detection, vehicle barrier systems at entry control points, and enhanced tracking capabilities. (U) Technology Reviews: The systems will undergo further testing prior to production decisions. *FY 2011 Base Plans:* (U) FY 2011 PLAN (U) ($4.638) Enhanced Special Weapons/Nuclear Weapons Security program. FY 2011 efforts include: (U) Continue efforts focused on developing an advanced underwater vehicle and diver detection and deterrence system, and enhanced underwater and surface barriers. (U) Continue development of advanced technologies for Site-Wide Nuclear Weapons Security Systems including a secure wireless command network and enhanced automated security systems. (U) Continue development of advanced technologies for Limited Area/Convoy Route Nuclear Weapons Security Systems including extended perimeter detection, vehicle barrier systems at entry control points, and enhanced tracking capabilities. (U) Technology Reviews: The systems will undergo further testing prior to production decisions.					
Accomplishments/Planned Programs Subtotals	20.904	5.801	4.638	0.000	4.638

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• MCN/Various-1: *MILCON (CNI) (Nuclear Weapons Security)*	56.830	154.711	19.116	0.000	19.116	0.000	0.000	0.000	0.000	Continuing	Continuing
	50.433	40.401	47.815	0.000	47.815	56.896	60.190	50.889	48.382	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/Various-2: *OPN (Nuclear Weapons Security)*											
• OMN/11D2D-3: *Fleet Ballistic Missile (Nuclear Weapons Security)*	77.424	75.046	76.097	0.000	76.097	77.831	81.229	86.745	90.305	Continuing	Continuing
• MCN/Various-4: *MILCON (CNI) (Transit/Escort)*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OMN/11D2D-5: *Fleet Ballistic Missile (Transit/Escort)*	90.139	137.369	134.876	0.000	134.876	135.846	130.629	116.371	119.711	Continuing	Continuing
• WPN/44217-6: *Gun Mount Mods*	1.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPN/Various-7: *OPN (Transit/ Escort)*	2.012	11.972	2.011	0.000	2.011	69.355	2.081	70.529	71.760	Continuing	Continuing

D. Acquisition Strategy

Procurements are being executed through a combination of private contractors (large and small business), government Centers of Excellence (COEs), other government agencies and the Naval Submarine Bases, Kitsap and Kings Bay. Contract awards are based upon "best value" determinations, and where practical will be performance based or include incentive provisions.

E. Performance Metrics

Not applicable

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Nuclear Weapons Security Sys Dev	WR	NFESC CA	3.597	0.990	Nov 2009	0.800	Oct 2010	0.000		0.800	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	CNWS CA	0.000	0.389	Jan 2010	0.300	Oct 2010	0.000		0.300	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	C/FP	JHU APL MD	0.000	0.944	Jan 2010	0.718	Oct 2010	0.000		0.718	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	SNSW CA	0.000	1.827	Jan 2010	1.400	Oct 2010	0.000		1.400	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NSWC VA	0.000	0.677	Nov 2009	0.550	Oct 2010	0.000		0.550	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	C/FP	JRC VA	0.000	0.236	Jan 2010	0.250	Oct 2010	0.000		0.250	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NUWC RI	0.000	0.075	Jan 2010	0.075	Oct 2010	0.000		0.075	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NEDU FL	0.000	0.368	Jan 2010	0.250	Oct 2010	0.000		0.250	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	SS/FP	LMMS CA	0.000	0.295	Jan 2010	0.295	Oct 2010	0.000		0.295	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Nuclear Weapons Security Sys Dev	Various/ Various	Various Various	0.000	0.000	Jan 2010	0.000	Oct 2010	0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	3.597	5.801		4.638		0.000		4.638			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.597	5.801		4.638		0.000		4.638			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*	

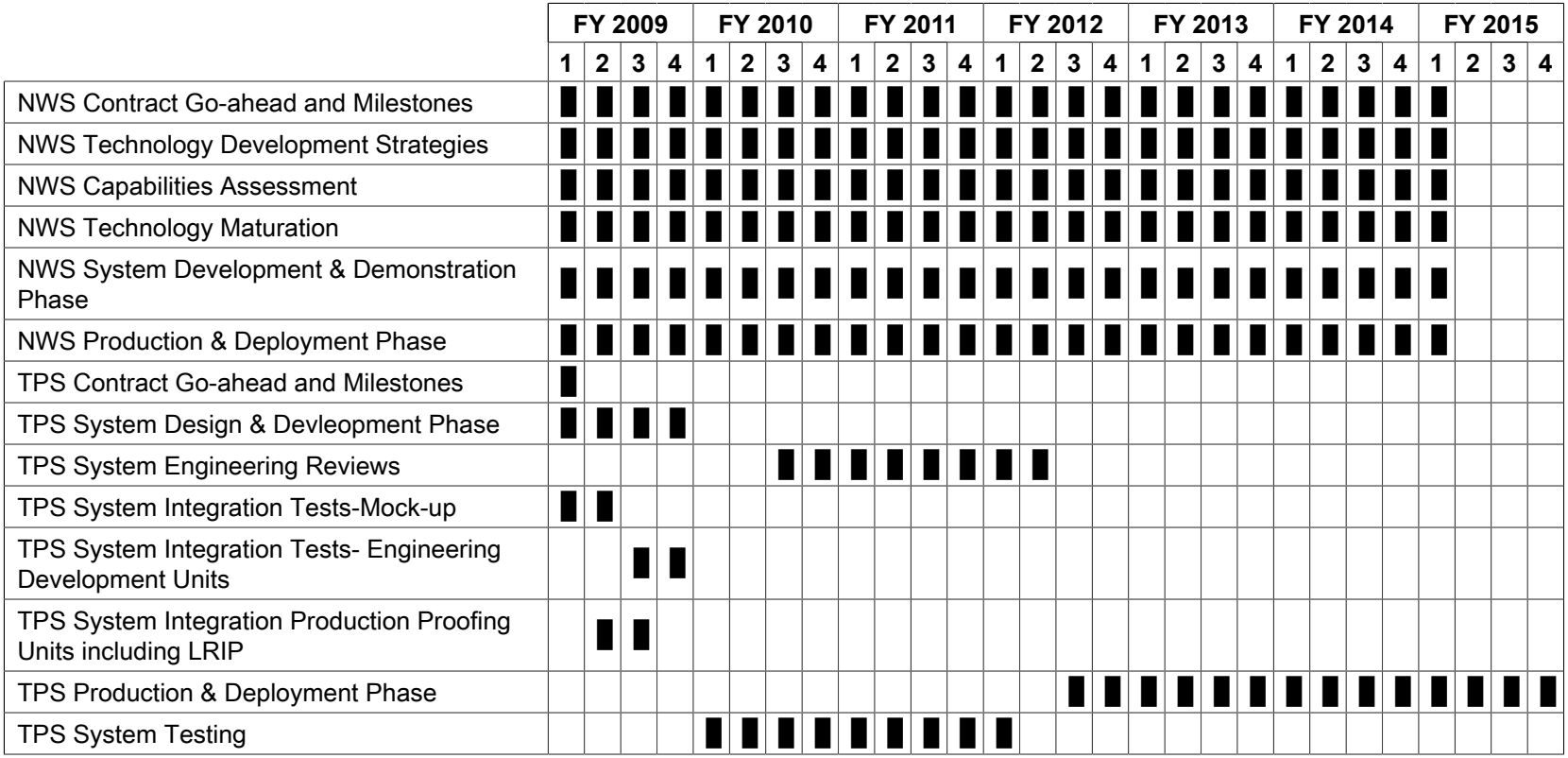

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101221N: *Strategic Sub & Wpns Sys Supt*	**PROJECT** 3158: *Integrated Nuclear Weapons Security Sys Dev*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
NWS Contract Go-ahead and Milestones	1	2009	1	2015
NWS Technology Development Strategies	1	2009	1	2015
NWS Capabilities Assessment	1	2009	1	2015
NWS Technology Maturation	1	2009	1	2015
NWS System Development & Demonstration Phase	1	2009	1	2015
NWS Production & Deployment Phase	1	2009	1	2015
TPS Contract Go-ahead and Milestones	1	2009	1	2009
TPS System Design & Devleopment Phase	1	2009	4	2009
TPS System Engineering Reviews	3	2010	2	2012
TPS System Integration Tests-Mock-up	1	2009	2	2009
TPS System Integration Tests- Engineering Development Units	3	2009	4	2009
TPS System Integration Production Proofing Units including LRIP	2	2009	3	2009
TPS Production & Deployment Phase	3	2012	4	2015
TPS System Testing	1	2010	1	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3198: *Underwater Launch Missile System (ULMS)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3198: *Underwater Launch Missile System (ULMS)*	9.726	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.726
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Underwater Launch Missile System (ULMS) effort developed capabilities definitions and assessments, science & technology development strategies, and conceptual work to prepare for R&D and future prototyping.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Underwater Launch Missile System (ULMS)	9.726	0.000	0.000	0.000	0.000
The Underwater Launch Missile System (ULMS) effort developed capabilities definitions and assessments, science & technology development strategies, and conceptual work to prepare for R&D and future prototyping. *FY 2009 Accomplishments:* (U) ($0.048) Acquisition Workforce Fund-2009 FY 2009 efforts included: (U) Acquisition Workforce Fund-2009 (U) ($9.678) The Underwater Launch Missile System (ULMS)					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3198: *Underwater Launch Missile System (ULMS)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 efforts included: (U) Developed Joint Capabilities Integrated Development System (JCIDS) required Capabilities-based Assessments to achieve an approved Initial Capabilities Document (ICD). (U) Developed technology assessments and roadmap leading to approved Technology Development Strategy (TDS). (U) Developed concepts for top-level integration studies, to analyze performance and cost drivers, and to begin analysis of alternatives. (U) Developed, updated and exercised design and modeling tools including cost modeling methodology for total-ship integration.					
Accomplishments/Planned Programs Subtotals	9.726	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Contracts were awarded to a combination of private contractors (large and small business) and other government agencies. Contract awards are based upon "best value" determinations.

E. Performance Metrics

Not applicable

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	21.941	3.744	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.648
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional adds

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: ADVANCED LINEAR ACCELERATOR (LINAC) FACILITY *FY 2009 Accomplishments:* (U) Completed the design for an Advanced Linear Accelerator Facility to perform radiation simulation of transient dose rate events. *FY 2010 Plans:* (U) Complete all construction, testing and characterization activities necessary for a fully functional and operational dose rate test facility.	3.191	0.956
Congressional Add: Adelos National Security Sensor System *FY 2009 Accomplishments:* (U) Expanded the application of the BLUE ROSE fiber optic sensor system to meet nuclear weapons and facilities metrics. (U) Completed development and testing of algorithms designed to classify identified targets and reduce false positive readings.	1.995	2.788

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2010 Plans: (U) Extend the technology of Adelos to incorporate its application in a saltwater littoral environment and define appropriate signatures and signature correlation algorithms development for the Nuclear Weapons Security Program. (U) Determine response times to detect, classify and localize and capacity. This efforts includes conducting technology tests and demonstrations in the use environment and a report of results.		
Congressional Add: Enhanced Special Weapons/Nuclear Weapons Security *FY 2009 Accomplishments:* (U) Supported work in support of communication capabilities to convey classification and location information produced by the Adelos application. (U) Completed development and testing of algorithms designed to transit data within a secure network using steganographic techniques.	1.596	0.000
Congressional Add: Advanced Technology for Mk5 AF&F *FY 2009 Accomplishments:* (U) Continued work in support of advanced technologies. (U) Supported USN, USAF, and UK engineer working group. (U) Completed Light Initiated High Explosives proof of concept and generate test report. (U) Completed the down selection of new path length sensor technology. (U) Generated a Facilities Readiness Document. (U) Defined Reentry Body/Reentry Vehicle Safety and Systems Architecture and Investigate Safety Architecture Trades.	9.973	0.000
Congressional Add: Covert Robust Location Aware Wireless Network	1.596	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: (U) Completed development of a key foundation technology enabler in support of the Covert Robust Location Aware Wireless Network.		
Congressional Add: Maritime Security-Surface and Sub-surface Surveill *FY 2009 Accomplishments:* (U) Completed development of a year round test bed to develop and test potential nuclear weapons security technologies.	3.590	0.000
Congressional Adds Subtotals	21.941	3.744

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Contracts were awarded to a combination of private contractors (large and small business) and other government agencies as required to complete the objectives of each congressional add.

E. Performance Metrics

Not applicable

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101226N: *Submarine Acoustic War Dev*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	7.150	7.181	6.815	0.000	6.815	6.993	7.100	7.282	7.378	Continuing	Continuing
1265: *Sub Defensive Warfare*	7.150	7.181	6.815	0.000	6.815	6.993	7.100	7.282	7.378	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project develops a Submarine Defensive Warfare System (SDWS) to improve the effectiveness and survivability of all classes of US Submarines. Next Generation Countermeasure (NGCM) efforts entail simulating and determining the effectiveness of new technologies and capabilities developed under the Future Naval Capabilities (FNC), Small Business and Innovative Research (SBIR), and other RDT&E initiatives. New and emerging hardware and software are rigorously evaluated in a representative acoustic environment through both digital and hardware-in-the-loop simulations, to determine their readiness for inserting this technology into the NGCM.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	7.358	7.211	0.000	0.000	0.000
Current President's Budget	7.150	7.181	6.815	0.000	6.815
Total Adjustments	-0.208	-0.030	6.815	0.000	6.815
• Congressional General Reductions		-0.030			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.208	0.000			
• Program Adjustments	0.000	0.000	6.815	0.000	6.815

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101226N: *Submarine Acoustic War Dev*

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101226N: *Submarine Acoustic War Dev*	PROJECT 1265: *Sub Defensive Warfare*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1265: *Sub Defensive Warfare*	7.150	7.181	6.815	0.000	6.815	6.993	7.100	7.282	7.378	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 a Submarine Defensive Warfare System (SDWS) to improve the effectiveness and survivability of all classes of US Submarines. Next Generation Countermeasure (NGCM) efforts entail simulating and determining the effectiveness of new technologies and capabilities developed under the Future Naval Capabilities (FNC), Small Business and Innovative Research (SBIR), and other RDT&E initiatives. New and emerging hardware and software are rigorously evaluated in a representative acoustic environment through both digital and hardware-in-the-loop simulations, to determine their readiness for inserting this technology into the NGCM.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Sub Defensive Warfare	7.150	7.181	6.815	0.000	6.815
FY 2009 Accomplishments: FY09 Continued to conduct countermeasure proofing and effectiveness analysis for designated torpedo at Weapons Analysis Facility (WAF). FY09 Continued integration of technology inserts					
FY 2010 Plans: FY10 Continue to conduct countermeasure proofing and effectiveness analysis for designated torpedo at Weapons Analysis Facility (WAF). FY10 Conduct Contractor Testing FY10 Continue integration of technology inserts					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101226N: *Submarine Acoustic War Dev*	PROJECT 1265: *Sub Defensive Warfare*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY11 Continue to conduct countermeasure proofing and effectiveness analysis for designated torpedo at Weapons Analysis Facility (WAF). FY11: Milestone C and D/T Testing					
Accomplishments/Planned Programs Subtotals	7.150	7.181	6.815	0.000	6.815

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/221000/221005: *Submarine Accoustic Warfare*	19.876	13.439	20.739	0.000	20.739	21.151	21.494	21.876	22.215	0.000	203.190

D. Acquisition Strategy

This project develops a Submarine Defensive Warfare System (SDWS) to improve the effectiveness and survivability of all classes of US Submarines. The integration of technology insertions into the Next Generation Countermeasure (NGCM) will continue through FY10. Contractor testing will be conducted in FY10 and Milestone C is planned for FY11.

The proposed procurement will be through a full and open competition for the Engineering Manufacturing and Development(EMD) contract. One or multiple Cost Plus Fixed Fee (CPFF) contract(s) will be awarded in which the Offeror will be required to develop, test and produce the NGCM according to the Prime Item Performance Specification (PIPS). Anticipate contract award 2nd Qtr FY10.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101226N: *Submarine Acoustic War Dev*	PROJECT 1265: *Sub Defensive Warfare*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
WAF ANALYSIS SYSTEM ENGINEERING	WR	NUWC NEWPORT, RI	7.500	1.500	Dec 2009	1.500	Dec 2010	0.000		1.500	Continuing	Continuing	Continuing
NGCM SYSYTEM ENGINEERING	WR	NUWC NEWPORT, RI	12.294	0.350	Dec 2009	0.350	Dec 2010	0.000		0.350	Continuing	Continuing	Continuing
NGCM DEVELOPMENT	C/CPAF	CONTRACTOR TBD	1.200	4.906	Feb 2010	4.540	Feb 2011	0.000		4.540	Continuing	Continuing	Continuing
NGCM SYSTEM ENGINEERING	WR	NUWC KEPORT, WA	0.620	0.050	Feb 2010	0.050	Dec 2010	0.000		0.050	Continuing	Continuing	Continuing
		Subtotal	21.614	6.806		6.440		0.000		6.440			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ACQUISITION WORKFORCE	Various/ Various	Not Specified Not Specified	0.036	0.000		0.000		0.000		0.000	0.000	0.036	0.036
TRAVEL	WR	Not Specified Not Specified	0.275	0.075	Jan 2010	0.075	Nov 2010	0.000		0.075	Continuing	Continuing	Continuing
	C/CPAF	TECH MARINE BURKE, VA	0.250	0.300	Feb 2010	0.300	Feb 2011	0.000		0.300	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101226N: *Submarine Acoustic War Dev*	PROJECT 1265: *Sub Defensive Warfare*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PROGRAM MANAGEMENT SUPPORT													
		Subtotal	0.561	0.375		0.375		0.000		0.375			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	22.175	7.181		6.815		0.000		6.815			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101226N: *Submarine Acoustic War Dev*	PROJECT 1265: *Sub Defensive Warfare*

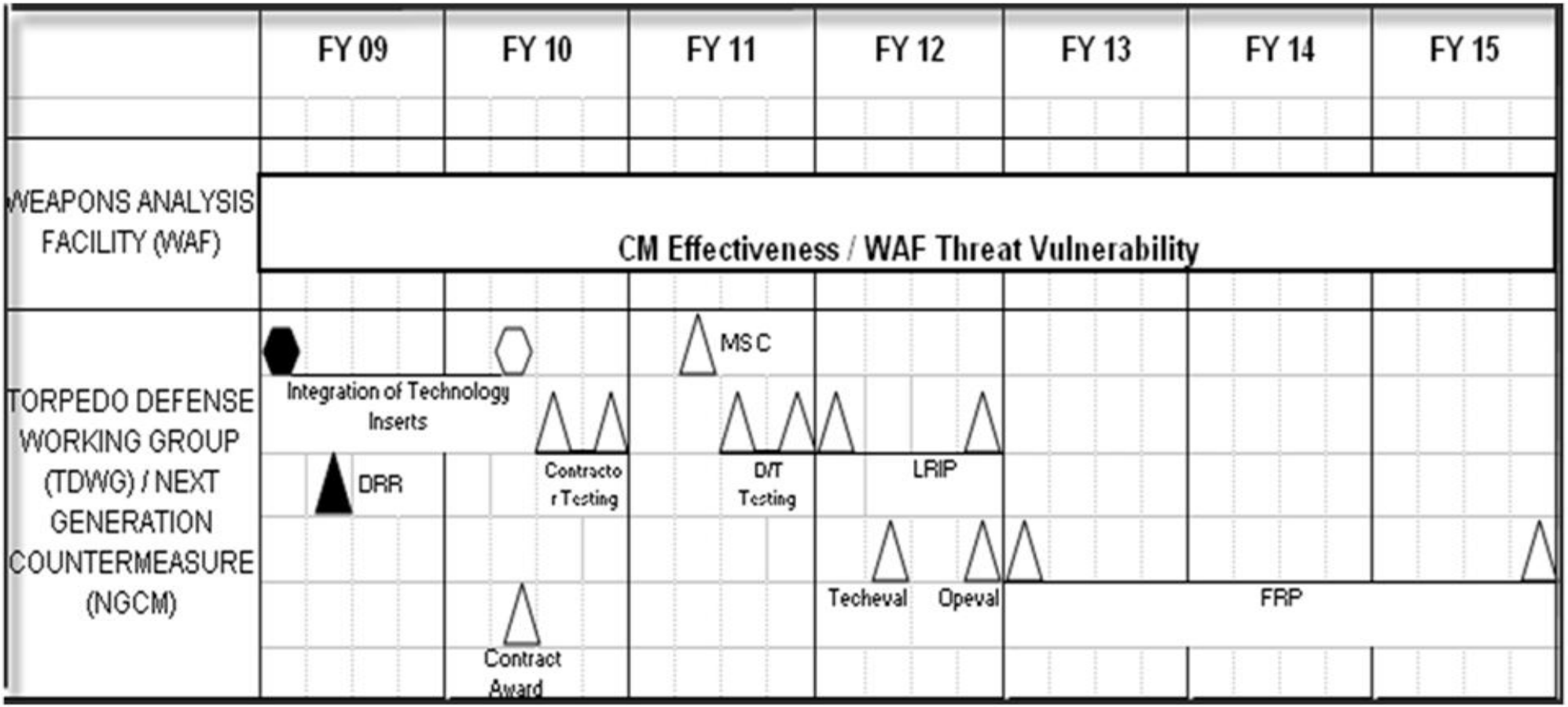

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101226N: *Submarine Acoustic War Dev*	**PROJECT** 1265: *Sub Defensive Warfare*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
DESIGN READIESS REVIEW (DRR)	2	2009	2	2009
INTEGRATION OF TECHNOLOGY INSERTIONS	1	2009	2	2010
CONTRACT AWARD	2	2010	2	2010
CONTRACTOR TESTING	3	2010	4	2010
MILESTONE C	2	2011	2	2011
D/T TESTING	3	2011	4	2011
LRIP	1	2012	4	2012
TECHNICAL EVALUATION	2	2012	2	2012
OPERATIONAL EVALUATION	4	2012	4	2012
FRP	1	2013	4	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy											DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0101402N: *Navy Strategic Comms*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	40.991	46.170	10.331	0.000	10.331	10.328	1.454	0.000	0.000	0.000	280.253
3002: *Navy Strategic Comm Project*	40.991	43.780	10.331	0.000	10.331	10.328	1.454	0.000	0.000	0.000	273.926
9999: *Congressional Adds*	0.000	2.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.327

A. Mission Description and Budget Item Justification

The E-6B Block I modification program corrects Airborne National Command Post program Follow-On Operational Test and Evaluation operational suitability deficiencies and addresses legacy system obsolescence issues. Without the Block I program, legacy system obsolescence will result in several unsupportable mission systems by 2010. Block I designs, develops, integrates, and tests a Multi-Level Security system, Open Systems Architecture; replaces the intercommunications and Mission Computer Set; modifies the cooling, electrical, and Ultra-High Frequency Command, Control and Communications system; and addresses Internet Protocol Bandwidth Expansion impacts to pre-Block I baseline aircraft. Block I adds operator workstations throughout the aircraft to reduce workload and improve system interoperability, and provides a foundation for evolutionary upgrades. Other modifications (Block IA) include: an additional Auxiliary Power Unit to enhance power and cooling capabilities supporting the additional systems in the Multi-Level Security system, Open Systems Architecture, a Very Low Frequency Transmitter obsolescence replacement, and a High Power Transmit Set subsystem refurbishment.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	43.296	43.982	0.000	0.000	0.000
Current President's Budget	40.991	46.170	10.331	0.000	10.331
Total Adjustments	-2.305	2.188	10.331	0.000	10.331
• Congressional General Reductions		-0.192			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.020			
• Congressional Adds		2.400			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-1.000	0.000			
• SBIR/STTR Transfer	-1.305	0.000			
• Program Adjustments	0.000	0.000	10.331	0.000	10.331

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101402N: *Navy Strategic Comms*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *E-6B Strategic Communications UpgradeVLFTX*	0.000	2.390
Congressional Add Subtotals for Project: 9999	0.000	2.390
Congressional Add Totals for all Projects	0.000	2.390

Change Summary Explanation

Schedule: (3002) Schedule for the Block IA Engineering Change Proposal (ECP) development has been delayed by six months, from 2nd quarter FY09 to 1st quarter FY10, because of technical challenges in the Block IA contract award.

Technical: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101402N: *Navy Strategic Comms*	PROJECT 3002: *Navy Strategic Comm Project*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3002: *Navy Strategic Comm Project*	40.991	43.780	10.331	0.000	10.331	10.328	1.454	0.000	0.000	0.000	273.926
Quantity of RDT&E Articles	0	2	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The E-6B Block I modification program corrects Airborne National Command Post program Follow-On Operational Test and Evaluation operational suitability deficiencies and addresses legacy system obsolescence issues. Without the Block I program, legacy system obsolescence will result in several unsupportable mission systems by 2010. Block I designs, develops, integrates, and tests a Multi-Level Security (MLS) system, Open Systems Architecture (OSA); replaces the intercommunications and Mission Computer Set; modifies the cooling, electrical, and Ultra-High Frequency Command, Control and Communications system; and addresses Internet Protocol Bandwidth Expansion impacts to pre-Block I baseline aircraft. Block I adds operator workstations throughout the aircraft to reduce workload and improve system interoperability, and provides a foundation for evolutionary upgrades. Other modifications (Block IA) include: an additional Auxiliary Power Unit to enhance power and cooling capabilities supporting the additional systems in the Multi-Level Security system, Open Systems Architecture, a Very Low Frequency Transmitter obsolescence replacement, and a High Power Transmit Set subsystem refurbishment.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Conduct DT Governmental Training	5.479	5.715	1.501	0.000	1.501
FY 2009 Accomplishments: Funding supports Block I and Block IA Government acquisition planning, acquisition strategy adjustment, requirements analysis, industry conferences, Department of Defense (DoD) 5000 series document development and revision, program management, technical reviews, oversight, Systems Integration Lab (SIL) and aircraft modification and test, and contract management; design, test readiness, and Contract Data Requirements List (CDRL) reviews; functional and physical configuration audits; technical interchange and program management meetings; development and operational					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101402N: *Navy Strategic Comms*	PROJECT 3002: *Navy Strategic Comm Project*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
test planning, execution, and reporting in support of Government review and design approval of modifications. *FY 2010 Plans:* Continue all efforts of FY2009. *FY 2011 Base Plans:* Continue Block IA efforts.					
Conduct DT Support Training *FY 2009 Accomplishments:* Funding will be used to buy Block I and Block IA contract support services to perform engineering, management, trade studies, and analysis to develop acquisition documents; plan logistics and training; develop and monitor schedules and revisions to DoD 5000 series documents; attend industry conferences; perform engineering and architectural studies and analyses; modify and test the Systems Integration Lab (SIL) and aircraft; conduct functional and physical configuration audits; and review Contract Data Requirements List (CDRL) for Block I and IA modifications. *FY 2010 Plans:* Continue all efforts of FY2009. *FY 2011 Base Plans:* Continue Block IA efforts.	3.748	1.135	0.850	0.000	0.850
Prototype Aircraft Installation *FY 2009 Accomplishments:* Funding supports Block I and Block IA tasks allotted to the prime contractor including: program initiation, engineering research, design development, integration and test of Block I and IA systems;	31.201	34.677	7.980	0.000	7.980

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101402N: *Navy Strategic Comms*	PROJECT 3002: *Navy Strategic Comm Project*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
preparation and presentation of the Block I and IA designs and test readiness reviews; Systems Integration Lab (SIL) and aircraft modification, functional and physical configuration audits; contractor developmental test planning, leading to Low Rate Initial Production approval and award. *FY 2010 Plans:* Continue all efforts of FY09. *FY 2011 Base Plans:* Continue Block IA efforts.					
Developmental/Operational Testing *FY 2009 Accomplishments:* Began developmental testing of the Block I program. *FY 2010 Plans:* Complete developmental and operational testing.	0.563	2.253	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	40.991	43.780	10.331	0.000	10.331

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN 056400: *E-6 A/B Series P-1#46*	88.597	102.330	149.164	0.000	149.164	153.779	154.809	181.129	195.775	247.900	1,445.883

D. Acquisition Strategy

Competitively awarded Cost Plus Award Fee (CPAF) development contract. The current contract was modified on 13 April 2007 to a Cost Plus Incentive Fee (CPIF) contract. A new sole source Firm Fixed Price (FFP) contract will be awarded for Low Rate Initial Production (LRIP) with Full Rate Production (FRP) being either yearly options on the LRIP contract or a new sole source follow-on Firm Fixed Price (FFP) contract.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101402N: *Navy Strategic Comms*	**PROJECT** 3002: *Navy Strategic Comm Project*

E. Performance Metrics

Block I Milestone C decision scheduled for 3rd quarter FY2010.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101402N: *Navy Strategic Comms*	PROJECT 3002: *Navy Strategic Comm Project*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development Block I *	C/CPIF	Rockwell Collins Cedar Rapids, IA	132.785	9.534	Mar 2010	0.000		0.000		0.000	0.000	142.319	142.319
Award Fees	C/CPAF	Rockwell Collins Cedar Rapids, IA	3.751	0.000		0.000		0.000		0.000	0.000	3.751	3.751
Primary Hardware Development Block IA **	C/CPIF	Rockwell Collins Cedar Rapids, IA	5.670	25.143	Apr 2010	7.980	Dec 2010	0.000		7.980	7.772	46.565	46.565
Ancillary Hardware Development	C/CPFF	Rockwell Collins Cedar Rapids, IA	4.933	0.000		0.000		0.000		0.000	0.000	4.933	4.933
Training Development WST	C/CPIF	Rockwell Collins Cedar Rapids, IA	1.213	0.000		0.000		0.000		0.000	0.000	1.213	1.213
		Subtotal	148.352	34.677		7.980		0.000		7.980	7.772	198.781	198.781

Remarks

* The Rockwell Collins Primary Hardware Development Block I contract was converted from a Competitively Awarded/Cost plus Award Fee to a Cost Plus Incentive Fee beginning in FY07.

** The Rockwell Collins Primary Hardware Development Block IA contract will be definitized in April 2010.

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies & Analyses	Various/ Various	Various Not Specified	4.412	0.000		0.000		0.000		0.000	0.031	4.443	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101402N: *Navy Strategic Comms*	PROJECT 3002: *Navy Strategic Comm Project*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	4.412	0.000		0.000		0.000		0.000	0.031	4.443	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD Patuxent River, MD	0.563	0.105	Dec 2009	0.000		0.000		0.000	0.000	0.668	Continuing
Operational Test & Evaluation	WR	NAWCAD Patuxent River, MD	0.000	2.148	Dec 2009	0.000		0.000		0.000	0.000	2.148	Continuing
Other Support	WR	NAVAIR HQ Patuxent River, MD	0.030	0.000		0.000		0.000		0.000	0.000	0.030	Continuing
		Subtotal	0.593	2.253		0.000		0.000		0.000	0.000	2.846	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101402N: *Navy Strategic Comms*	PROJECT 3002: *Navy Strategic Comm Project*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	Various Not Specified	12.583	0.919	Dec 2009	0.575	Dec 2010	0.000		0.575	0.764	14.841	Continuing
Governmental Support	Various/ Various	Various Not Specified	32.326	5.415	Dec 2009	1.301	Dec 2010	0.000		1.301	2.277	41.319	Continuing
Program Management Support	Various/ Various	Various Not Specified	10.157	0.216	Dec 2009	0.275	Dec 2010	0.000		0.275	0.538	11.186	Continuing
Travel	WR	NAVAIR HQ Patuxent River, MD	1.278	0.300	Nov 2009	0.200	Nov 2010	0.000		0.200	0.400	2.178	Continuing
		Subtotal	56.344	6.850		2.351		0.000		2.351	3.979	69.524	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	209.701	43.780		10.331		0.000		10.331	11.782	275.594	198.781

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101402N: *Navy Strategic Comms*	PROJECT 3002: *Navy Strategic Comm Project*

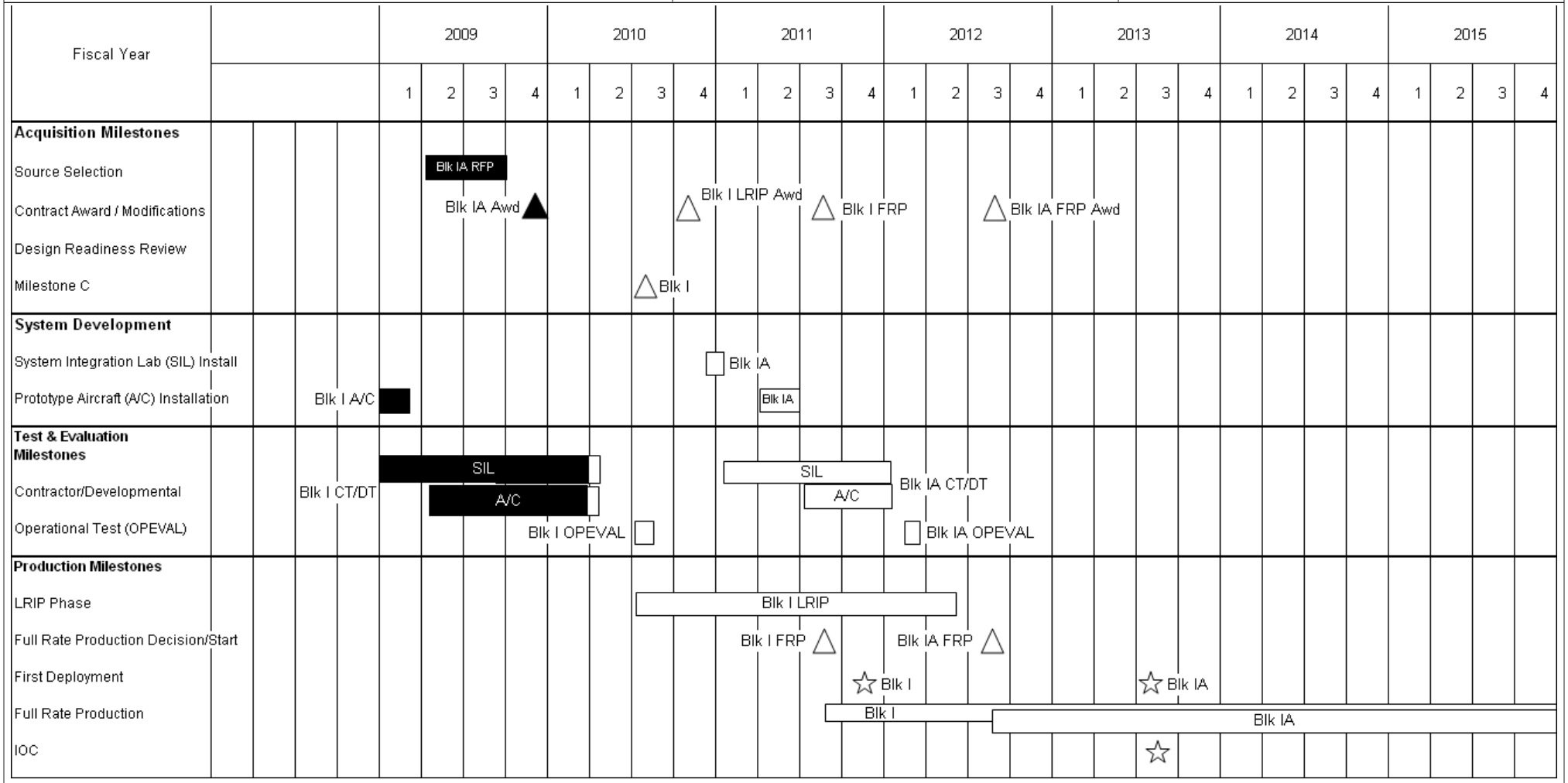

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101402N: *Navy Strategic Comms*	PROJECT 3002: *Navy Strategic Comm Project*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
SIL Contractor/Developmental Testing (CT/DT) (Blk I)	1	2009	2	2010
Prototype Aircraft Installation (Blk I)	1	2009	1	2009
Source Selection (Blk IA)	2	2009	3	2009
A/C Contractor/Developmental Testing (CT/DT) (Blk I)	2	2009	2	2010
Contract Award (Blk IA)	4	2009	4	2009
Milestone C (MS C) (Blk I)	3	2010	3	2010
Operational Testing (OPEVAL) (Blk I)	3	2010	3	2010
LRIP Phase	3	2010	2	2012
Contract Award Low Rate Initial Production (LRIP) (Blk I)	4	2010	4	2010
Systems Integration Lab (Blk IA)	4	2010	1	2011
SIL Contractor/Developmental Testing (CT/DT) (Blk IA)	1	2011	1	2012
Prototype Aircraft Installation (Blk IA)	2	2011	2	2011
A/C Contractor/Developmental Testing (CT/DT) (Blk IA	3	2011	1	2012
Full Rate Production (FRP) Decision/Start (Blk I)	3	2011	3	2011
Full Rate Production (FRP) (Blk I)	3	2011	4	2015
First Deployment (Blk I)	4	2011	4	2011
Operational Testing (OPEVAL) (Blk IA)	1	2012	1	2012
Full Rate Production (FRP) Decision/Start (Blk IA)	3	2012	3	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101402N: *Navy Strategic Comms*	PROJECT 3002: *Navy Strategic Comm Project*

	Start		End	
Event	Quarter	Year	Quarter	Year
Full Rate Production (FRP) Contract Award (Blk IA)	3	2012	3	2012
Full Rate Production (FRP) (Blk IA)	3	2012	4	2015
Initial Operational Capability (IOC)	3	2013	3	2013
First Deployment (Blk IA)	3	2013	3	2013

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101402N: *Navy Strategic Comms*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	2.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.327
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Add.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: E-6B Strategic Communications UpgradeVLFTX *FY 2010 Plans:* Funding will support Block IA tasks allotted to the prime contractor for Block IA development.	0.000	2.390
Congressional Adds Subtotals	0.000	2.390

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

E. Performance Metrics

Not required for Congressional Adds.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	40.493	38.963	35.120	0.000	35.120	41.863	42.512	42.635	43.561	Continuing	Continuing
3126: *Rapid Technology Transition (RTT)*	28.658	30.129	18.848	0.000	18.848	23.219	23.694	23.771	24.296	Continuing	Continuing
3173: *Technology Insertion Program for Savings (TIPS)*	0.000	0.000	8.259	0.000	8.259	9.673	9.660	9.682	9.884	Continuing	Continuing
3174: *Rapid Development and Deployment (RDD)*	10.837	8.834	8.013	0.000	8.013	8.971	9.158	9.182	9.381	Continuing	Continuing
9999: *Congressional Adds*	0.998	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.612

A. Mission Description and Budget Item Justification

The mission of the Rapid Technology Transition (RTT) program is to increase the rate that new, innovative, and potentially disruptive technologies are inserted into DON acquisition programs and the hands of the warfighter and provides a process and venue that rapidly addresses urgent warfighter needs that require a short-term element of technology development.

RTT programs transition technology from any source, including those not traditionally associated with defense technology. An effective and robust integration of commercial and military technologies can reduce costs and improve naval capabilities by keeping pace with the fast moving changes in technologies and operational needs. The RTT program is comprised of three elements: The Rapid Technology Transition (RTT) program, the Technology Insertion Program for Savings (TIPS), and the Rapid Development and Deployment (RDD) program. The RTT and TIPS programs are structured to bring transition deals to closure quickly, and to provide execution year funding for a rapid start, bridging the gap until the program of record can fund the completion of the technology insertion. The RDD program is structured to quickly develop a prototype solution that will be deployed in theater for Naval forces engaged in Overseas Contingency Operations (OCO).

The mission of the RTT program is to increase the rate that new, innovative, and potentially disruptive technologies are inserted into DON acquisition programs.

The mission of the TIPS program is to increase the rate that new cutting edge technologies are inserted into DON acquisition programs in order to significantly reduce operations and maintenance support costs.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203761N: *Rapid Technology Transition (RTT)*

The RDD program provides for the rapid development and fielding of prototype solutions to meet urgent operational needs. The RDD process applies when existing DON processes cannot meet urgent operational needs. Overseas Contingency Operations (OCO) have generated rapidly evolving military needs that require responsive materiel solutions.

Rapid transition opportunities occur when a sufficiently mature technology is identified that can meet a particular need on a timetable which matches that of an acquisition program, and is supported by a business case which justifies the associated cost and schedule risk. The combination of circumstances which create such opportunities can appear, and disappear, well inside the Program Objectives Memorandum (POM) cycle. These programs are designed to be pro-active in identifying opportunities and to work with resource sponsors, fleet and force users, and Program Managers (PMs) in constructing viable technology transition deals one at a time.

To ensure the widest possible awareness of emergent commercial technology opportunities, these programs interact with the industry and the venture capital community. These programs coordinate closely with Program Executive Offices (PEOs) and PMs to maintain awareness of insertion opportunities. Utilizing existing authorities, RTT applies execution year funds where necessary to "jump-start" transitions so they can be inserted and validated by Sea Trial experiments leading directly to deployment and/or demonstrations of high risk/high payoff technologies. This Program Element is the only Navy program that addresses current, urgent requirements that are required by the fleet within a 18-24 month period. As such, planning and execution are accomplished within the same fiscal year, which causes a non-traditional financial execution profile for the program. The program therefore does not meet traditional execution benchmarks.

During PR-11 the funding for the TIPS activity within the RTT R&D project (3126) was realigned into its own R&D project number - 3173 - Technology Insertion Program for Savings.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	34.326	39.125	0.000	0.000	0.000
Current President's Budget	40.493	38.963	35.120	0.000	35.120
Total Adjustments	6.167	-0.162	35.120	0.000	35.120
• Congressional General Reductions		-0.162			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	6.829	0.000			
• SBIR/STTR Transfer	-0.662	0.000			
• Program Adjustments	0.000	0.000	35.120	0.000	35.120

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203761N: *Rapid Technology Transition (RTT)*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *US Navy Mobile Condition Assessment System Pilot*	0.998	0.000
Congressional Add Subtotals for Project: 9999	0.998	0.000
Congressional Add Totals for all Projects	0.998	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3126: *Rapid Technology Transition (RTT)*	28.658	30.129	18.848	0.000	18.848	23.219	23.694	23.771	24.296	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The mission of the RTT project is to increase the rate that new, innovative, and potentially disruptive technologies are inserted into DON acquisition programs and the hands of the warfighter. A key aspect of the RTT project is its charter to transition technology from any source, including those not traditionally associated with defense technology. An effective and robust integration of commercial and military technologies can reduce costs and improve naval capabilities by keeping pace with the fast moving changes in technologies and operational needs. The RTT project is structured to bring transition deals to closure quickly, and to provide execution year funding for a rapid start, bridging the gap until the program of record can fund the completion of the technology insertion.

During PR-11 the funding for the TIPS activity within the RTT R&D project (3126) was realigned into its own R&D project number - 3173 - Technology Insertion Program for Savings.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RAPID TECHNOLOGY TRANSITION (RTT)	28.658	30.129	18.848	0.000	18.848
During PR-11, the RTT R&D project (3126) will be realigned into its own R&D project number - 3173 - Technology Insertion Program for Savings (TIPS) . The decrease of funding from FY10 to FY11 reflects the funtional transfer from project 3126 to project 3173.					
FY 2009 Accomplishments: - Continued the following RTT projects: Riverine Patrol Boat Protection; Wireless Networks for Embarked Forces; Joint Standoff Weapon (JSOW-C) Target of Opportunity (TOO) Mode Employment; Pocket Charger; Multistatic Active Capability Enhancements (MACE); Interim Surface Ship ASW					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Trainer For Surface Warfare Enterprise (SWE) Participation In Fleet Synthetic Training (FST) Events; Dismounted Infantry Simulation Interface (DISI); Non-Organic Over the Horizon Intelligence, Surveillance and Reconnaissance (ISR); Standoff Land Attack Missile - Expanded Response (SLAM-ER) Land Moving Target/Littoral Surveillance Radar System (LSRS) Validation; and Expand 4/5 Synthetic Aperture Radar (SAR) Mapping; and Physical Screening Protection. - Continued the following TIPS projects: Normal Fuel Oil Tanks and Hybrid High-bay Lighting (HHBL). - Completed the following RTT projects: Digital RF Memory (DRFM) Jammer; Subnet Relay (SNR) and High Frequency Internet Protocol (HF IP); Communications T/FDOA (Time / Frequency Difference of Arrival) Geo-location; Submarine Tactical Paging at Speed and Depth; Deployable Alternative Energy Module (DAEM); Airborne Communications Package ADNS Airborne Network Node; Expedient Airfield Damage Repair (ADR); Sparsely Populated Volumetric Array Acoustic Intercept Sensor Enhancing Submarine Passive Broadband Detection and Localization (SPVA PBB); Joint Mission Planning System Expeditionary SPF (JMPS-E); CLUSTER BIGHT Optical Subsystem (CBOS); Cryogenic Filters; MPU with Commercial Stirling Cooler; and Littoral Combat Ship Mission Package Networked Tactical Training System (LCS NTTS). - Completed the following TIPS projects: Modified Atmosphere Packaging System (MAPS), Valve Regulated Lead Acid - Battery Redesign (VRLA), Sprayable Dielectric Shield Coatings effort and Littoral Combat Ship Virtual Maintenance Performance Aid in collaboration with RTT LCS - Network Transition Training System (LCS NTTS). - Initiated the following RTT projects: Multiple Wavelength Laser Eye Protection (LEP) RTT-09-060 eXtensible; Common Operational Picture/Joint Translator Forwarder Gateway Integration (XCOP/ JxFGW);IBM Cell Processor for Undersea Weapon Signal Processing Applications; F/A-18 Jet Noise Reduction; Advanced Capability Integrated Trailer-ECU-Generator (ITEG); Multi-Level Security (MLS) Sensor Grid; Expedient Main Supply Routes (MSR) Crater Backfill System; Improved Anti-jamming Performance SeaLancet RT-1944/U Multi-Band Network Radio (MBNR); T64 Prognosis/Diagnosis Based Management (PDBM); Seal Delivery Vehicle (SDV) Diver Thermal Power System; Common Radio Room (CRR); P-3 Air Crew Tactical Team Trainer (PACT3); Afloat Non-Classified Network; Small Footprint Architecture eXtensible (SFA-X); ASW C3.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Initiated the following TIPS projects: Retail Operations Management Enterprise Support (ROM-ES), Advanced Prognostics for Steam Catapults, and Disruptive Micro Electro-Mechanical (MEM) Sensors for Aircraft Drive Lines. Acquisition Workforce Fund: - Funded DoD Acquisition Workforce Fund. *FY 2010 Plans:* - Continue all FY 2009 efforts less those noted as planned for completion. - Complete the following RTT projects: Riverine Patrol Boat Protection; Wireless Networks for Embarked Forces; Joint Standoff Weapon (JSOW-C) Target of Opportunity (TOO) Mode Employment; Pocket Charger; Multistatic Active Capability Enhancements (MACE); Interim Surface Ship ASW Trainer For Surface Warfare Enterprise (SWE) Participation In Fleet Synthetic Training (FST) Events; Dismounted Infantry Simulation Interface (DISI); Non-Organic Over the Horizon Intelligence, Surveillance and Reconnaissance (ISR); Standoff Land Attack Missile - Expanded Response (SLAM-ER) Land Moving Target/LSRS Validation; and Expand 4/5 Synthetic Aperture Radar (SAR) Mapping. - Complete the following TIPS projects: Normal Fuel Oil Tanks; Hybrid High-bay Lighting(HHBL) and Retail Operations Management Enterprise Support (ROM-ES). - Initiate 6-11 new RTT projects to improve naval warfighter capabilities. - Initiate 4-7 new TIPS projects to reduce operations and maintenance support costs. *FY 2011 Base Plans:* - Continue all FY 2010 efforts less those noted as planned for completion. - Complete all efforts initiated in FY 2009. - Initiate 6-11 new RTT projects to improve naval warfighter capabilities.					
Accomplishments/Planned Programs Subtotals	28.658	30.129	18.848	0.000	18.848

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Utilize existing authorities on a case-specific basis to exploit rapid technology transition opportunities.

E. Performance Metrics

The RTT program will, at a minimum, initiate 10-16 new deals a year that provide for new, innovative, and potentially disruptive technology being inserted into DON acquisition programs. The RTT deals will have a greater than 80% success rate of insertion and fielding of technology into DON warfighting systems.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MultiStatic Active Capability Enhancement (MACE)	Various/ Various	Various Various	0.455	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	0.455	Continuing
Classified Wireless LAN for Embarkables	Various/ Various	Various Various	0.770	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	0.770	Continuing
Dismounted Infantry Simulation Interface	Various/ Various	Various Various	0.350	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	0.350	Continuing
Expand 4/5 SAR Mapping	Various/ Various	Various Various	0.500	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	0.500	Continuing
Hybrid High Bay Lighting (HHBL)	Various/ Various	Various Various	1.100	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.100	Continuing
AIM 9M Cryo Engine	Various/ Various	Various Various	0.150	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	0.150	Continuing
NFO Tank	Various/ Various	Various Various	0.350	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	0.350	Continuing
Multiple Wavelength Laser Eye Protection (LEP)	Various/ Various	Various Various	2.100	0.840	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	2.940	Continuing
Extensible Common Operational Picture/Joint Translator Forwarder Gateway Integration (XCOP/JxFGW)	Various/ Various	Various Various	1.550	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.550	Continuing
IBM Cell Processor Technology for Air/	Various/ Various	Various Various	1.800	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.800	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Surface / Sub Launched Weapons													
F/A-18E/F Jet Noise Reduction	Various/ Various	Various Various	2.050	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	2.050	Continuing
Advanced Capability Integrated Trailer ECU-Generator	Various/ Various	Various Various	1.000	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.000	Continuing
Multi-Level Security (MLS) Sensor Grid	Various/ Various	Various Various	1.125	0.725	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.850	Continuing
Expedient Main Supply Routes (MSR) Crater Backfill System	Various/ Various	Various Various	0.750	0.250	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.000	Continuing
Improved Anti-Jamming Performance SeaLancet RT-1944/U Multi-Band Network Radio (MBNR)	Various/ Various	Various Various	1.000	0.800	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.800	Continuing
T64 Prognosis/Diagnosis Based Management	Various/ Various	Various Various	1.500	0.375	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.875	Continuing
Seal Delivery Vehicle (SDV) Diver Thermal Power System	Various/ Various	Various Various	0.605	0.300	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	0.905	Continuing
Common Radio Room (CRR)	Various/ Various	Various Various	1.550	0.450	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	2.000	Continuing
Afloat Non-Classified Network	Various/ Various	Various Various	1.005	0.995	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	2.000	Continuing
		Various	1.400	0.995	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	2.395	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
P-3 Air Crew Tactical Team Trainer (PACT3)	Various/ Various	Various											
Small Footprint Architecture-eXtensible (SFA-X)	Various/ Various	Various Various	1.500	0.500	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	2.000	Continuing
ASW C3 (PFR Code 32)	Various/ Various	Various Various	0.863	0.807	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.670	Continuing
Disruptive MEM Sensors for Monitoring Aircraft Drive Lines	Various/ Various	Various Various	2.000	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	2.000	Continuing
Advanced Prognostics for Steam Catapults Water Brake Monitoring	Various/ Various	Various Various	1.000	1.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	2.000	Continuing
Integrated Laser Designator/Rangefinder for the M1A1 Tank	Various/ Various	Various Various	0.000	1.400	Sep 2010	0.500	Sep 2011	0.000		0.500	0.000	1.900	Continuing
Continuous Active Sonar	Various/ Various	Various Various	0.000	1.400	Sep 2010	0.600	Sep 2011	0.000		0.600	0.000	2.000	Continuing
Integration of WiMAX (802.16d/e) Analysis and Planning Capabilities in SPEED	Various/ Various	Various Various	0.000	1.300	Sep 2010	0.200	Sep 2011	0.000		0.200	0.000	1.500	Continuing
LSRS Data Insertion into DCGS-N	Various/ Various	Various Various	0.000	1.200	Sep 2010	0.800	Sep 2011	0.000		0.800	0.000	2.000	Continuing
Integration of the Software	Various/ Various	Various Various	0.000	1.300	Sep 2010	0.700	Sep 2011	0.000		0.700	0.000	2.000	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Reprogrammable Payload (SRP) with Automatic Identification System (AIS) on the MQ-8B VTUAV													
Sonar Automation	Various/ Various	Various Various	0.000	1.400	Sep 2010	0.600	Sep 2011	0.000		0.600	0.000	2.000	Continuing
Framework for Context Driven Speech Recognition and Processing (FCDSRP)	Various/ Various	Various Various	0.000	0.500	Sep 2010	0.200	Sep 2011	0.000		0.200	0.000	0.700	Continuing
Spinel Submarine Periscope Headwindow	Various/ Various	Various Various	0.000	1.300	Sep 2010	0.700	Sep 2011	0.000		0.700	0.000	2.000	Continuing
IRIS SHARK	Various/ Various	Various Various	0.000	1.300	Sep 2010	0.300	Sep 2011	0.000		0.300	0.000	1.600	Continuing
Paragon - Information Operations Frequency Enhancement	Various/ Various	Various Various	0.000	1.300	Sep 2010	0.700	Sep 2011	0.000		0.700	0.000	2.000	Continuing
Two-Sided Multi-Spectral Camouflage Netting System	Various/ Various	Various Various	0.000	1.400	Sep 2010	0.100	Sep 2011	0.000		0.100	0.000	1.500	Continuing
Battery Casualty Assessment and Damage Mitigation on Submarines	Various/ Various	Various Various	0.000	1.500	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.500	Continuing
	Various/ Various	Various Various	0.000	1.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.000	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Condition Based Maintenance Service Bus													
Intrinsically Safe Remote Tank Coating Assessment Tool	Various/ Various	Various Various	0.000	1.100	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.100	Continuing
Improved Detections Leveraging IWS-5 APB Software	Various/ Various	Various Various	0.000	1.500	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.500	Continuing
Light Weight Affordable Low Maintenance Watertight Door	Various/ Various	Various Various	0.000	1.600	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	1.600	Continuing
TBD	Various/ Various	Various Various	0.000	0.000	Sep 2010	11.748	Sep 2011	0.000		11.748	0.000	11.748	Continuing
		Subtotal	26.473	28.537		17.148		0.000		17.148	0.000	72.158	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Services	C/CPFF	RESEARCH ANALYSIS & ENGINEERING, INC ARLINGTON, VA	1.500	1.592	Sep 2010	1.700	Sep 2011	0.000		1.700	Continuing	Continuing	Continuing
Misc Services	Various/ Various	Various Various	0.687	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various/ Various	Various Various	0.166	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	0.166	Continuing
		Subtotal	2.353	1.592		1.700		0.000		1.700			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	28.826	30.129		18.848		0.000		18.848			

Remarks

Each year, the RTT and TIPS programs select 10-18 new projects for execution in the next fiscal year. As such, cost breakouts for FY 2011 will be established during the 4th qtr of FY 2010, prior to initiation of the effort.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203761N: *Rapid Technology Transition (RTT)*	**PROJECT** 3126: *Rapid Technology Transition (RTT)*

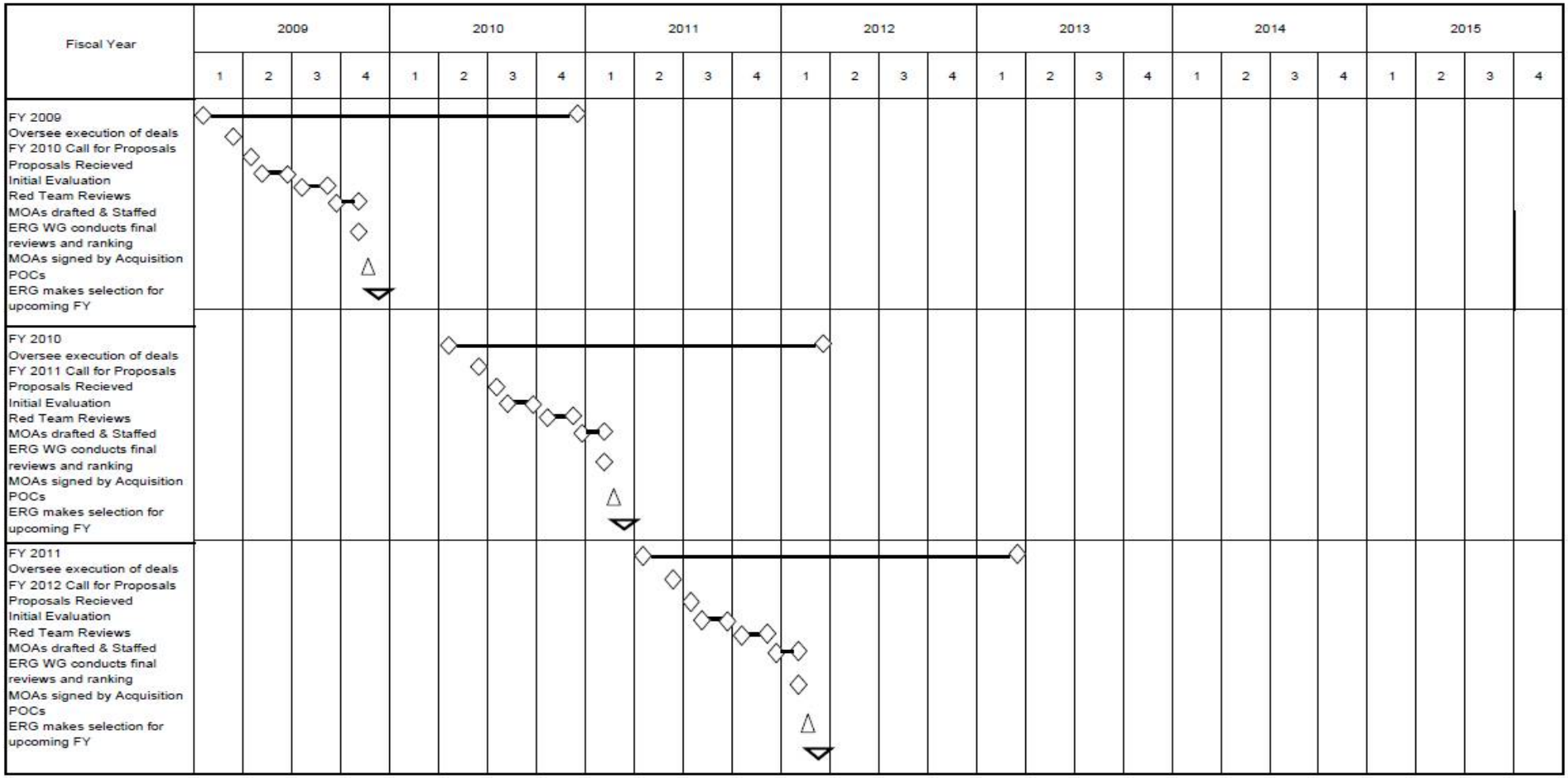

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Oversee execution of deals	1	2009	4	2010
FY 2010 Call for Proposals	1	2009	1	2009
Proposals Recieved	2	2009	2	2009
Initial Evaluation	2	2009	2	2009
Red Team Reviews	3	2009	3	2009
MOAs drafted & Staffed	3	2009	4	2009
ERG WG conducts final reviews and ranking	4	2009	4	2009
MOAs signed by Acquisition POCs	4	2009	4	2009
ERG makes selection for upcoming FY	4	2009	4	2009
FY10_Oversee execution of deals	2	2010	1	2012
FY 2011 Call for Proposals	2	2010	2	2010
FY10_Proposals Recieved	3	2010	3	2010
FY10_Initial Evaluation	3	2010	3	2010
FY10_Red Team Reviews	4	2010	4	2010
FY10_MOAs drafted & Staffed	4	2009	1	2011
FY10_ERG WG conducts final reviews and ranking	1	2011	1	2011
FY10_MOAs signed by Acquisition POCs	1	2011	1	2011
FY10_ERG makes selection for upcoming FY	1	2011	1	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3126: *Rapid Technology Transition (RTT)*

	Start		End	
Event	Quarter	Year	Quarter	Year
FY11_Oversee execution of deals	2	2011	1	2013
FY 2012 Call for Proposals	2	2011	2	2011
FY11_Proposals Recieved	3	2011	3	2011
FY11_Initial Evaluation	3	2011	3	2011
FY11_Red Team Reviews	4	2011	4	2011
FY11_MOAs drafted & Staffed	4	2011	1	2012
FY11_ERG WG conducts final reviews and ranking	1	2012	1	2012
FY11_MOAs signed by Acquisition POCs	1	2012	1	2012
FY11_ERG makes selection for upcoming FY	1	2012	1	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3173: *Technology Insertion Program for Savings (TIPS)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3173: *Technology Insertion Program for Savings (TIPS)*	0.000	0.000	8.259	0.000	8.259	9.673	9.660	9.682	9.884	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The mission of the Technology Insertion Program for Savings (TIPS) is to increase the rate that new cutting edge technologies are inserted into DON acquisition programs in order to significantly reduce operations and maintenance support costs. The program is structured to rapidly transition applicable commercial off-the-shelf solutions and late-stage development technologies from any source to meet an immediate need. TIPS provides execution year funding for a rapid start, bridging the gap until the program of record can fund the completion of the technology insertion.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
TECHNOLOGY INSERTION PROGRAM FOR SAVINGS (TIPS)	0.000	0.000	8.259	0.000	8.259
During PR-11 the funding for the TIPS activity within the RTT R&D project (3126) is realigned into its own R&D project number - 3173 - Technology Insertion Program for Savings. *FY 2011 Base Plans:* -Initiate 4-7 new TIPS projects to reduce operations and maintenance support costs.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	8.259	0.000	8.259

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Utilize existing authorities on a case-specific basis to exploit rapid technology transition opportunities.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3173: *Technology Insertion Program for Savings (TIPS)*

E. Performance Metrics

The TIPS programs will select 4-7 new projects for execution per fiscal year.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3173: *Technology Insertion Program for Savings (TIPS)*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Battery Casualty Assessment and Damage Mitigation on Submarines	Various/ Various	Various Various	0.000	0.000		0.500		0.000		0.500	0.000	0.500	Continuing
Condition Based Maintenance Service Bus	Various/ Various	Various Various	0.000	0.000		1.000		0.000		1.000	0.000	1.000	Continuing
Intrinsically Safe Remote Tank Coating Assessment Tool	Various/ Various	Various Various	0.000	0.000		0.600		0.000		0.600	0.000	0.600	Continuing
Improved Detections Leveraging IWS-5 APB Software	Various/ Various	Various Various	0.000	0.000		0.500		0.000		0.500	0.000	0.500	Continuing
Light Weight Affordable Low Maintenance Watertight Door	Various/ Various	Various Various	0.000	0.000		0.400		0.000		0.400	0.000	0.400	Continuing
TBD	Various/ Various	Various Various	0.000	0.000		4.784		0.000		4.784	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		7.784		0.000		7.784			

Remarks

FY 2009 costs reflected in R-3-3126. FY 2011 new projects will be selected 4th QTR 2010.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3173: *Technology Insertion Program for Savings (TIPS)*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TBD	Various/ Various	Various Various	0.000	0.000		0.475		0.000		0.475	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.475		0.000		0.475			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		8.259		0.000		8.259			

Remarks

The TIPS program R&D project was created beginning in FY 2011. TIPS R3 detail for FY 2009 and 2010 can be found on the R-3 for 3126. Each year the TIPS programs will select 4-7 new projects for execution in the next fiscal year. As such, cost breakouts for FY 2011 efforts will be established during the 4th qtr of FY 2010, prior to initiation of the effort.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3173: *Technology Insertion Program for Savings (TIPS)*

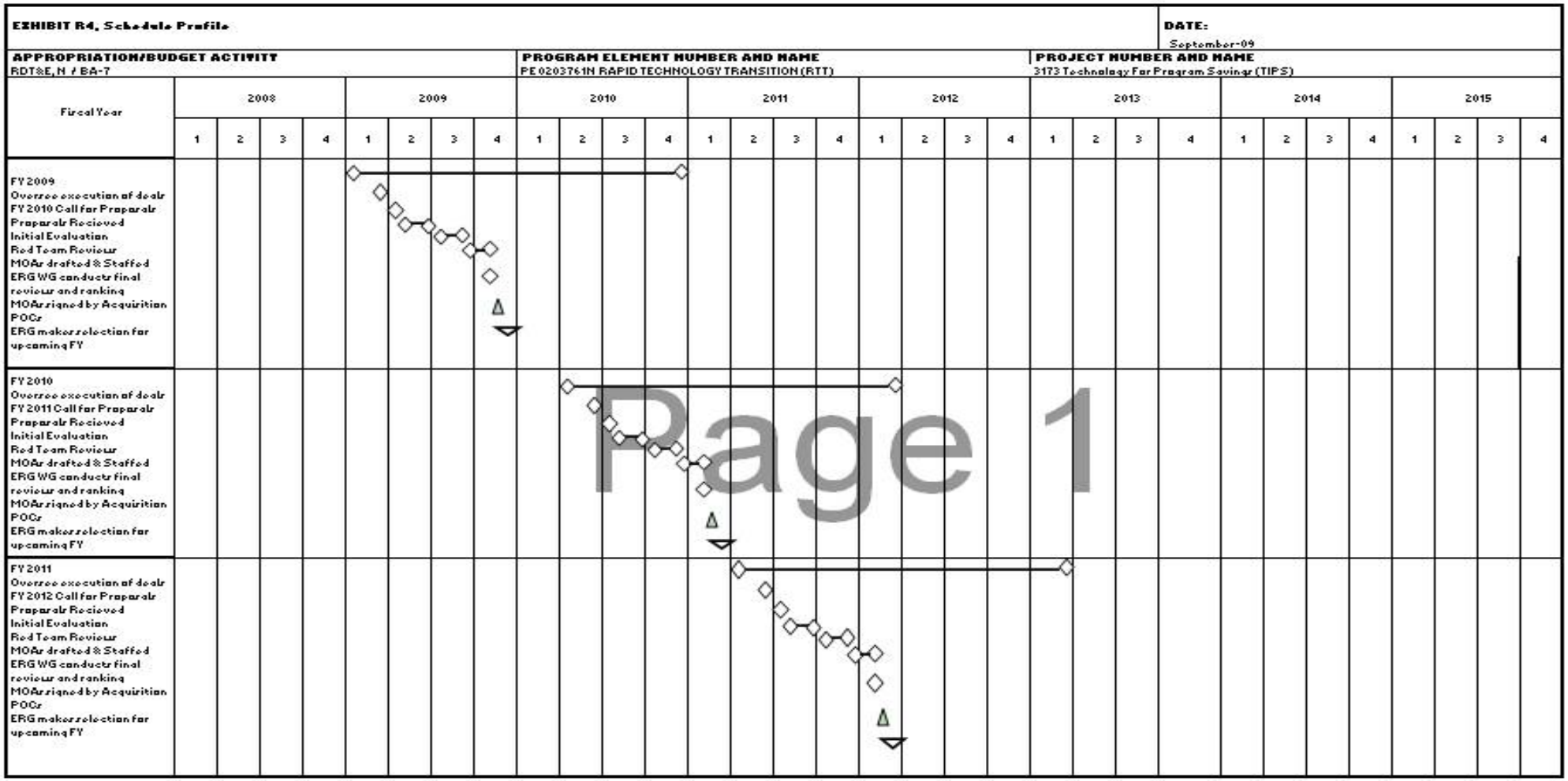

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3174: *Rapid Development and Deployment (RDD)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3174: *Rapid Development and Deployment (RDD)*	10.837	8.834	8.013	0.000	8.013	8.971	9.158	9.182	9.381	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Rapid Development and Deployment (RDD) provides an environment and process for rapid development and fielding of prototype solutions to meet urgent operational needs. The RDD process applies when existing DON processes cannot meet urgent operational needs. Overseas Contingency Operations (OCO) have generated rapidly evolving military needs that require responsive materiel solutions. RDD is a fast track process for application, by exception, to Navy and USMC capability needs and materiel solutions that meet the following criteria: (1) Need identified during active or incipient combat or contingency operation, or (2) Need derived from combat survivability of the warfighter or impacts the success of the mission. RDD initiates projects to deliver prototype solutions that are not readily available off-the-shelf and that can be developed, integrated with other components and systems (as necessary), tested, and fielded within 270 days of need approval. RDD provides startup funds to initiate projects that meet the above criteria while other funding is made available within the year of execution. Rapid Development and Deployment (RDD) provides an environment and process for rapid development and fielding of prototype solutions to meet urgent operational needs.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RAPID DEVELOPMENT AND DEPLOYMENT (RDD)	10.837	8.834	8.013	0.000	8.013
The decrease of funding from FY09 to FY10 changes reflect minor programmatic adjustments to the RDD program.					
FY 2009 Accomplishments: - Completed Portable Chemical, Biological, Radioactive/Nuclear Explosive (CBRNE) Detection Capability project. - Initiated Loud Hailer project to place acoustic hailer capability onto Navy helicopters.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3174: *Rapid Development and Deployment (RDD)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Initiated Small Unmanned Frequency Receiver (SURFR) project for Navy Special Warfare Community. *FY 2010 Plans:* - Continue all FY 2009 efforts less those noted as completed. - Deliver Loud Hailer Capability to Fleet. - Deliver SURFR capability to Special Warfare Community. - Initiate and complete multiple projects within RDD for urgent warfighter requirements that meet the RDD selection and execution criteria. - Initiate approximately 4 new RDD projects in support of OCO. *FY 2011 Base Plans:* - Continue all FY 2010 efforts less those noted as planned for completion. - Initiate approximately 3-4 new RDD projects in support of OCO.					
Accomplishments/Planned Programs Subtotals	10.837	8.834	8.013	0.000	8.013

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

For RDD requirements that meet the selection criteria, the virtual Rapid Development and Deployment Office (RDDO) is used to initiate projects. The RDDO is a virtual organization operating across Naval Laboratories and Warfare Centers, with interfaces and/or contractual agreements with other Military Services, Industry, Academia and the National Laboratory community. The RDDO will bring together, on demand, multi-disciplinary teams to develop and deliver rapid, innovative solutions. The RDDO will maintain an inventory of specialized RDT&E capabilities within the community, and will maintain visibility of available and emerging technologies from all sources that may serve as enablers to the success of RDD initiatives. The RDDO will review Urgent Combat Needs, identify and evaluate alternative solutions and provide recommendations. The RDDO will include a rapid acquisition channel, consistent with all applicable procurement regulations, for access to industry products and services as needed. For approved projects, the RDDO will select appropriate technologies, and develop, integrate, test, and deliver fieldable prototypes with the essential logistics for use by the warfighter. End users will be involved throughout the process as part of the virtual team.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203761N: *Rapid Technology Transition (RTT)*	**PROJECT** 3174: *Rapid Development and Deployment (RDD)*

E. Performance Metrics

The RDD program goal is to respond to urgent operational needs within 30 days and provide for rapid development and fielding of prototype solutions within 270 days.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3174: *Rapid Development and Deployment (RDD)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Loud Hailer	Various/ Various	Various Various	2.639	0.300		0.000		0.000		0.000	0.300	3.239	Continuing
SCAN EAGLE Package	Various/ Various	Various Various	1.510	0.200		0.000		0.000		0.000	0.200	1.910	Continuing
PCDC (Portable CBRNE Detection Capability)	Various/ Various	Various Various	0.144	0.000		0.000		0.000		0.000	0.000	0.144	Continuing
TBD	Various/ Various	Various Various	0.000	6.826		6.413		0.000		6.413	Continuing	Continuing	Continuing
		Subtotal	4.293	7.326		6.413		0.000		6.413			

Remarks

The RDD program addresses current year Overseas Contingency Operations (OCO) warfighter needs. As such, cost category breakouts for FY 2010 and FY 2011 will be established during that year of execution.

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Naval Innovative Laboratory (NaIL)	WR	Various Various	1.561	1.508		1.600		0.000		1.600	0.000	4.669	Continuing
		Subtotal	1.561	1.508		1.600		0.000		1.600	0.000	4.669	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 3174: *Rapid Development and Deployment (RDD)*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.854	8.834		8.013		0.000		8.013			

Remarks

The RDD program addresses current year Overseas Contingency Operations (OCO) warfighter needs. As such, cost category breakouts for FY 2010 and FY 2011 will be established during that year of execution.

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0203761N: *Rapid Technology Transition (RTT)*	**PROJECT** 3174: *Rapid Development and Deployment (RDD)*

EXHIBIT R4, Schedule Profile — **DATE:** September-09

APPROPRIATION/BUDGET ACTIVITY
RDT&E, N / BA-7

PROGRAM ELEMENT NUMBER AND NAME
PE 0203761N RAPID TECHNOLOGY TRANSITION (RTT)

PROJECT NUMBER AND NAME
3174-Rapid Development and Deployment

Fiscal Year	2008				2009				2010				2011				2012				2013				2014				2015			
	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
		Schedule is dependent on date of Urgent Need being submitted for RDD action																														

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0203761N: *Rapid Technology Transition (RTT)*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.998	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.612
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Interest Items not included in other Projects.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: US Navy Mobile Condition Assessment System Pilot *FY 2009 Accomplishments:* This effort supported the strengthening of the common operational picture by integrating access to condition assessment information collected after a disaster (from field survey crews) with complete and accurate facilities-related infrastructure drawings, maps, documents, and other pertinent data from a distributed and secure electronic information repository environment.	0.998	0.000
Congressional Adds Subtotals	0.998	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressiona add.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	70.757	121.093	148.438	0.000	148.438	115.392	71.912	61.929	38.345	Continuing	Continuing
1662: *F/A-18 Improvement*	61.404	102.418	133.033	0.000	133.033	101.627	61.918	59.778	38.345	Continuing	Continuing
2065: *F/A-18 Radar Upgrade*	6.959	15.807	15.405	0.000	15.405	13.765	9.994	2.151	0.000	0.000	658.310
9999: *Congressional Adds*	2.394	2.868	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.893

A. Mission Description and Budget Item Justification

The F/A-18 is required to perform multiple missions. Capabilities of the F/A-18 weapon system and ancillary equipment can be upgraded to accommodate and incorporate new or enhanced weapons as well as advances in technology to respond effectively to emerging future threats. Continued F/A-18 E/F "Flight Plan" spiral capability development is critical to the baseline of the Super Hornet next generation mission system capability and maintaining tactical relevance in support of NAVPLAN 2030. Additionally, continued advanced development engineering for improvements in reliability and maintainability are required to ensure maximum benefit is achieved through reduced cost of ownership and to provide enhanced availability.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	73.050	127.733	0.000	0.000	0.000
Current President's Budget	70.757	121.093	148.438	0.000	148.438
Total Adjustments	-2.293	-6.640	148.438	0.000	148.438
• Congressional General Reductions		-0.505			
• Congressional Directed Reductions		-9.000			
• Congressional Rescissions	0.000	-0.015			
• Congressional Adds		2.880			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.468	0.000			
• SBIR/STTR Transfer	-1.824	0.000			
• Program Adjustments	0.000	0.000	148.438	0.000	148.438
• Rate/Misc Adjustments	-0.001	0.000	0.000	0.000	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
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Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Fighter Jet Noise Reduction Under Carrier Deck Operational Environment*	0.000	2.868
Congressional Add: *Distributed Targeting Processor*	2.394	0.000
Congressional Add Subtotals for Project: 9999	2.394	2.868
Congressional Add Totals for all Projects	2.394	2.868

Change Summary Explanation

Technical: 1662: Technical changes beginning in FY 2010 are due to new start efforts for Sensor Integration (Multi-Ship Emitter Geo-Location and Sensor Integration - Air to Air, Air to Ground) and Maritime Multi-Sensor Integration Phase II.

2065: Technical changes beginning in FY 2010 are due to additional funding for F/A-18 Distributed Targeting (AESA Multi-Jammer Electronic Protection).

Schedule:
1662: Full Rate Production was removed from the IDECM with AESA schedule because this effort will not produce or deliver hardware. This effort is software related. The schedule changes to the Infrared Search and Track (IRST) program are due to the program being upgraded from ACAT III to ACAT II, which is expected 1st QTR 2010 and will cause a slip in MS "B" and the rest of the schedule due to increased milestone requirements and documentation. Due to ACAT III designation for Distributed Targeting Capability beginning in FY 2009, the Network Centric Operations and Distributed Targeting Processor/Mass Storage Unit development and risk reduction activities were merged. Distributed Targeting Processor/Mass Storage Unit entered the acquisition cycle at post MS B and is currently on schedule for Fleet Initial Operational Capability in FY 2012. The change to the LRIP I milestone has been updated to accurately reflect 3rd QTR FY11; the prior budget incorrectly reported the date as 4th QTR FY10. MSI Phase I has been separated from the Single Ship Geolocation (SSG)/Specific Emitter Identification (SEI) Effort to ensure cognizance over the complete MSI Program. The delay in starting Network Centric Operations algorithm development is due to delays in contracting actions. The schedule changes beginning in FY 2010 are due to new start efforts for Sensor Integration: Multi-Ship Emitter Geo-Location and Air to Air, Air to Ground and Maritime Multi-Sensor Integration Phase II.

2065: The H-6+ Fleet Release milestone has been updated to accurately reflect 4th QTR FY10; the prior budget incorrectly reported the date as 3rd QTR FY10.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1662: *F/A-18 Improvement*	61.404	102.418	133.033	0.000	133.033	101.627	61.918	59.778	38.345	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

F/A-18 Improvements (1662): The F/A-18 is a multi-mission strike fighter aircraft that is used in Air-to-Air strike, surveillance, reconnaissance and tanking roles through selected use of external equipment (fuel tanks, tactical and reconnaissance pods, and various ordnance launching racks). Additional capabilities are required for interoperability in a network-centric tactical environment. In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being upgraded to incorporate new/enhanced weapons systems and avionics including Dual Mode Weapons, an Infrared Search and Track (IRST), Integrated Defensive Electronic Counter Measures (IDECM) integrated with the Active Electronically Scanned Array (AESA) to provide Narrow Band High Gain Electronic Attack (NBHGEA), Distributed Targeting precision strike capability through a Distributed Targeting Processor/Mass Storage Unit (DTP/MSU), and Sensor Integration through Multi-Sensor Integration (MSI) Phase I capability. Continued advanced development engineering and analysis of hardware/software is required to successfully optimize fleet F/A-18 weapon systems for interoperability in a network centric tactical environment, to include: enhanced software capabilities, potential new hardware development, enhanced existing hardware, and enhanced network centric capabilities. Additionally, continued effort is needed to perform technical evaluations, modeling and simulations, investigative flight testing, and enhanced software modifications based on reported fleet deficiencies. This funding line continues F/A-18E/F "Flight Plan" spiral capability development, which includes Sensor Integration - Multi-Ship Emitter Geo-Location capability and Sensor Integration - MSI Phase II capability. This budget also continues funding for F/A-18A-F Test Wing Maintenance support.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Air to Ground Maritime Attack - Dual Mode Weapons	0.460	0.000	0.000	0.000	0.000
Funding used to test the integration of various weapon configurations on F/A-18E/F aircraft. *FY 2009 Accomplishments:* Continued integration, validation, and verification of various weapon configurations on F/A-18E/F aircraft, to include Dual Mode Weapons and fleet-identified high priority weapons loads.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Sensor Integration - IDECM with AESA	0.000	6.398	0.000	0.000	0.000
In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being upgraded to incorporate new/enhanced weapons systems and avionics including Integrated Defensive Electronic Counter Measures (IDECM) integrated with the Active Electronically Scanned Array (AESA) to provide High Gain Electronic Support Measures (HGESM) and prove the concept of Narrow Band High Gain Electronic Attack (HGEA). Advanced development engineering and analysis of hardware/ software is required to optimize fleet F/A-18 weapon systems for interoperability in a network centric tactical environment. *FY 2010 Plans:* Continue software development for IDECM integration with AESA to provide HGEA and HGESM capability to prove the concept of HGEA.					
Distributed Targeting - NCO/DTP/MSU/MPI	22.532	35.650	39.620	0.000	39.620
Funds are supporting development of a distributed targeting precision strike capability through a Distributed Targeting Processor/Mass Storage Unit (DTP/MSU). *FY 2009 Accomplishments:* Started ACAT III Program. The following items were accomplished: established an Integrated Process Team and project plan, including Program Work Breakdown Structure and Integrated Master Schedule (IMS); initiated NAVAIR Systems Engineering Technical Review (SETR) process; developed a Statement of Work, and System Performance Specification; negotiated and awarded contract to Boeing for Engineering and Manufacturing Development (EMD) phase; initiated hardware and software development and risk reduction activities; and initiated draft acquisition documentation such as Capabilities Production Document (CPD), Master Test Plan (TEMP). Additionally, conducted System Requirements Review (SRR) and Preliminary Design Review (PDR).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Conduct subsystem integration testing at vendor labs, acceptance and qualification testing, and risk reduction activities. Conduct Technology Readiness Assessment (TRA), Integrated Baseline Review (IBR), and Critical Design Review (CDR). Begin DTP/MSU system level lab, ground, and flight testing. *FY 2011 Base Plans:* Continue testing and certification of system.					
Distributed Targeting - IRST Phase I Technology development and engineering and manufacturing development of an Infrared Search & Track sensor for the F/A-18 E/F. *FY 2009 Accomplishments:* Completed System Readiness Review I and awarded Technology Development Contract; commenced preliminary design and engineering trade studies. *FY 2010 Plans:* Reach Milestone B and enter Engineering and Development Phase. *FY 2011 Base Plans:* Continue Engineering and Development Phase and complete Critical Design Review and Design Readiness Review.	16.373	12.780	39.602	0.000	39.602
Sensor Integration - SSG/SEI, HGEA/HGESM/IDECM In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being upgraded to incorporate new/enhanced weapons systems and avionics. This funding line includes F/A-18E/F "Flight Plan" spiral capability development, Single Ship Geolocation (SSG) and Specific Emitter Identification (SEI).	8.335	14.900	14.782	0.000	14.782

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued software algorithm development to enhance target identification and location (SSG & SEI). *FY 2010 Plans:* Continue software algorithm development to enhance target identification and location (SSG & SEI). *FY 2011 Base Plans:* Continue software algorithm development to enhance target identification and location (SSG & SEI).					
Sensor Integration - MSI Phase I In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being upgraded to incorporate new/enhanced weapons systems and avionics including, Multi-Sensor Integration (MSI) Phase I capability. Advanced development engineering and analysis of hardware/ software is required to optimize fleet F/A-18 weapon systems for interoperability in a network centric tactical environment. *FY 2009 Accomplishments:* Continued software algorithm development to correlate multiple ground and surface tracks from on-ship to off-ship sensor sources and to begin integration with the Common Tactical Picture and Blue Force Track information. *FY 2011 Base Plans:* Continue software algorithm development to correlate multiple ground and surface tracks from on-ship to off-ship sensor sources and to begin integration with the Common Tactical Picture and Blue Force Track information.	3.200	0.000	4.622	0.000	4.622
Sensor Integration - A/A, A/G & Maritime MSI Phase II	0.000	9.020	15.566	0.000	15.566

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Funding will be used to expand track and correlation support from emitting targets and tracks to improve lethality against stationary or moving targets. H10E effort is currently in the requirements definition/allocation phase, with expected fleet introduction in FY14. *FY 2010 Plans:* System Change review Board. *FY 2011 Base Plans:* Design reviews.					
Sensor Integration - Multi-Ship Emitter Geo-Location In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being upgraded to incorporate new/enhanced weapons systems and avionics. Advanced development engineering and analysis of hardware/software is required to optimize fleet F/A-18 weapon systems for interoperability in a network centric tactical environment. This funding line continues F/A-18E/F "Flight Plan" spiral capability development, which includes Sensor Integration - Multi-Ship Emitter Geo-Location capability and Sensor Integration - MSI Phase II capability. *FY 2010 Plans:* Continue Emitter Geo-Location spiral development and integration of Multi-Ship Emitter Geo-Location capability in order to provide additional autonomous fix phase support for distributed targeting use, situational awareness and targeting information at maximum weapons deployment range increases survivability, and improve overall effectiveness of weapons inventory. *FY 2011 Base Plans:* Continue Emitter Geo-Location spiral development and integration of Multi-Ship Emitter Geo-Location capability in order to provide additional autonomous fix phase support for distributed targeting use,	0.000	12.510	7.791	0.000	7.791

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
situational awareness and targeting information at maximum weapons deployment range increases survivability, and improve overall effectiveness of weapons inventory.					
Test Wing Maintenance Conversion	10.504	11.160	11.050	0.000	11.050
Funding supports maintenance of aircraft at NAVAIR Test Wing used to support Program Office objectives. *FY 2009 Accomplishments:* Performed aircraft maintenance on Test Wing Aircraft. *FY 2010 Plans:* Perform aircraft maintenance on Test Wing Aircraft. *FY 2011 Base Plans:* Perform aircraft maintenance on Test Wing Aircraft.					
Accomplishments/Planned Programs Subtotals	61.404	102.418	133.033	0.000	133.033

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/0145: *F/A-18E/F*	1,812.068	1,499.902	1,784.894	0.000	1,784.894	468.761	2,246.690	194.268	0.000	0.000	39,745.605
• APN/0145C: *F/A-18E/F AP*	42.490	51.273	2.295	0.000	2.295	58.581	0.000	0.000	0.000	0.000	1,606.939
• APN/0143: *EA-18G*	1,567.005	1,606.871	1,028.801	0.000	1,028.801	2,355.947	91.030	48.961	8.480	0.000	9,168.881
• APN/0143C: *EA-18G AP*	46.693	20.496	55.081	0.000	55.081	0.000	0.000	0.000	0.000	0.000	246.510
• APN/05250: *F-18 Series Mod*	464.287	559.888	492.821	43.250	536.071	470.898	446.581	598.108	559.068	1,610.295	8,715.826
	114.527	55.485	22.042	0.000	22.042	16.783	17.031	17.725	18.509	0.000	262.102

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDTEN/3063: *EA-18G Development*											

D. Acquisition Strategy

The F/A-18 Improvements program consists of extensive spiral development efforts mapped out in the capability-based approach F/A-18 E/F "Flight Plan." These efforts are critical to the baseline of the Super Hornet next generation mission system capability and maintaining tactical relevance in support of NAVPLAN 2030.
The major programs within the F/A-18 Improvements project are based on six Weapon System Capabilities: Distributed Targeting Air to Ground (A/G) and Maritime, Distributed Targeting Air to Air (A/A), Net Centric Operations/Battle Space Management, Sensor Integration, A/G and Maritime Attack, and A/A Attack. The major efforts included in this project are: Dual Mode Weapons integration; an Infrared Search and Track (IRST); Integrated Defensive Electronic Counter Measures (IDECM) integrated with the Active Electronically Scanned Array (AESA) to provide Narrow Band High Gain Electronic Attack; Distributed Targeting capability through a Distributed Targeting Processor/Mass Storage Unit (DTP/MSU); Sensor Integration through Multi-Ship Emitter Geo-Location capability and Multi-Sensor Integration (MSI) Phase I and Phase II capability; continued advanced development and F/A-18E/F Flight Plan engineering and analysis; continued enhanced software capabilities development; and engineering support to perform technical evaluations, modeling & simulations, investigative flight testing.
- Infrared Search & Track (IRST). The IRST Phase I program is a Navy program entering the Systems Design and Development phase at Milestone B in FY 2010. A Phase I system will be developed by the Navy that will meet requirements for a counter electronic attack capability. This capability will reach Initial Operational Capability (IOC) in FY 2014.
- Distributed Targeting. Distributed Targeting development is provided on a sole source cost plus incentive fee contract for Engineering Manufacturing and Development (EMD) activities. The program is a new start ACAT III FY 2009 effort, with a post MS B entry and an IOC in FY 2012. The program is leveraging previous ECP efforts and is designated for all domestic Super Hornets.
- Sensor Integration. Sensor Integration development is provided on a sole source cost plus fixed fee contract on an Research and Development (R&D) Basic Ordering Agreement to Raytheon.

E. Performance Metrics

The Distributed Targeting Program effort Initial Operational Capability (IOC) in FY2012. IRST Program to achieve Milestone "B" in 3rd Quarter of FY2010, Milestone "C" in 2nd Quarter of FY2013, and IOC in 4th Quarter of FY2014.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Costs	Various/ CPAF	Various Various	454.785	0.000		0.000		0.000		0.000	0.000	454.785	Continuing
Primary Hdw Development ANAV	Various/ Various	Boeing St. Louis, MO	0.175	0.000		0.000		0.000		0.000	0.000	0.175	Continuing
Weapons Integration - Dual Mode	Various/ Various	NAWCAD Pax River, MD	0.460	0.000		0.000		0.000		0.000	0.000	0.460	Continuing
Primary Development EW Sensor	Various/ Various	Various Various	0.000	0.000		1.813	Jan 2011	0.000		1.813	2.405	4.218	Continuing
Primary Development EW Sensor	Various/ Various	Boeing St. Louis, MO	2.980	2.750	Jan 2010	0.600	Apr 2011	0.000		0.600	0.175	6.505	Continuing
Primary Development EW Sensor	WR	NAWCWD China Lake, CA	0.230	0.000		1.755	Jan 2011	0.000		1.755	0.313	2.298	Continuing
Primary Hardware Dev IRST	C/CPFF	MDA St. Louis, MO	13.479	5.329	May 2010	31.150	Jan 2011	0.000		31.150	24.160	74.118	74.118
Primary Hardware Dev NCO/DTP	C/FFP	Boeing St. Louis, MO	14.677	12.467	May 2010	9.002	May 2011	0.000		9.002	1.479	37.625	37.625
Sensor Integration APSC	WR	NAWCWD China Lake, CA	1.785	0.000		0.486	Jan 2011	0.000		0.486	0.080	2.351	Continuing
Sensor Integration APSC	Various/ Various	Raytheon Goleta, CA	2.891	1.250	Mar 2010	2.200	Mar 2011	0.000		2.200	0.000	6.341	Continuing
Dev Sensor Integration (SSG/SEI)	WR	NAWCWD China Lake, CA	0.523	0.000		1.574	Jan 2011	0.000		1.574	2.886	4.983	Continuing
Dev Sensor Integration (SSG/SEI)	Various/ Various	Boeing St. Louis, MO	2.960	0.000		2.050	Mar 2011	0.000		2.050	0.264	5.274	Continuing
		Various	0.000	0.000		2.868	Jan 2011	0.000		2.868	3.035	5.903	Continuing

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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev Sensor Integration (SSG/SEI)	Various/ Various	Various											
SW Dev IDECM - HGEA/HGESM	Various/ Various	Boeing St. Louis, MO	1.482	0.000		0.914	Mar 2011	0.000		0.914	0.203	2.599	Continuing
SW Dev IDECM - HGEA/HGESM	WR	NAWCWD China Lake, CA	0.390	0.000		1.522	Jan 2011	0.000		1.522	0.244	2.156	Continuing
SW Dev IDECM - HGEA/HGESM	Various/ Various	TBD Not Specified	0.000	0.000		2.542	Jan 2011	0.000		2.542	3.161	5.703	Continuing
Development Sensor Integration (Multi Ship Geo)	WR	NAWCWD China Lake, CA	0.000	0.000		2.779	Jan 2011	0.000		2.779	4.569	7.348	Continuing
Development Sensor Integration (Multi Ship Geo)	Various/ Various	Raytheon Goleta, CA	0.000	0.000		1.310	Jan 2011	0.000		1.310	2.665	3.975	Continuing
Development Sensor Integration (Multi Ship Geo)	Various/ Various	Boeing St. Louis, MO	0.000	0.000		1.315	Jan 2011	0.000		1.315	2.665	3.980	Continuing
Aircraft Integration IDECM	WR	NAWCWD China Lake, CA	0.000	1.500	Jan 2010	0.000		0.000		0.000	0.000	1.500	Continuing
Automatic Ground Collision Avoidance System	Various/ Various	Various Various	0.000	0.000		0.000		0.000		0.000	48.599	48.599	Continuing
		Subtotal	496.817	23.296		63.880		0.000		63.880	96.903	680.896	111.743

Remarks

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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Costs	Various/ Various	Various Various	2,901.493	0.000		0.000		0.000		0.000	0.000	2,901.493	Continuing
Software Development (Misc)	Various/ Various	Various Various	1.868	0.000		0.000		0.000		0.000	0.000	1.868	Continuing
Software Development IRST	WR	NAWCWD China Lake, CA	0.000	0.000		0.000		0.000		0.000	3.000	3.000	Continuing
Software Dev IDECM - HGEA/HGESM	WR	NAWCWD China Lake, CA	1.121	9.300	Dec 2009	0.158	Dec 2010	0.000		0.158	0.000	10.579	Continuing
Development Support IRST	WR	NAWCWD China Lake, CA	2.093	2.634	Nov 2009	0.995	Nov 2010	0.000		0.995	1.000	6.722	Continuing
Development Support IRST	WR	NAWCAD Pax River, MD	3.182	2.158	Nov 2009	1.197	Nov 2010	0.000		1.197	1.367	7.904	Continuing
Development Support IRST	WR	NAWCAD Lakehurst, NJ	0.083	0.099	Feb 2010	0.382	Feb 2011	0.000		0.382	0.200	0.764	Continuing
Development Support IRST	WR	FRC Southeast Jacksonville, FL	0.665	0.446	Nov 2009	0.945	Nov 2010	0.000		0.945	1.000	3.056	Continuing
Development Support IRST	WR	FRC Southwest North Island, CA	0.040	0.042	Nov 2009	0.075	Nov 2010	0.000		0.075	0.075	0.232	Continuing
Software Dev (TDL) NCO/DTP	Various/ Various	Boeing St. Louis, MO	8.532	12.534	Jan 2010	7.937	May 2011	0.000		7.937	30.770	59.773	59.773
Development Support - Sensor Integration (SSG/SEI)	WR	NAWCWD China Lake, CA	0.000	1.500	Dec 2009	0.138	Dec 2010	0.000		0.138	0.000	1.638	Continuing
Development Support - Sensor Integration (MSI Ph II)	Various/ Various	NAWCWD China Lake, CA	0.000	1.533	Jan 2010	2.688	Jan 2011	0.000		2.688	3.470	7.691	Continuing

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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support - Sensor Integration (MSI Ph II)	Various/ Various	Boeing St. Louis, MO	0.000	4.998	Jan 2010	8.757	Jan 2011	0.000		8.757	10.410	24.165	24.165
Development Support - Sensor Integration (Multi Ship Geo)	WR	NAWCWD China Lake, CA	0.000	6.745	Jan 2010	0.826	Jan 2011	0.000		0.826	1.288	8.859	Continuing
Development Support EW Sensor MSI Phase I	WR	NAWCWD China Lake, CA	0.058	0.000		0.424	Jan 2011	0.000		0.424	0.500	0.982	Continuing
Development Support - Sensor Integration (SSG/SEI)	Various/ Various	Raytheon Goleta, CA	0.000	1.250	Jan 2010	0.000		0.000		0.000	0.000	1.250	Continuing
Development Support - Sensor Integration (SSG/SEI)	Various/ Various	Boeing St. Louis, MO	0.000	2.750	Jan 2010	0.000		0.000		0.000	0.000	2.750	Continuing
Development Support - Sensor Integration (Multi Ship Geo)	Various/ Various	Raytheon Goleta, CA	0.000	2.714	Jan 2010	0.000		0.000		0.000	0.000	2.714	Continuing
Development Support (Multi Ship Geo)	Various/ Various	Boeing St. Louis, MO	0.000	2.715	Jan 2010	0.000		0.000		0.000	0.000	2.715	Continuing
		Subtotal	2,919.135	51.418		24.522		0.000		24.522	53.080	3,048.155	83.938

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 1662: *F/A-18 Improvement*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Costs	Various/ Various	Various Various	76.085	0.000		0.000		0.000		0.000	0.000	76.085	Continuing
DT&E ANAV	WR	NAWCAD Pax River, MD	1.800	0.000		0.000		0.000		0.000	0.000	1.800	Continuing
DT&E ANAV	WR	NAWCWD China Lake, CA	1.557	0.000		0.000		0.000		0.000	0.000	1.557	Continuing
OT&E ANAV	WR	OPTEVFOR Norfolk, VA	0.200	0.000		0.000		0.000		0.000	0.000	0.200	Continuing
DT&E IRST	WR	NAWCAD Pax River, MD	1.130	1.793	Nov 2009	0.675	Nov 2010	0.000		0.675	0.600	4.198	Continuing
DT&E IRST	WR	NAWCWD China Lake, CA	0.609	0.150	Nov 2009	0.200	Nov 2010	0.000		0.200	1.800	2.759	Continuing
ODT&E IRST	WR	OPTEVFOR VX-9	0.008	0.005	Feb 2010	0.005	Feb 2011	0.000		0.005	1.700	1.718	Continuing
DT&E Dist Targeting NCO/DTP1	WR	NAWCWD China Lake, CA	2.907	3.049	Jan 2010	10.584	Jan 2011	0.000		10.584	1.808	18.348	Continuing
DT&E Dist Targeting NCO/DTP2	WR	NAWCWD China Lake, CA	0.085	0.065	Jan 2010	6.903	Jan 2011	0.000		6.903	0.045	7.098	Continuing
OT&E Dist Targeting NCO/DTP	WR	OPTEVFOR Norfolk, VA	0.350	0.100	Jan 2010	0.400	Jan 2011	0.000		0.400	3.000	3.850	Continuing
OT&E Sensor Integration - SSG/SEI/ MSI Ph I	WR	OPTEVFOR Norfolk, VA	0.027	1.000	Apr 2010	0.030	Apr 2011	0.000		0.030	0.032	1.089	Continuing
DT&E Sensor Integration - MSI Ph II-3	WR	NAWCAD Pax River, MD	0.000	1.830	Jan 2010	2.737	Jan 2011	0.000		2.737	3.670	8.237	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 1662: *F/A-18 Improvement*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DT&E Sensor Integration - MSI Ph II-4	WR	FRC Southwest North Island, CA	0.000	0.000		0.000		0.000		0.000	0.390	0.390	Continuing
		Subtotal	84.758	7.992		21.534		0.000		21.534	13.045	127.329	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Costs	Various/ Various	Various Various	23.156	0.000		0.000		0.000		0.000	0.000	23.156	Continuing
Program Mgmt Support NCO/DTP	WR	NAVAIR Pax River, MD	1.816	0.232	Jan 2010	1.819	Jan 2011	0.000		1.819	0.448	4.315	Continuing
Govt Eng Support NCO/ DTP	WR	NAWCAD Pax River, MD	2.915	1.400	Jan 2010	1.451	Jan 2011	0.000		1.451	0.050	5.816	Continuing
Program Mgmt Sup (MISC)	Various/ Various	NAWCAD Pax River, MD	0.733	0.000		1.342	Jan 2011	0.000		1.342	16.843	18.918	Continuing
Program Mgmt Sup (PMMAC-MSS)	C/CPFF	NAWCAD Pax River, MD	4.454	2.400	Nov 2009	2.500	Nov 2010	0.000		2.500	8.000	17.354	17.354
Travel	Various/ Various	NAWCAD Pax River, MD	1.750	0.800	Feb 2010	1.000	Feb 2011	0.000		1.000	3.200	6.750	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 1662: *F/A-18 Improvement*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Plan Engineering	Various/ Various	NAWCAD Pax River, MD	1.800	1.100	Jan 2010	1.260	Jan 2011	0.000		1.260	3.515	7.675	Continuing
Flight Plan Engineering	Various/ Various	NAWCWD China Lake, CA	4.200	2.200	Jan 2010	2.940	Jan 2011	0.000		2.940	8.203	17.543	Continuing
Gov Eng Support MSI PH II	WR	NAWCAD Pax River, MD	0.000	0.260	Jan 2010	0.327	Jan 2011	0.000		0.327	0.510	1.097	Continuing
Gov Eng Support IRST	WR	NAWCAD Pax River, MD	0.000	0.000		0.750	Dec 2010	0.000		0.750	0.000	0.750	Continuing
Test Wing Maintenance Conversion	WR	Various Various	14.306	11.320	Jan 2010	9.708	Jan 2011	0.000		9.708	57.871	93.205	Continuing
		Subtotal	55.130	19.712		23.097		0.000		23.097	98.640	196.579	17.354

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,555.840	102.418		133.033		0.000		133.033	261.668	4,052.959	213.035

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204136N: *F/A-18 Squadrons*	**PROJECT** 1662: *F/A-18 Improvement*

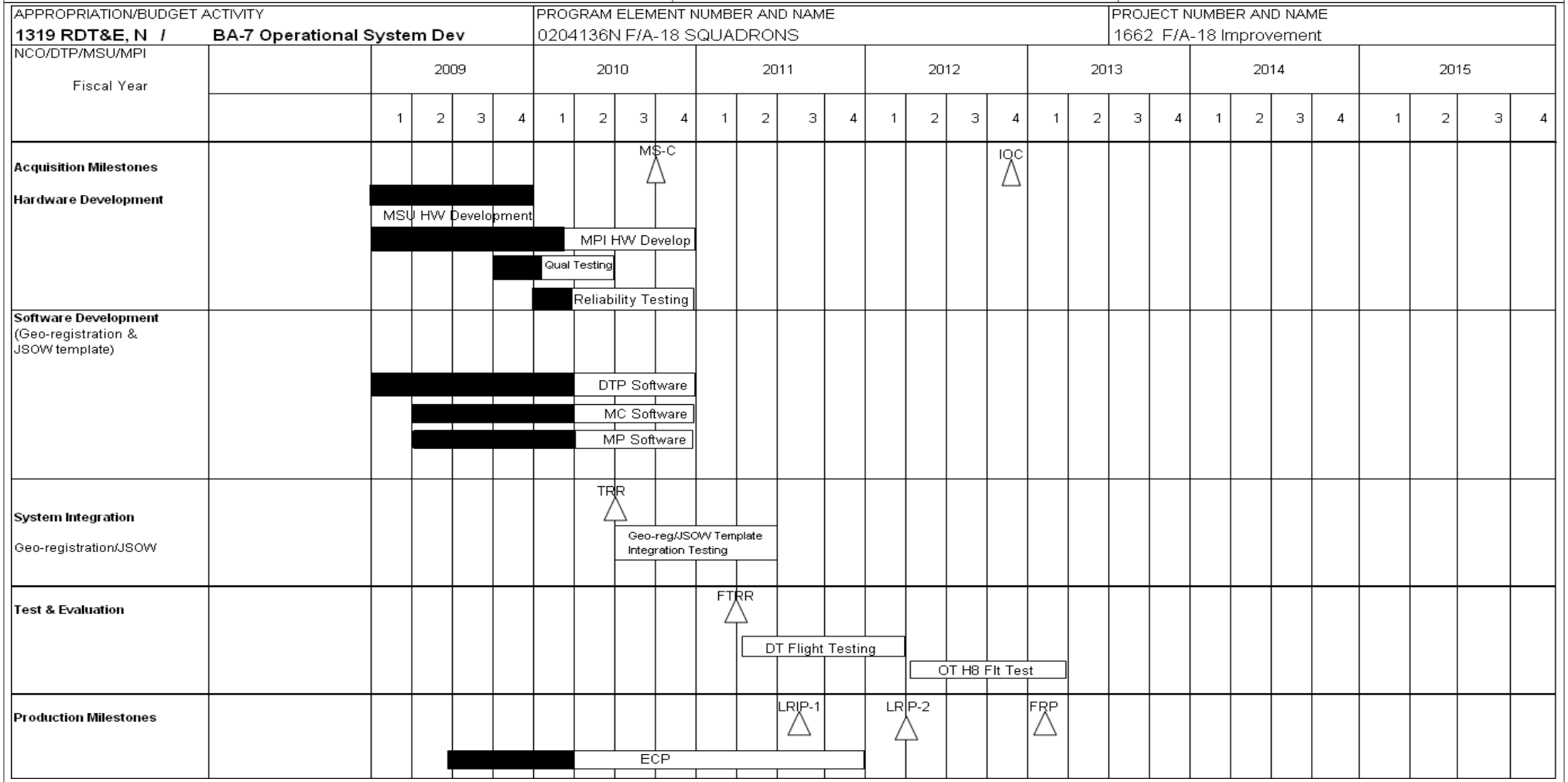

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204136N: *F/A-18 Squadrons*	**PROJECT** 1662: *F/A-18 Improvement*

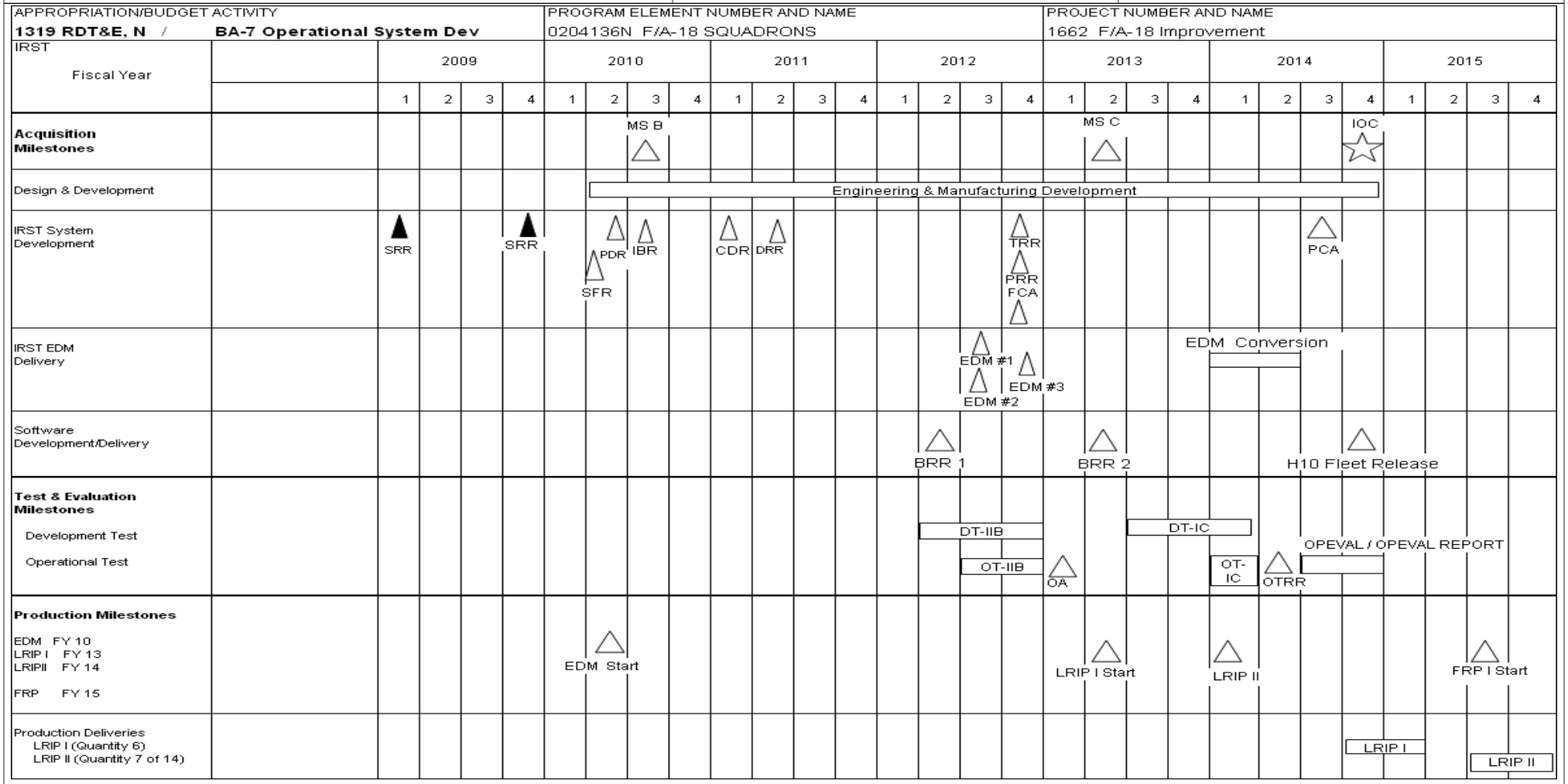

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204136N: *F/A-18 Squadrons*	**PROJECT** 1662: *F/A-18 Improvement*

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
1319 RDT&E, N / BA-7 Operational System Dev	0204136N F/A-18 Squadrons	1662 F/A-18 Improvement

SSG/SEI, HGEA/HGESM/IDECM

Fiscal Year	2009				2010				2011				2012				2013				2014				2015			
	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																												
Software Development	■	■	■	■	■	S/W Development																						
Software Integration		■	■	■	■	S/W Integration																						
Validation/Verification, IT&E											V/V, IT&E																	
Operational Evaluation													☆ OTRR			☆ Fleet Release												
													OPEVAL															

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 1662: *F/A-18 Improvement*

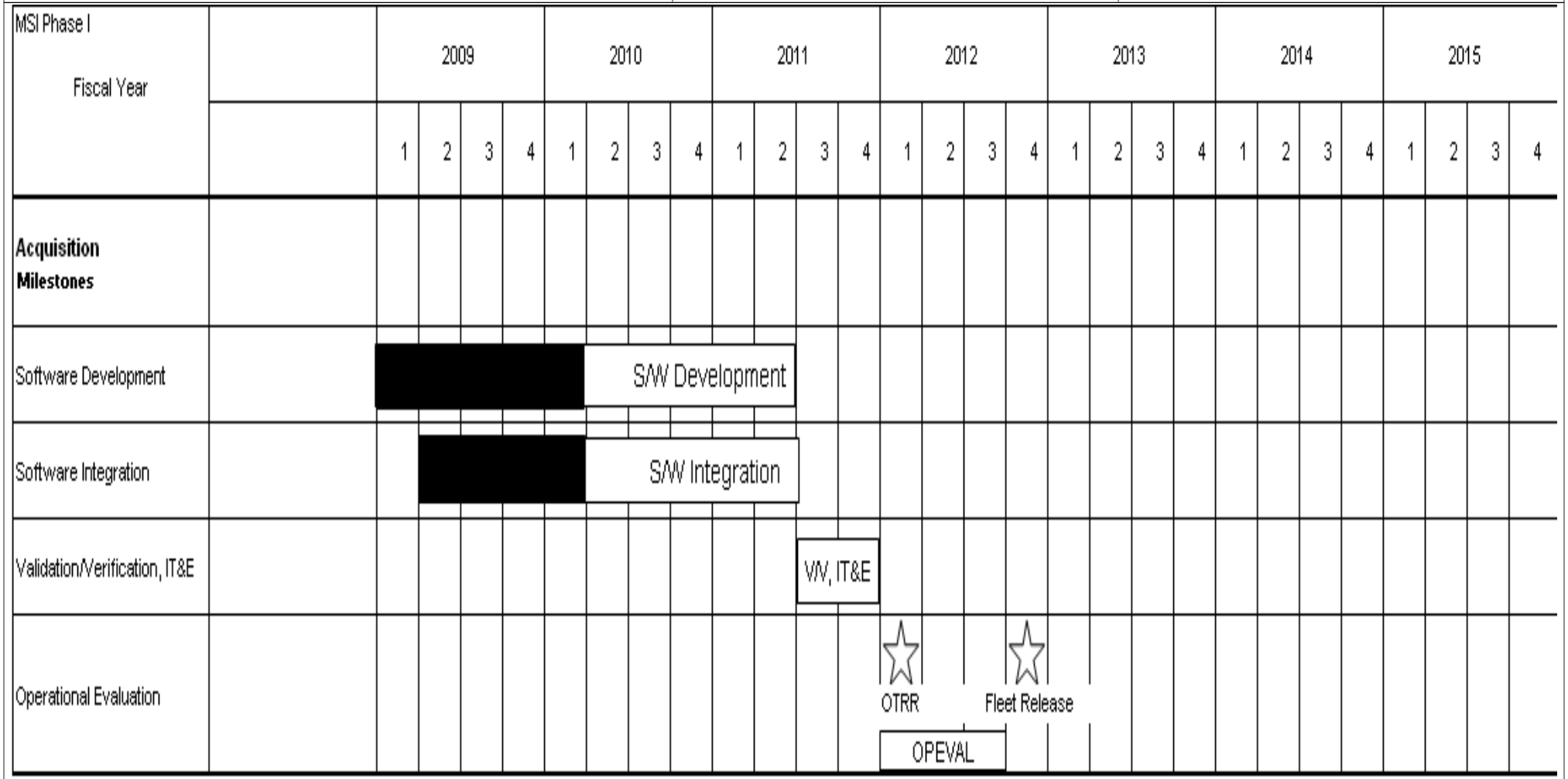

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204136N: *F/A-18 Squadrons*	**PROJECT** 1662: *F/A-18 Improvement*

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
1319 RDT&E, N / BA-7 Operational System Dev	0204136N F/A-18 Squadrons	1662 F/A-18 Improvement

A/A, A/G & Maritime MSI Phase II

Fiscal Year	2009				2010				2011				2012				2013				2014				2015			
	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																												
Requirements Definition		■	■	■																								
Design & Development					■	Design & Development																						
Integration Testing											Integration Testing																	
Test Readiness Review											△ TRR																	
Operational Test																OT H9												
Production Milestones																			△ Fleet Release									

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204136N: *F/A-18 Squadrons*	**PROJECT** 1662: *F/A-18 Improvement*

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
1319 RDT&E, N / BA-7 Operational System Dev	0204136N F/A-18 Squadrons	1662 F/A-18 Improvement

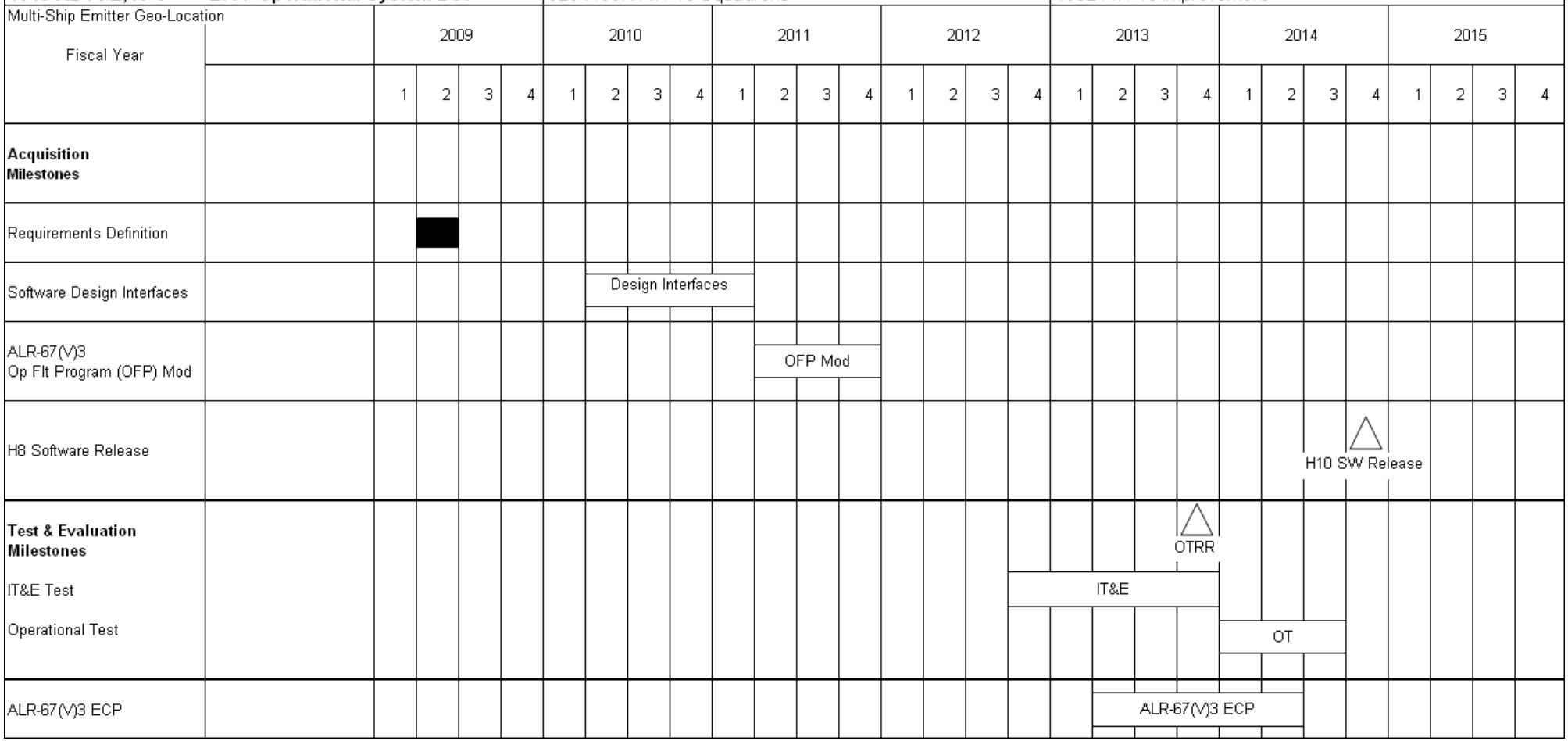

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 1662: *F/A-18 Improvement*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
NCO/DTP/MSU/MPI	1	2009	1	2013
- Mass Storage Unit HW Development	1	2009	4	2009
- Mission Planning Interface HW Development	1	2009	4	2010
- Milestone C	3	2010	4	2010
- Initial Operational Capability	4	2012	4	2012
- Qual Testing	4	2009	2	2010
- Reliability Testing	1	2010	4	2010
- Distributed Targeting Processor SW Developement	1	2009	4	2010
- Mission Computer SW Development	2	2009	4	2010
- Mission Planning SW Development	2	2009	4	2010
- DTP Test Readiness Review	2	2010	3	2010
- Geo-reg/JSOW Template Integration Testing	3	2010	2	2011
- Geo-reg/JSOW Template Fleet Test Readiness Review (FTRR)	1	2011	2	2011
- Geo-reg/JSOW Template Developmental Flight Test	2	2011	1	2012
- Geo-reg/JSOW Template Operational Test H8 Flight Test	2	2012	1	2013
- Low Rate Initial Production (LRIP 1)	3	2011	3	2011
- LRIP 2	1	2012	2	2012
- Full Rate Prodution (FRP)	1	2013	1	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 1662: *F/A-18 Improvement*

	Start		End	
Event	Quarter	Year	Quarter	Year
- Engineering Change Proposal (ECP)	3	2009	4	2011
IRST	1	2009	4	2015
- Milestone B	2	2010	2	2010
- Engineering and Manufacturing Development	2	2010	4	2014
- System Readiness Review (SRR) 1	1	2009	1	2009
- System Readiness Review (SRR) 2	4	2009	4	2009
- System Functional Review (SFR)	4	2009	4	2009
- Integrated Baseline Review (IBR)	2	2010	2	2010
- Preliminary Design Review (PDR)	1	2010	1	2010
- Critical Design Review (CDR)	1	2011	1	2011
- Design Readiness Review (DRR)	2	2011	2	2011
- Eng Dev Model (EDM) IRST Delivery - Lab/IT&E (Unit 1)	3	2012	3	2012
- Eng Dev Model (EDM) IRST Delivery - Lab/IT&E (Unit 2)	3	2012	3	2012
- Eng Dev Model (EDM) IRST Delivery - (Unit 3)	4	2012	4	2012
- EDM Conversion	1	2014	2	2014
- Test Readiness Review (TRR)	4	2012	4	2012
- Operational Assessment (OA)	1	2013	1	2013
- Functional Configuration Audit (FCA)	4	2012	4	2012
- Developmental Testing (DT-IIB)	2	2012	4	2012
- Preproduction Readiness Review (PRR)	4	2012	4	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 1662: *F/A-18 Improvement*

	Start		End	
Event	Quarter	Year	Quarter	Year
- Build Readiness Review I	2	2012	2	2012
- Build Readiness Review II	2	2013	2	2013
- H10 Fleet Release	4	2014	4	2014
- Milestone C (MS C)	2	2013	2	2013
- Start Low Rate Initial Production I	2	2013	2	2013
- Developmental Testing/Tech Eval (DT-IC/TECHEVAL)	3	2013	1	2014
- Operational Testing II-B	3	2012	4	2012
- Operational Testing Readiness Review (OTRR)	2	2014	2	2014
- Operational Test 1-C	1	2014	1	2014
- Operational Test Evaluation (OT-IC) (OPEVAL)	3	2014	4	2014
- EMD Start	2	2010	2	2010
- Start Low Rate Initial Production II	1	2014	1	2014
- Low Rate Initial Production I Delivery	4	2014	1	2015
- FRP I Start	3	2015	3	2015
- Physical Configuration Audit (PCA)	3	2014	3	2014
- LRIP II Delivery	3	2015	4	2015
- IOC	4	2014	4	2014
SSG/SEI; HGEA/HGESM/IDECM	1	2009	4	2012
- SSG Software Development	1	2009	2	2011
- SSG Software Integration	2	2009	2	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 1662: *F/A-18 Improvement*

	Start		End	
Event	Quarter	Year	Quarter	Year
- SSG V/V, Integrated Test Evaluation (IT&E old TECHEVAL)	3	2011	4	2011
- SSG Operational Evaluation (OPEVAL)	1	2012	3	2012
- SSG Operational Test Readiness Review (OTRR)	1	2012	1	2012
- SSG Fleet Release	4	2012	4	2012
MSI Phase I	1	2009	4	2012
- MSI Software Development	1	2009	2	2011
- MSI Software Integration	2	2009	2	2011
- MSI V/V, Integrated Test Evaluation (IT&E old TECHEVAL)	3	2011	4	2011
- MSI Operational Evaluation (OPEVAL)	1	2012	3	2012
- MSI Operational Test Readiness Review (OTRR)	1	2012	1	2012
- MSI Fleet Release	4	2012	4	2012
A/A, A/G & Maritime MSI Phase II	2	2009	4	2013
- MSI Requirements Definition	2	2009	4	2009
- Design & Development	1	2010	4	2011
- Integration Testing	3	2011	4	2012
- MSI Test Readiness Review	3	2011	3	2011
- Operational Test (H9)	4	2012	1	2013
- Fleet Release	4	2013	4	2013
Multi-Ship Emitter Geo-Location	2	2009	4	2014
- Requirements Definition	2	2009	2	2009

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
- Software Design Interfaces	2	2010	1	2011
- ALR-67(V)3 Operational Flight Program (OFP) Mod	2	2011	4	2011
- H10 Software Release	4	2014	4	2014
- Operational Test Readiness Review (OTRR)	4	2013	4	2013
- IT&E Test	4	2012	4	2013
- Operational Test	1	2014	3	2014
- ALR-67(V3) Engineering Change Proposal (ECP)	2	2013	2	2014

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 2065: *F/A-18 Radar Upgrade*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2065: *F/A-18 Radar Upgrade*	6.959	15.807	15.405	0.000	15.405	13.765	9.994	2.151	0.000	0.000	658.310
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

F/A-18 Radio Detection and Ranging (RADAR) Upgrade: The F/A-18 RADAR Upgrade, Active Electronically Scanned Array (AESA) development program, which began in FY 1999, is the last of three pre-planned upgrades to the F/A-18 Type/Model/Series RADAR. The AESA system corrects operational test deficiencies noted in the AN/APG-73. It provides for multi-target tracking, Synthetic Aperture RADAR (SAR) imagery, SAR Target Location Error (TLE), and improved spotlight map resolution. In addition, it provides for greater lethality than previous F/A-18 RADARs by allowing for full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons and it significantly increases A/A and A/G detection and tracking ranges. The AESA system provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy radar. This budget continues spiral capability development of AESA by increased efforts to address Phase II Operational Requirements Document requirements such as Electronic Protection (EP) against multiple Radio Frequency emitters (Distributed Targeting - AESA Multi-Jammer EP), Electronic Attack Multiple Targeted Track and Engagement and Aided Target Recognition via minimal hardware/maximum software changes. The effort will provide upgrades for EP capability against multiple radio frequency emitters. Higher Order Language (HOL) Software development and integration is also required for expanded A/A and A/G capabilities while in a tactical A/A and A/G threat Electronic Attack environment.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Distributed Targeting - AESA EP Eng & Mfg Dev	1.000	1.500	2.750	0.000	2.750
The AESA system provides greater survivability through self-protection and standoff jamming capabilities. This budget continues spiral capability development of AESA by increased efforts to address Phase II Operational Requirements Document requirements.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued Engineering Manufacturing Development efforts. Continued hardware developmental and refinement to the inherent Electronic Protection (EP) efforts that will increase the number of channels within the Receiver to enable Multi-Channel future software Multi-Jammer Electronic Protection (EP) activities. *FY 2010 Plans:* Continue Engineering Manufacturing Development efforts. Continue hardware developmental and refinement to the inherent Electronic Protection (EP) efforts that will increase the number of channels within the Receiver to enable Multi-Channel future software Multi-Jammer Electronic Protection (EP) activities. *FY 2011 Base Plans:* Continue Engineering Manufacturing Development efforts. Continue hardware developmental and refinement to the inherent Electronic Protection (EP) efforts that will increase the number of channels within the Receiver to enable Multi-Channel future software Multi-Jammer Electronic Protection (EP) activities.					
Dist Targeting - AESA EP SW Dev, DT, OT, & Integration Funding being utilized to support software capabilities development and associated testing. *FY 2009 Accomplishments:* Continued software development, Development Testing, systems integration efforts, and AESA Operational Test and Evaluation inclusive of some Follow-on Test and Evaluation for minimal hardware/software change efforts. Continued Multi-Jammer Electronic Protection (EP) efforts which expands and improves upon current software capability for Electronic Protection against multiple Radio Frequency emitters, Electronic Attack, and improved Fixed/Ground Mobile Target detection and tracking.	5.959	14.307	12.655	0.000	12.655

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 2065: *F/A-18 Radar Upgrade*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue software development, Development Testing, systems integration efforts, and AESA Operational Test and Evaluation inclusive of some Follow-on Test and Evaluation for minimal hardware/software change efforts. Continue Multi-Jammer Electronic Protection (EP) efforts which expands and improves upon current software capability for Electronic Protection against multiple Radio Frequency emitters, Electronic Attack, and improved Fixed/Ground Mobile Target detection and tracking. *FY 2011 Base Plans:* Continue software development, Development Testing, systems integration efforts, and AESA Operational Test and Evaluation inclusive of some Follow-on Test and Evaluation for minimal hardware/software change efforts. Continue Multi-Jammer Electronic Protection (EP) efforts which expands and improves upon current software capability for Electronic Protection against multiple Radio Frequency emitters, Electronic Attack, and improved Fixed/Ground Mobile Target detection and tracking.					
Accomplishments/Planned Programs Subtotals	6.959	15.807	15.405	0.000	15.405

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/0145: *F/A-18E/F*	1,812.068	1,499.902	1,784.894	0.000	1,784.894	468.761	2,246.690	194.268	0.000	0.000	39,745.605
• APN/0145C: *F/A-18E/F AP*	42.490	51.273	2.295	0.000	2.295	58.581	0.000	0.000	0.000	0.000	1,606.939
• APN/0143: *EA-18G*	1,567.005	1,606.871	1,028.801	0.000	1,028.801	2,355.947	91.030	48.961	8.480	0.000	9,168.881
• APN/1043C: *EA-18G AP*	46.693	20.496	55.081	0.000	55.081	0.000	0.000	0.000	0.000	0.000	246.510

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 2065: *F/A-18 Radar Upgrade*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/05250: *F-18 Series Mod*	464.287	559.888	492.821	43.250	536.071	470.898	446.581	598.108	559.068	1,610.295	8,715.826

D. Acquisition Strategy

The AESA program continues developmental efforts following a successful Full Rate Production milestone decision, after completing a two-phase Acquisition approach during the FY1999 through FY2007 timeframe. This strategy continues utilization of reform initiatives such as: early partnering with industry; leveraging industry investment; optimizing use of Commercial Off-The Shelf (COTS) software and Non-Developmental Item; using Cost as an Independent Variable; and Electronic Data Deliverables. Basic Ordering Agreement (BOA) orders for Request for Proposal (RFP) developments are in place for Boeing, the airframe prime manufacturer/ integrator, and Raytheon, the RADAR manufacturer, for focused risk reduction and sustainment of prior developmental activities.

E. Performance Metrics

Execute the system engineering process for software delivery and support the design and development of: Electronic Protection (EP), Air-to-Air (A/A) and Air-to-Ground Capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 2065: *F/A-18 Radar Upgrade*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development1	SS/CPFF	Boeing St. Louis, MO	455.749	0.000		0.000		0.000		0.000	0.000	455.749	455.749
GFE	SS/CPFF	Boeing St. Louis, MO	3.517	0.000		0.000		0.000		0.000	0.000	3.517	3.517
Primary Hardware Development	Various/ TBD	NSMA Arlington, VA	2.410	1.500	Nov 2009	1.000	Nov 2010	0.000		1.000	4.850	9.760	Continuing
Primary Hardware Development2	Various/ TBD	Boeing St. Louis, MO	0.000	0.000		1.750	Nov 2010	0.000		1.750	3.500	5.250	Continuing
Systems Engineering	WR	NAWCWD China Lake, CA	0.565	0.000		0.530	Nov 2010	0.000		0.530	0.897	1.992	Continuing
Systems Engineering	WR	NAWCAD Pax River, MD	0.435	0.000		0.611	Nov 2010	0.000		0.611	1.035	2.081	Continuing
		Subtotal	462.676	1.500		3.891		0.000		3.891	10.282	478.349	459.266

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	NAWCWD China Lake, CA	25.215	10.334	Nov 2009	7.014	Nov 2010	0.000		7.014	10.300	52.863	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 2065: *F/A-18 Radar Upgrade*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	Various Various	1.511	0.000		0.000		0.000		0.000	0.000	1.511	Continuing
		Subtotal	26.726	10.334		7.014		0.000		7.014	10.300	54.374	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Various Various	78.958	0.000		0.000		0.000		0.000	0.000	78.958	Continuing
Operational Test & Evaluation	WR	OPTEVFOR Norfolk, VA	13.384	0.000		0.000		0.000		0.000	4.777	18.161	Continuing
Developmental Test & Evaluation	Various/ Various	NAWCWD China Lake, CA	1.362	3.873	Nov 2009	3.260	Nov 2010	0.000		3.260	0.000	8.495	Continuing
Developmental Test & Evaluation	Various/ TBD	NSMA Arlington, VA	0.950	0.000		0.000		0.000		0.000	0.000	0.950	Continuing
Developmental Test & Evaluation	Various/ TBD	USAF Test Wing Eglin AFB, FL	1.440	0.000		0.000		0.000		0.000	0.000	1.440	Continuing
Developmental Test & Evaluation	WR	NAWCAD Pax River, MD	0.382	0.000		0.000		0.000		0.000	0.000	0.382	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 2065: *F/A-18 Radar Upgrade*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	96.476	3.873		3.260		0.000		3.260	4.777	108.386	

Remarks

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various/ Various	NAVAIR Pax River, MD	2.281	0.000		0.529	Nov 2010	0.000		0.529	0.897	3.707	Continuing
Travel	Various/ Various	NAVAIR Pax River, MD	0.968	0.100	Nov 2009	0.100	Nov 2010	0.000		0.100	0.300	1.468	Continuing
Contractor Engineering Support	Various/ Various	Various Various	0.508	0.000		0.611	Nov 2010	0.000		0.611	1.035	2.154	Continuing
		Subtotal	3.757	0.100		1.240		0.000		1.240	2.232	7.329	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	589.635	15.807		15.405		0.000		15.405	27.591	648.438	459.266

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 2065: *F/A-18 Radar Upgrade*	

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Remarks								

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204136N: *F/A-18 Squadrons*	**PROJECT** 2065: *F/A-18 Radar Upgrade*

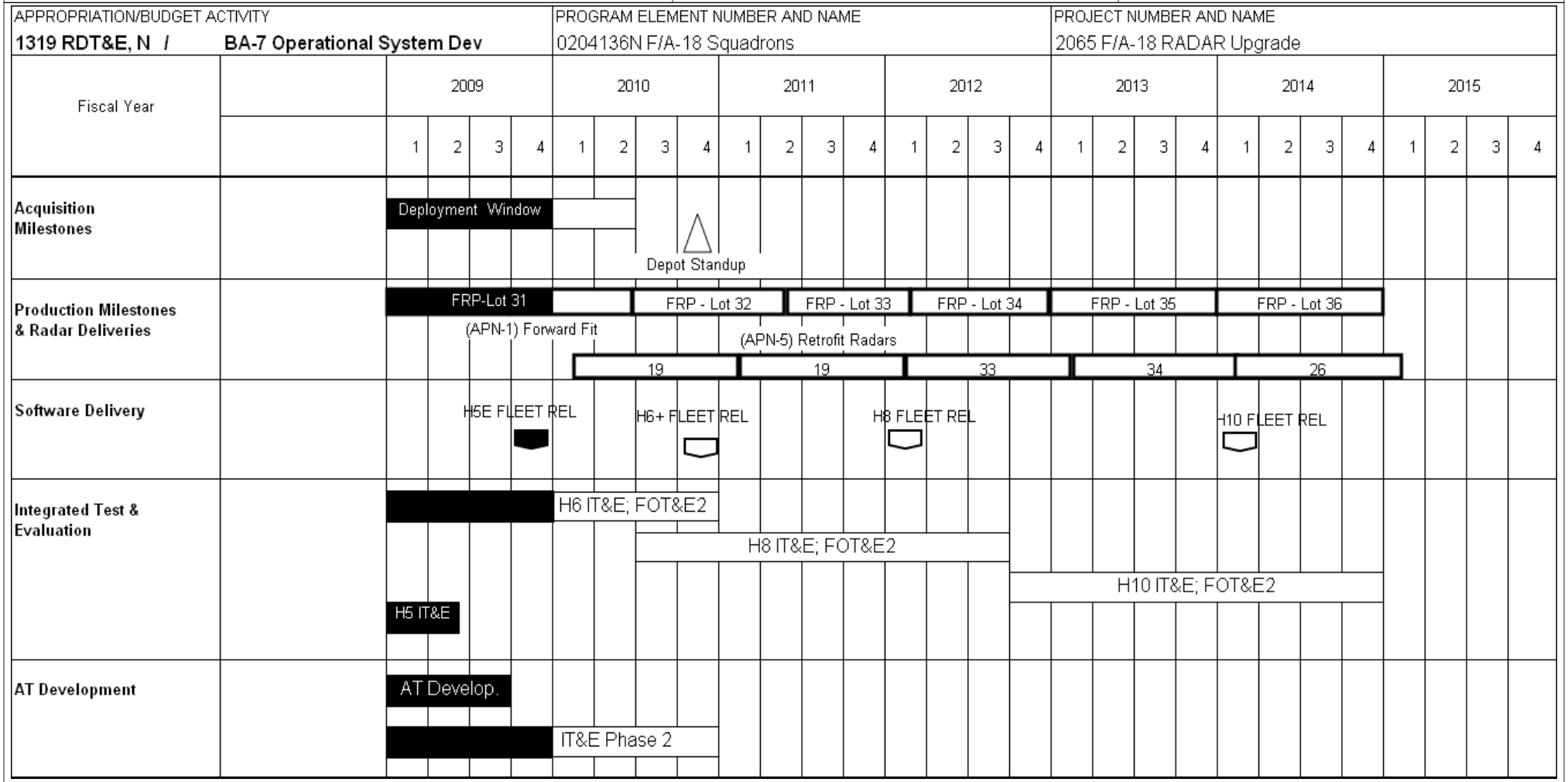

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 2065: *F/A-18 Radar Upgrade*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Deployment Window	1	2009	2	2010
H5 IT&E	1	2009	2	2009
H6 IT&E FOT&E2	1	2009	4	2010
H8 IT&E FOT&E2	3	2010	3	2012
H10 IT&E FOT&E2	4	2012	4	2014
H5 Fleet Release	4	2009	4	2009
Full Rate Production (FRP) Deliveries (Lot 31)	1	2009	2	2010
FRP Deliveries (Lot 32)	2	2010	2	2011
Depot Standup	4	2010	4	2010
Retrofit Radar Deliveries	1	2010	1	2015
FRP Deliveries (Lot 33)	2	2011	1	2012
FRP Deliveries (Lot 34)	1	2012	4	2012
FRP Deliveries (Lot 35)	1	2013	4	2013
FRP Deliveries (Lot 36)	1	2014	4	2014
H6+ FLEET RELEASE	4	2010	4	2010
H8 FLEET RELEASE	1	2012	1	2012
H10 FLEET RELEASE	1	2014	1	2014
AT Development	1	2009	3	2009

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 2065: *F/A-18 Radar Upgrade*

	Start		End	
Event	Quarter	Year	Quarter	Year
IT&E PHASE 2	1	2009	4	2010

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204136N: *F/A-18 Squadrons*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	2.394	2.868	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.893
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Add: (9E13A) Distributed Targeting Processor (DTP). The Navy will continue development of Distributed Targeting (DT)/Image Correlation Targeting (ICT) capabilities. This capability allows the F/A-18 E/F to self-target through the weather and mensurated target coordinates onboard the aircraft for use with precision weapons. Target Location Error is reduced to provide improvements in strike engagements against both fixed and moving, time sensitive and non-time sensitive targets. Precision targeting can be performed at ranges that result in improved platform survivability. Precision targeting can be performed autonomously providing improvements in naval extended range fires. DT/ICT capability of improved lethality is derived from reduced target location error that supports current J-series weapons and results in a shortened kill chain by performing on-board mensuration.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Fighter Jet Noise Reduction Under Carrier Deck Operational Environment *FY 2010 Plans:* Initiate Jet Noise Reduction activities.	0.000	2.868
Congressional Add: Distributed Targeting Processor *FY 2009 Accomplishments:* Continued integration of the Distributed Target Processor (DTP) to provide a baseline capability that can generate precision targeting coordinates for the F/A-18EF.	2.394	0.000
Congressional Adds Subtotals	2.394	2.868

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204136N: *F/A-18 Squadrons*	**PROJECT** 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

E. Performance Metrics

Not required for Congressional Adds.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy											DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	52.327	62.796	19.011	0.000	19.011	15.047	2.231	0.000	0.000	0.000	305.091
0463: *E2C Improvements*	52.327	62.796	19.011	0.000	19.011	15.047	2.231	0.000	0.000	0.000	305.091

A. Mission Description and Budget Item Justification

E-2 Improvements (0463) provides for incorporation of technologies for the evolution of E-2 Battle Management and Command and Control (BMC2) capabilities in support of naval warfare command and control requirements. It funds developments for the modification or replacement of Weapon Replaceable Assemblies (WRAs) of currently installed subsystems, as well as providing for experimentation with narrowband and wideband internet protocol (IP) concepts, to include technologies such as High Frequency (HF) Secure IP Router Network (HF SIPRNET), VRC-99 digital IP radio as a surrogate to the Joint Tactical Radio System, machine-to-machine digital data communications, Advanced Digital Networking System (ADNS), Tactical Information Services (TIS), cooperative and non-cooperative identification, and open architecture hardware and software computing environments. These efforts have laid the foundation for growth to provide additional functional capabilities satisfying evolving operational requirements, e.g., Airborne Networking, Joint Sensor Netting and Track Management, Tactical Decision Aids, Advanced communications, and permits the evolutionary growth of a Combat Identification (CID) and Theater Air and Missile Defense (TAMD) Capability.

A Core Open Architecture capability will modernize existing Mission Computer (MC) and Operational Flight Program (OFP) architecture, preserve interfaces to future E-2 weapon systems modification, simplify maintenance and upgrades of memory and operating systems (hardware/software independence), add an improved networking backbone to quickly field future interoperable warfighting applications and utilize open and commercially adopted standards and protocols to the maximum extent possible.

An In Flight Refueling (IFR) capability will allow the E-2 to receive fuel from various organic and strategic tanker aircraft. It provides Expanded Battle Space Surveillance and Targeting through significantly enhanced persistence and increased flexibility (range & endurance). IFR will better enable the E-2 to fully support current Carrier Strike Group (CSG)/Joint 24/7 Theater Operations by providing more versatile stationing and/or forward basing options. Previous domestic E-2 concept demonstration effort successfully established the feasibility of tanking behind the F/A-18E/F and KC-130 aircraft.

The Automatic Identification System (AIS) is a broadcast transponder system operating in the VHF maritime band for exchange of ship parameters including Registry, Port of Origin, Location, Course, Speed and other vessel characteristics. The current prototype E-2C AIS installation is integrated into the E-2C weapon system without a means to transfer information off board to other platforms/systems.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*

FY2010 starts the Radar Improvement Program. This provides funding to develop, and field improvements to APS-145 radar to address reliability and obsolescence and keep them viable until aircraft retirement.

This program element includes $2.550M for the Defense Acquisition Workforce Development Fund (DAWDF).

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	53.834	63.058	0.000	0.000	0.000
Current President's Budget	52.327	62.796	19.011	0.000	19.011
Total Adjustments	-1.507	-0.262	19.011	0.000	19.011
• Congressional General Reductions		-0.262			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.001	0.000			
• SBIR/STTR Transfer	-1.508	0.000			
• Program Adjustments	0.000	0.000	19.011	0.000	19.011

Change Summary Explanation

Technical: Not applicable.

Schedule: Project Unit 0463 - Airborne Battlefield Command and Control (ABC2) efforts now complete in 1Q of FY14. Schedule changes to Core OA are due to contract administration delays and the addition of Trainer Integration. Schedule changes to the High Frequency Internet Protocol are to add Trainers in FY11. Schedule changes to In-Flight Refueling are due to FY09 DAWDF realignment and other miscellaneous adjustments which resulted in a rephasing of the program. Schedule changes to Universal Automatic Identification System are due to the Test Readiness Review being delayed from 1Q of FY10 to 2Q of FY10. Schedule changes to the Radar Improvements Program are due to this program being an FY10 new start and being under a continuing resolution through 1Q of FY10.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*	PROJECT 0463: *E2C Improvements*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0463: *E2C Improvements*	52.327	62.796	19.011	0.000	19.011	15.047	2.231	0.000	0.000	0.000	305.091
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

E-2 Improvements (0463) provides for incorporation of technologies for the evolution of E-2 Battle Management and Command and Control (BMC2) capabilities in support of naval warfare command and control requirements. It funds developments for the modification or replacement of Weapon Replaceable Assemblies (WRAs) of currently installed subsystems, as well as providing for experimentation with narrowband and wideband internet protocol (IP) concepts, to include technologies such as High Frequency (HF) Secure IP Router Network (HF SIPRNET), VRC-99 digital IP radio as a surrogate to the Joint Tactical Radio System, machine-to-machine digital data communications, Advanced Digital Networking System (ADNS), Tactical Information Services (TIS), cooperative and non-cooperative identification, and open architecture hardware and software computing environments. These efforts have laid the foundation for growth to provide additional functional capabilities satisfying evolving operational requirements, e.g., Airborne Networking, Joint Sensor Netting and Track Management, Tactical Decision Aids, Advanced communications, and permits the evolutionary growth of a Combat Identification (CID) and Theater Air and Missile Defense (TAMD) Capability.

A Core Open Architecture capability will modernize existing Mission Computer (MC) and Operational Flight Program (OFP) architecture, preserve interfaces to future E-2 weapon systems modification, simplify maintenance and upgrades of memory and operating systems (hardware/software independence), add an improved networking backbone to quickly field future interoperable warfighting applications and utilize open and commercially adopted standards and protocols to the maximum extent possible.

An In Flight Refueling (IFR) capability will allow the E-2 to receive fuel from various organic and strategic tanker aircraft. It provides Expanded Battle Space Surveillance and Targeting through significantly enhanced persistence and increased flexibility (range & endurance). IFR will better enable the E-2 to fully support current Carrier Strike Group (CSG)/Joint 24/7 Theater Operations by providing more versatile stationing and/or forward basing options. Previous domestic E-2 concept demonstration effort successfully established the feasibility of tanking behind the F/A-18E/F and KC-130 aircraft.

The Automatic Identification System (AIS) is a broadcast transponder system operating in the VHF maritime band for exchange of ship parameters including Registry, Port of Origin, Location, Course, Speed and other vessel characteristics. The current prototype E-2C AIS installation is integrated into the E-2C weapon system without a means to transfer information off board to other platforms/systems.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*	PROJECT 0463: *E2C Improvements*

FY2010 starts the Radar Improvement Program. This provides funding to develop, and field improvements to APS-145 radar to address reliability and obsolescence and keep them viable until aircraft retirement.

This project unit includes $2.550M for the Defense Acquisition Workforce Development Fund (DAWDF).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Airborne Battlefield Command and Control (ABC 2)	6.689	5.205	3.564	0.000	3.564
Funds development and demonstration of E-2 airborne Joint Sensor Netting and Track Management (including Network Centric Collaborative Targeting (NCCT)), IP networking concepts (including Advanced Digital Networking Systems, Tactical Information Services, and IP enabled communications systems), machine-to-machine interface, open architecture computing environment, network applications, tactical decision aids, combat identification technologies, on and off-board data fusion capabilities, and advanced mission computer and communications technologies airborne demonstrations. *FY 2009 Accomplishments:* Funded development efforts and Trident Warrior exercise and a Limited Objective Experiment. *FY 2010 Plans:* Funds development efforts and a Joint Expeditionary Force Exercise and a Limited Objective Experiment. *FY 2011 Base Plans:* Funding is for the continuation of development efforts and a Empire Challenge exercise and a Limited Objective Experiment.					
In Flight Refueling (IFR)	5.974	15.189	1.270	0.000	1.270
Funds the system development and testing to support the incorporation of In Flight Refueling (IFR) capability into the E-2 aircraft. Emphasis during system development is on system redesign, air					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*	PROJECT 0463: *E2C Improvements*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
vehicle design, human systems integration and design, including interior/lighting modifications and seat replacement. Flight testing is required to evaluate field of view, thermal and aerodynamic loads, kinematic performance, and handling qualities. *FY 2009 Accomplishments:* Funded system development efforts. *FY 2010 Plans:* Funds continued system development efforts. *FY 2011 Base Plans:* Funding is for the continuation of system development efforts.					
Universal Automatic Identification System (UAIS) Funding integrates Universal Automatic Identification System (UAIS) into the E-2 mission computer and provides for a means to transfer Automatic Identification System (AIS) data from the aircraft inflight to the warships. The integration includes non-recurring engineering, logistics and test and evaluation to integrate UAIS control features and output into the E-2 weapons system and to standardize and document the UAIS hardware already installed on E-2 aircraft. It integrates other enhancing identification technologies complimentary to UAIS into the E-2. *FY 2009 Accomplishments:* Funded system development efforts. *FY 2010 Plans:* Funds developmental testing for the UAIS system.	4.094	4.095	0.000	0.000	0.000
E-2 Core Open Architecture (OA)	25.530	24.415	5.885	0.000	5.885

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*	PROJECT 0463: *E2C Improvements*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Funding supports the development, integration and test of an open architecture distributed computing environment and Internet Protocol networking infrastructure. *FY 2009 Accomplishments:* Funded system development efforts. *FY 2010 Plans:* Funds continued system development efforts and the beginning of the system integration and test. *FY 2011 Base Plans:* Funding is for the continuation of system integration and test and the beginning of Trainer Integration.					
E-2 High Frequency (HF) Internet Protocol (IP) Funds the development, integration and test of High Frequency (HF) radio and Mission Computer hardware and software modifications and additions to provide an E-2 HF digital data communications path, allowing for E-2 connectivity with other HF Internet Protocol (IP) users. *FY 2009 Accomplishments:* Funded system design and code efforts, test assets, and System Integration and Test efforts. *FY 2010 Plans:* Funds continued System Integration and Test efforts and deployment. *FY 2011 Base Plans:* Funding is for HFIP trainers.	7.490	4.724	2.114	0.000	2.114
Radar Improvements Program	0.000	9.168	6.178	0.000	6.178

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*	PROJECT 0463: *E2C Improvements*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
New start program in FY10 to develop, integrate, test, and field new components within the E-2C radar to address obsolete Weapon Replaceable Assemblies (WRAs) that are expected to be unsupportable in the near term. Such improvements will keep the APS-145 radar viable until 2026, the projected E-2C retirement date. This funding also supports necessary modifications within the APS-145 Radar Test Bench System (RTBS). *FY 2010 Plans:* Funds the design and development efforts. *FY 2011 Base Plans:* Funding is for the continuation of the design and development efforts and ground and flight testing.					
DAWDF Realignment Defense Acquisition Workforce Development Fund (DAWDF) Realignment. *FY 2009 Accomplishments:* N/A	2.550	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	52.327	62.796	19.011	0.000	19.011

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/0195: *E-2D AHE*	413.880	742.076	937.803	0.000	937.803	1,076.653	1,320.873	1,570.635	1,544.369	6,761.723	18,156.123
• APN/0605: *Initial Spares - E-2*	58.175	37.884	23.618	0.000	23.618	40.801	36.575	17.135	35.652	149.738	548.500

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*	PROJECT 0463: *E2C Improvements*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/0544: *E-2 Series*	24.293	49.952	47.046	0.000	47.046	33.177	28.154	36.565	36.085	138.256	1,614.218

D. Acquisition Strategy

The Core Open Architecture Acquisition Strategy was signed by Milestone Decision Authority (MDA), Program Executive Officer Tactical Aircraft Programs (PEO (T)) on 11 September 2008. The Milestone B decision review is planned for third quarter FY11.

The In-Flight Refueling Acquisition Strategy was signed by the MDA, PEO(T) on 24 October 2008. The Milestone B decision review is planned for fourth quarter FY11.

E. Performance Metrics

Successfully complete Core Open Architecture System Integration and Test and begin Trainer Integration. Successfully develop and deliver Trainers in support of the High Frequency Internet Protocol program. Successfully complete the Pre - SD&D phase, conduct a successful Preliminary Design Review and successfully achieve a Milestone B decision in support of the In Flight Refueling program. Successfully complete developmental testing and deploy the Universal Automatic Identification System. Successfully complete Design Development for the Radar Improvements program and begin ground and flight testing.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*	PROJECT 0463: *E2C Improvements*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development1	Various/ Various	Various Various	1.402	0.297		0.000		0.000		0.000	0.000	1.699	Continuing
Primary Hardware Development2	Various/ Various	Various Various	2.375	0.000		0.000		0.000		0.000	0.000	2.375	Continuing
Primary Hardware Development3	Various/ Various	Various Various	1.497	0.000		0.000		0.000		0.000	0.000	1.497	Continuing
Primary Hardware Development	SS/CPFF	NGC NY	1.815	0.540	Dec 2009	0.152	Dec 2010	0.000		0.152	0.000	2.507	2.507
Primary Hardware Development4	Various/ Various	Various Various	6.554	15.467		3.571		0.000		3.571	6.488	32.080	Continuing
Primary Hardware Development	SS/FFP	Lockheed Martin NY	3.641	0.000		0.000		0.000		0.000	0.000	3.641	3.641
Ancillary Hardware Development	Various/ Various	Various Various	0.000	0.260	Jan 2010	0.300	Jan 2011	0.000		0.300	0.440	1.000	Continuing
Aircraft Integration	C/CPFF	NGC NY	2.547	0.997	Jan 2010	0.000		0.000		0.000	0.000	3.544	3.544
Aircraft Integration	Various/ Various	Various Various	0.000	2.100		0.300		0.000		0.300	0.275	2.675	Continuing
Systems Engineering	Various/ Various	Various Various	0.000	0.901	May 2010	0.000		0.000		0.000	0.000	0.901	Continuing
		Subtotal	19.831	20.562		4.323		0.000		4.323	7.203	51.919	9.692

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*	PROJECT 0463: *E2C Improvements*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various/ Various	Various Various	1.523	0.701	Dec 2009	0.995	Dec 2010	0.000		0.995	1.066	4.285	Continuing
Software Development1	C/CPFF	Wyle Labs AL	3.661	0.729	Dec 2009	0.726	Dec 2010	0.000		0.726	0.000	5.116	5.116
Software Development2	Various/ Various	Various Various	5.786	1.333		0.538		0.000		0.538	0.000	7.657	Continuing
Software Development3	Various/ Various	Various Various	14.087	21.925		1.814		0.000		1.814	0.000	37.826	Continuing
Engineering & Technical Services	Various/ Various	Various Various	5.478	2.584	Dec 2009	1.865	Dec 2010	0.000		1.865	1.700	11.627	Continuing
Government Engineering Support1	Various/ Various	Various Various	0.516	0.000		0.000		0.000		0.000	0.000	0.516	Continuing
Government Engineering Support2	Various/ Various	Various Various	8.387	1.621	Nov 2009	0.903	Nov 2010	0.000		0.903	1.213	12.124	Continuing
Government Engineering Support3	WR	NAWCAD Pax River, MD	4.737	5.044	Nov 2009	1.725	Nov 2010	0.000		1.725	2.111	13.617	Continuing
Integrated Logistics Support	Various/ Various	Various Various	0.887	1.452	Dec 2009	0.321	Dec 2010	0.000		0.321	0.132	2.792	Continuing
		Subtotal	45.062	35.389		8.887		0.000		8.887	6.222	95.560	5.116

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*	PROJECT 0463: *E2C Improvements*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation1	Various/ Various	Various Various	0.730	0.000		0.000		0.000		0.000	0.000	0.730	Continuing
Developmental Test & Evaluation2	Various/ Various	Various Various	9.233	0.781	Nov 2009	1.047	Nov 2010	0.000		1.047	1.900	12.961	Continuing
Developmental Test & Evaluation3	WR	NAWCAD Pax River, MD	2.642	1.439	Nov 2009	2.137	Nov 2010	0.000		2.137	0.409	6.627	Continuing
Developmental T&E ETS4	Various/ Various	Various Various	1.368	0.199	Dec 2009	0.386	Dec 2010	0.000		0.386	0.132	2.085	Continuing
Test Assets	Various/ Various	Various Various	0.000	0.621		0.000		0.000		0.000	0.000	0.621	Continuing
		Subtotal	13.973	3.040		3.570		0.000		3.570	2.441	23.024	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support1	Various/ Various	Various Various	0.042	0.000		0.000		0.000		0.000	0.000	0.042	Continuing
Government Engineering Support	WR	NAWCAD Pax River, MD	2.646	1.783	Nov 2009	0.869	Nov 2010	0.000		0.869	0.070	5.368	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support1	Various/ Various	Various Various	5.959	0.296	Nov 2009	0.204	Nov 2010	0.000		0.204	0.322	6.781	Continuing
Program Management Support-MSS2	C/CPFF	Wyle Labs AL	1.889	0.182	Dec 2009	0.088	Dec 2010	0.000		0.088	0.000	2.159	2.159
Program Management Support-MSS3	Various/ Various	Various Various	4.028	1.379	Dec 2009	0.985	Dec 2010	0.000		0.985	0.955	7.347	Continuing
Travel	Various/ Various	Various Various	0.538	0.165	Oct 2009	0.085	Oct 2010	0.000		0.085	0.065	0.853	Continuing
DAWDF Realignment	Various/ Various	Various Various	2.550	0.000		0.000		0.000		0.000	0.000	2.550	Continuing
		Subtotal	17.652	3.805		2.231		0.000		2.231	1.412	25.100	2.159

Remarks

	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	96.518	62.796		19.011		0.000		19.011	17.278	195.603	16.967

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*	PROJECT 0463: *E2C Improvements*

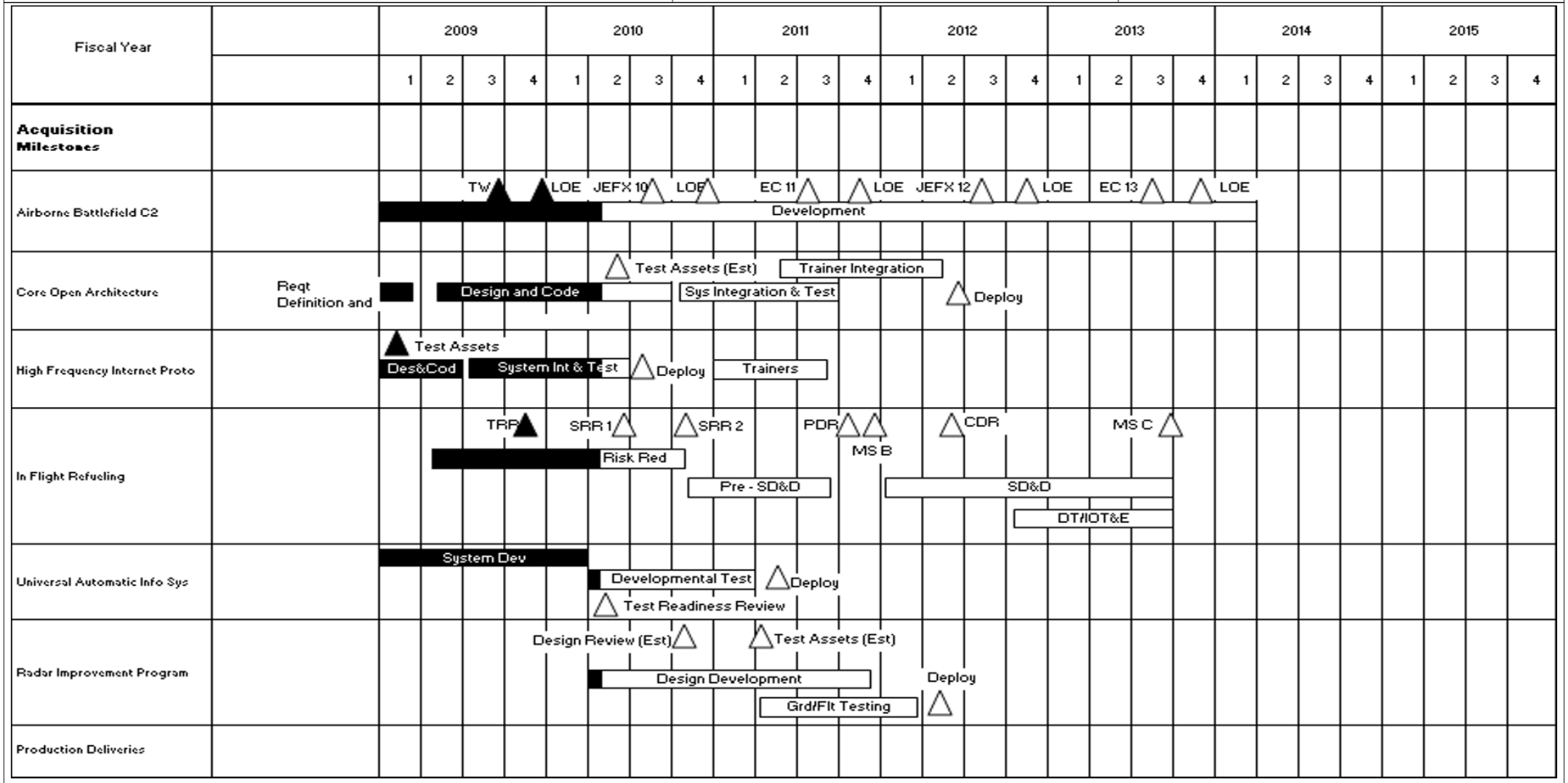

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204152N: *E-2 Squadrons*	PROJECT 0463: *E2C Improvements*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Airborne Battlefield C2 - Development	1	2009	1	2014
Airborne Battlefield C2 - Empire Challenge (EC) FY11	3	2011	3	2011
Airborne Battlefield C2 - Empire Challenge (EC) FY13	3	2013	3	2013
Airborne Battlefield C2 - Trident Warrior (TW)	3	2009	3	2009
Airborne Battlefield C2 - Joint Expeditionary Force Exercise (JEFX) FY10	3	2010	3	2010
Airborne Battlefield C2 - Joint Expeditionary Force Exercise (JEFX) FY12	3	2012	3	2012
Airborne Battlefield C2 - Limited Objective Experiment (LOE) FY09	4	2009	4	2009
Airborne Battlefield C2 - Limited Objective Experiment (LOE) FY10	4	2010	4	2010
Airborne Battlefield C2 - Limited Objective Experiment (LOE) FY11	4	2011	4	2011
Airborne Battlefield C2 - Limited Objective Experiment (LOE) FY12	4	2012	4	2012
Airborne Battlefield C2 - Limited Objective Experiment (LOE) FY13	4	2013	4	2013
Core Open Arch - Requirements Definition & Analysis	1	2009	1	2009
Core Open Arch - Design & Code	2	2009	3	2010
Core Open Arch - Test Asset Delivery (Est.)	2	2010	2	2010
Core Open Arch - System Integration & Test	4	2010	3	2011
Core Open Arch - Trainer Integration	2	2011	2	2012
Core Open Arch - Deploy	2	2012	2	2012
High Frequency Internet Proto - Design & Code	1	2009	2	2009

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	Quarter	Year	Quarter	Year
High Frequency Internet Proto - Test Asset Delivery	1	2009	1	2009
High Frequency Internet Proto - System Integration & Test	3	2009	2	2010
High Frequency Internet Proto - Deploy	3	2010	3	2010
High Frequency Internet Proto - Trainers	1	2011	3	2011
In Flight Refueling - Risk Reduction	2	2009	4	2010
In Flight Refueling - Test Readiness Review	4	2009	4	2009
In Flight Refueling - System Readiness Review (SRR 1)	2	2010	2	2010
In Flight Refueling - Pre System Development and Demonstration (Pre SD&D)	4	2010	3	2011
In Flight Refueling - System Readiness Review (SRR 2)	4	2010	4	2010
In Flight Refueling - Preliminary Design Review (PDR)	4	2011	4	2011
In Flight Refueling - Acquisition Milestones - Milestone B	4	2011	4	2011
In Flight Refueling - System Development and Demonstration	1	2012	3	2013
In Flight Refueling - Developmental Test (DT)/Integrated Operational Test & Evaluation (IOT&E)	4	2012	3	2013
In Flight Refueling - Critical Design Review (CDR)	2	2012	2	2012
In Flight Refueling - Acquisition Milestones - Milestone C	3	2013	3	2013
Universal Automatic Info System - System Development	1	2009	1	2010
Universal Automatic Info System - Test Readiness Review	2	2010	2	2010
Universal Automatic Info System - Developmental Testing	2	2010	1	2011
Universal Automatic Info System - Deploy	2	2011	2	2011
Radar Improvement Program - Development	2	2010	4	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Radar Improvement Design Review (Est.)	4	2010	4	2010
Radar Improvement Program - Test Assets (Est.)	2	2011	2	2011
Radar Improvement Program - Ground & Flight Test	2	2011	1	2012
Radar Improvement Program - Deploy	2	2012	2	2012

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0204163N: *Fleet Tactical Development*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	28.031	36.799	26.894	0.000	26.894	25.758	20.441	18.547	16.432	Continuing	Continuing
0725: *Communication Automation*	13.377	15.409	6.805	0.000	6.805	11.811	12.749	10.932	8.682	Continuing	Continuing
1083: *Shore To Ship Com System*	14.654	19.797	20.089	0.000	20.089	13.947	7.692	7.615	7.750	Continuing	Continuing
9999: *Congressional Adds*	0.000	1.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.564

A. Mission Description and Budget Item Justification

The Communications Automation Program - This project is a continuing program that provides for automation and communications upgrades for fleet tactical users. It includes Tactical Messaging, Automated Digital Network System (ADNS), Tactical Switching Ashore, High Frequency Internet Protocol/Sub Network Relay. In Fiscal Year (FY) 10 and 11, begin Common Radio Room communications for requirements analysis, system design and the Mobile Networking High Band Increments 1 and 2.

ADNS is the method by which tactical Navy units transfer Internet Protocol (IP) data to Navy and Department of Defense communities on the Global Information Grid (GIG). ADNS serves as a gateway to enable joint and coalition interoperability for these tactical assets and ensures GIG connectivity. ADNS allows unclassified, secret, top secret traffic, and various joint, allied, and coalition services to interconnect to the Defense Information Systems Network ashore via Radio paths and pier connectivity.

Tactical Messaging: Tactical Messaging developed joint, combined, individual, and organizational message handling for ships and submarines, Tactical Mobile units, Marine Corps vans, and selected Military Sealift Command and Coast Guard platforms. Tactical Messaging develops fleet interfaces to the Defense Messaging System and legacy ashore messaging systems.

Tactical Switching Ashore will support the migration of the shore sites and their terrestrial interconnections into a coherent, scalable, network capability.

The Shore to Ship Communications System develops communication system elements which provide positive command and control of deployed submarines. The Shore to Ship Communications System which provides continuous assessment of the command and control links between the National Command Authority and missile platforms is conducted to ensure compliance with Nuclear Technical Performance Criteria (NTPC). The Shore to Ship Communications System addresses joint system design issues for Emergency Action Message (EAM) distribution to all nuclear platforms and provides evaluation of joint interoperability of EAM delivery systems. Tools are developed to provide strategic command and control planning within the submarine shore infrastructure to support deployed ballistic missile submarines.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204163N: *Fleet Tactical Development*

FY11 funds will be used for ADNS development, an increase in Common Radio Room development, Maritime Aerial Layer Network (MALN), an increase in development for NC3 LTS and an increase in development in Low Band Universal Communications System to reach Milestone C.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	26.527	37.431	0.000	0.000	0.000
Current President's Budget	28.031	36.799	26.894	0.000	26.894
Total Adjustments	1.504	-0.632	26.894	0.000	26.894
• Congressional General Reductions		-0.154			
• Congressional Directed Reductions		-2.000			
• Congressional Rescissions	0.000	-0.078			
• Congressional Adds		1.600			
• Congressional Directed Transfers		0.000			
• Reprogrammings	2.122	0.000			
• SBIR/STTR Transfer	-0.618	0.000			
• Program Adjustments	0.000	0.000	26.894	0.000	26.894

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Shipboard Automated Radio Room System*	0.000	1.593
Congressional Add Subtotals for Project: 9999	0.000	1.593
Congressional Add Totals for all Projects	0.000	1.593

Change Summary Explanation

Technical: Not applicable.

Schedule:

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
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ADNS: ADNS Increment (INC) III Submarine development efforts were added to reflect current requirements. The contract award for the INC III Submarine Development was delayed due to legal and contractual issues. The delay impacted the Preliminary Design Review (PDR), Critical Design Review (CDR) and Test Asset Decision events. Operational Testing (OT) for ADNS INC III planned for 2nd Qtr FY10. Full Rate Production Decision Review (FRPDR) planned for 4th Qtr FY10.

MALN Inc 1 (Formerly MNH Inc 1) : Milestone B slipped from 3Q FY10 to 2Q FY11. No impact to related BLI 3057 OPN.

NC3 LTS: Milestone B slipped from 4Q FY10 to 4Q FY11.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204163N: *Fleet Tactical Development*	PROJECT 0725: *Communication Automation*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0725: *Communication Automation*	13.377	15.409	6.805	0.000	6.805	11.811	12.749	10.932	8.682	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 is a continuing program that provides for automation and communications upgrades for Fleet tactical users. Tactical Messaging provides processing, storage, distribution and forwarding of General Service organizational messages on ships and submarines.

Automated Digital Network System (ADNS) provides routing, switching, baseband, configuration and monitoring capabilities for interconnecting naval, coalition and joint enclaves worldwide. ADNS utilizes off the shelf equipment and network protocols as specified by the Joint Technical Architecture. ADNS Increment (INC) II provides capabilities of load balancing, radio frequency restoral, initial quality of service to include application prioritization, initial traffic management, and enhancements designed to maximize use of available bandwidth for surface, shore, and airborne platforms. ADNS INC III converges all Navy tactical voice, video, and data requirements into a converged IP data stream. ADNS INC III interoperates with higher bandwidth satellites, supporting up to 25 mega bytes per second (Mbps) of throughput on unit level ships and up to 50 Mbps on force level ships. Increment III architecture also incorporates an IPv4/IPv6 dual stack and a cipher text security architecture to align to joint and coalition networks, in addition to greater security utilizing the High Assurance Internet Protocol (IP) Encryptor devices. ADNS INC III serves as the Navy tactical interface for IP Networking with Joint Tactical Radio System, and Advanced Extremely High Frequency. Future ADNS capabilities will utilize emerging technologies to integrate with additional Department of Defense C4I Programs to improve interstrike group networking and extend the network to the tactical edge.

The Tactical Switching Ashore (TSw) program rebuilds 1970s based shore high frequency based infrastructure to current and future scalable technical standards in order to provide a commercially standardized, technically compliant, and robust network. TSw is the shore component for Consolidated Afloat Networks and Enterprise Services. TSw will migrate the shore sites and their terrestrial interconnections into a coherent, scalable, network-centric capability. While leveraging off recent shore upgrades for the major shore communication regions, TSw will incorporate a system integrator approach to develop, design, and implement a plan to remove bandwidth limitations, create failover communication paths, provide secure and available communications, provide dynamic bandwidth management, and reduce costly dependencies on legacy systems. This plan is designed to increase efficiencies, and reduce manpower and the overall footprint of the Navy's shore sites. In addition, TSw will provide an enterprise-wide network operations capability providing full network situational awareness, network visualization, network management and control, and automation capabilities. TSw will bring new technologies and capabilities that converge legacy, circuit-based, communications to a standard, integrated, and interoperable IP network. This enabling system, of which United States Navy enterprise network (FORCEnet) is a part, supports the four pillars of Sea Power 21 by providing the infrastructure required to support collaborative decision-making, faster decision cycles, and shared superior situational awareness required for

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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overseas contingency operations and to mitigate network vulnerabilities. FY10 will continue the development for the implementation of all-IP interoperability allowing for the removal of the remaining legacy and Navy network architectures. TSw will develop the end to end quality of service providing global situational awareness, survivability, and bandwidth expansion to ensure a robust, reliable, scaleable, sustainable, and dynamic failover global network architecture. TSw will develop the integration plan to maximize the DISN core for transport, research, develop and test, and route diversification, and distributed joint services to allow access anywhere via distributed services. In FY11, TSw has no developmental requirements.

Battle Force Tactical Network (BFTN) Increment 1 is the new name for the High Frequency Internet Protocol/Sub Network Relay program replaces legacy Battle force Email 66 and enables delivery of IP based collaboration services over high frequency (HF) assets. The intent is to provide an interoperable, low data rate, multi-node, beyond-line-of-sight tactical edge networking capability using existing HF radio infrastructure. Supports Tactical Edge Networking and provides data path backbone for both airborne and afloat forces. Supports increased data exchange with coalition forces.

Maritime Aerial Layer Network (MALN) Increment 1 (previously Mobile Networking High Band (MNH)) is the Navy solution set to support the Joint Aerial Layer Network (JALN). This collaborative effort will provide an overarching solution to fleet communications and networking requirements. MALN provides an advanced wideband communications network which was initiated in response to Littoral Combat Ship (LCS) requirements to communicate with off-board systems via a NAVSEA SBIR program. Inc. 1 will provide a networking radio designed to operate in an open ocean environment and support multiple naval platforms. This radio will provide a common wireless networking capability aboard LCS with applicability to other hull types, as well as other networked applications.

Maritime Aerial Layer Network (MALN) Increment 2 is an advanced wideband communications network which will transport intelligence data, non-traditional Intelligence, Surveillance, and Reconnaissance (ISR) communications, and backbone network traffic using IP-based connectivity to achieve GIG (Global Information Grid) interoperability. It will reuse frequencies via narrow-beam antennas. Inc. 2 provides theater-wide connectivity to units outside degraded satellite communication areas. Features next generation directional antenna technology to support multiple node connections.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Automated Digital Network System (ADNS)	7.375	8.171	3.154	0.000	3.154
FY 2009 Accomplishments: Developed system modification of ADNS Increment (INC) III for High Assurance Internet Protocol Encryptor (HAIPE) integration and submarines platforms. Developed acquisition documents,					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204163N: *Fleet Tactical Development*	PROJECT 0725: *Communication Automation*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
specifications, and capability requirements for ADNS INC III Subs. Developed and updated system and subsystem interface designs for integration with new Satellite Communications (SATCOM) and Radio Frequency (RF) paths. Began research and evaluation of emergent technology maturity for inclusion into future capabilities developed for ADNS systems to include Next Generation Command and Control Processor (NGC2P). *FY 2010 Plans:* Conduct ADNS INC III Developmental Testing (DT), conduct Operational Testing (OT) of ADNS INC III and Joint Interoperability Test Command (JITC) Certification of ADNS INC III. Continue the development of dynamic Quality of Service (QoS)/Ethernet modems. Continue the development of the system modification of ADNS INC III for HAIPE integration. Continue the development of acquisition documents, specifications, and capability requirements for ADNS INC III Subs. Continue the system development and demonstration phase for ADNS INC III for submarines. Perform acceptance test for ADNS INC III Subs, and begin the Common Submarine Radio Room (CSRR) integration effort. Continue the development of and update to system and subsystem interface designs for integration with new SATCOM and RF paths, as they emerge. Continue the research and evaluation of emergent technology maturity for inclusion into future capabilities developed for ADNS systems. The 5 procured units are submarine production representative units received from the vendor which will be utilized for the ongoing efforts listed in FY10 plans. *FY 2011 Base Plans:* Develop Traffic Engineering via Multiprotocol Label Switching/Virtual Private Networks (MPLS-VPNs) to support advance load distribution in ADNS INC III. ADNS INC III will enhance joint and coalition interoperability through new network routing architectures. Continue the CSRR integration effort for ADNS INC III submarine systems, and conduct the Operational Assessment for ADNS INC III submarine systems. Future ADNS capabilities will enhance network mobility for aircraft by developing a mobile ad hoc network (MANET) architecture. ADNS INC II and III will develop reduced size, weight and power (SWAP) designs for submarines, aircraft, and small vessels. Continue the development					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
of updated system and subsystem interface designs for integration with new SATCOM and Radio Frequency (RF) paths, as they emerge. Continue the research and evaluation of emergent technology maturity for inclusion into future capabilities developed for ADNS systems.					
Tactical Messaging (NAVMACS) *FY 2009 Accomplishments:* Developed and tested efforts for emerging technology to transition Tactical Messaging into a Service Oriented Architecture to align with DoD Official Information exchange (OIE) of the future and enable mobile tactical users to better support reporting for Maritime Domain Awareness.	1.145	0.000	0.000	0.000	0.000
Tactical Switching (Ashore) *FY 2009 Accomplishments:* Completed Increment II Spiral B development that continued from FY08. Completed the design, development, testing and implementation of the upgrades to the Tactical Switching (TSw) and Network Operations Center (NOC) systems allowing for full integration with the Joint Community on the All Internet Protocol (IP) Global Information Grid (GIG). Developed and designed the implementation plan to eliminate the remaining legacy and Navy unique networking elements that remain in the Tactical Switching architecture. This allowed for full All IP interoperability and integration between Navy forces and the forces of other branches of the service in the Joint battlespace allowing for full Network Centric Warfare. Provided for full direct access for Navy war fighters through the Navy Regional Network Operations Security Centers (RNOSCs) to the All IP GIG for full warfighting application data exchange. Provided the mechanism for dynamically and automatically managed real time integrated Information Assurance and security . Provided for Quality of Service (QoS) enabled traffic flow prioritization and fully automated dynamic bandwidth management. This new capability requires only a minimal amount of manual intervention and will provide for full integration between the Navy and Joint operational enclaves over UNCLAS, Secret, Sensitive Compartmented Information (SCI) and multiple Combined Enterprise Regional Information Exchange System (CENTRIXS) network enclaves.	3.771	2.336	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
The integration of Navy and Joint operational enclaves over multiple security domains provides key foundational connectivity required to support the Navy's Maritime Domain Awareness efforts. *FY 2010 Plans:* FY10 will continue the development for the implementation of ALL-IP interoperability allowing for the removal of the remaining legacy and Navy unique network architectures. Additionally, TSw will develop the end to end QoS providing global situational awareness, survivability, and bandwidth expansion to ensure a robust, reliable, scaleable, sustainable, and dynamic failover for a global network architecture.					
Battle Force Tactical Network (BFTN) Increment 1 (formerly SNR/HFIP) *FY 2009 Accomplishments:* Program renamed Battle Force Tactical Network (BFTN) Increment 1. Conducted market survey and testing for modems with increased data rates supporting High Frequency (HF) and Ultra High Frequency (UHF) Systems. Investigated new technologies in support of BFTN Increment 1 (formally SNR/HFIP). Efforts involved studies or development/testing of potential technologies for future program insertion.	1.031	0.000	0.000	0.000	0.000
Martime Aerial Layer Network Inc 1 (Formerly MNH Inc 1) *FY 2010 Plans:* Prepare acquisition documentation and Analysis of Alternatives (AoA). Obtain Milestone B Decision. Award prime prototype/Engineering Development Module (EDM) contract and begin system development. *FY 2011 Base Plans:* Program is renamed Maritime Aerial Layer Network (MALN) Increment 1. Continue system development for prototypes/EDMs. Obtain Milestone C.	0.000	1.961	0.937	0.000	0.937

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Martime Aerial Layer Network Inc 2 (Formerly MNH Inc 2) *FY 2010 Plans:* Begin preparing acquisition documentation and Analysis of Alternatives (AoA). Conduct technology demonstration. Prepare for Milestone B Decision. *FY 2011 Base Plans:* Program is renamed Maritime Aerial Layer Network (MALN) Increment 2. Develop the following acquisition documents: Acquisition Program Baseline (APB), Acquisition Strategy (AS), Capability Development Document (CDD) and Test Evaluation Master Plan (TEMP). Survey and explore waveform elements (i.e., discovery, modulation, encryption, network management, multiple access methods, bandwidth utilization and scalability) to identify and incorporate best of breed inclusion in the prototype/Engineering Development Module (EDM) solution. Prepare Request For Proposal (RFP) for FY12 EDM contract award. Obtain Milestone B Decision.	0.000	2.941	2.714	0.000	2.714
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded acquisition workforce fund.	0.055	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	13.377	15.409	6.805	0.000	6.805

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/3050/1: *Ship Comm Auto-Tactical Messaging*	2.647	3.880	0.341	0.000	0.341	4.904	5.343	1.724	1.347	Continuing	Continuing
• OPN/3050/2: *Ship Comm Auto-ADNS*	51.451	35.301	50.528	0.000	50.528	55.324	51.306	47.209	47.667	Continuing	Continuing
	47.746	27.175	22.672	0.000	22.672	23.926	20.754	20.381	20.661	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/3050/3: *Ship Comm Auto-Tactical Switching*											
• OPN/3057/1: *Comm Items Under $5M-BFTN Inc 1*	8.670	13.322	8.677	0.000	8.677	9.296	5.261	0.000	0.000	0.000	45.226
• OPN/3057/2: *Comm Items Under $5M-MALN Inc 1*	0.000	0.000	0.000	0.000	0.000	2.146	10.032	18.135	18.435	Continuing	Continuing
• OPN/3057/3: *Comm Items Under $5M-MALN Inc 2*	0.000	0.000	0.000	0.000	0.000	0.873	2.426	8.777	8.964	Continuing	Continuing

D. Acquisition Strategy

Automated Digital Network System (ADNS): Evolutionary acquisition approach with overlapping development and implementation phases for defined Increment I, II, and III baselines. Increment I , II , and III will use competitively awarded contracts to implement changes consistent with acquisition initiatives. ADNS leverages Commercial Off The Shelf (COTS) products while capitalizing on acquisition reform initiatives to achieve material savings in the logistics, installation, integration and training areas. Where feasible, differing types of advantageous contract vehicles will be used to provide flexibility, decreased contract administrative costs, and encourage acquisition streamlining through the use of COTS products.

Tactical Messaging: Tactical Messaging provides tactical war fighters with Command, Control, and Communication (C3) functionalities and functions in an open architecture environment. The program uses state-of-the-art technology that reduces operator training, technical support, maintenance, and overall life cycle system costs. The system uses COTS hardware and software and Government Off the Shelf (GOTS) furnished software.

Tactical Switching Ashore: Evolutionary acquisition approach with overlapping development and implementation increments. Use existing contract vehicles during Increment I implementation of procurement upgrades to existing shore legacy equipment at the major communication centers (Naval Computer & Telecommunications Area Master Station (NCTAMS) Pacific (PAC), NCTAMS Atlantic (LANT), NCTAMS Europe Central (EURCENT), Naval Computer & Telecommunications Station (NCTS) Bahrain, and NCTS San Diego) and to include 40+ shore communication facilities (Communication Stations (COMSTATIONs), Naval Operations Centers (NOCs), Mini-NOCs, and Standard Tactical Data Entry Point (STEP) sites). Increment I upgrades serve as an enabler to Increment II activities. Based upon the future shore communication architecture as defined by the Navy, Increment II transitions the Navy's 3 NCTAMS and two major Network Control Terminal (NCT) Shore infrastructure to a 2 regional network operations and security center (RNOSC) and 1 global network operations and security center (GNOSC) concept to achieve a Joint/Department of Defense (DoD) Net-Centric environment. Increment II will be organized into two steps. Each step will build upon the previous step and serve as risk mitigation for the succeeding step. This strategy provides flexibility in a rapidly evolving technology environment and allows earlier implementation of developmental

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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technology as it becomes available. The Increment III strategy is to maximize the use of joint resources. Tactical Switching will maximize the Defense Information Systems Network (DISN) Core for unified Navy transport, allowing for route diversification and distributed joint services allowing access anywhere via distributed services.

Maritime Aerial Layer Network (MALN) will utilize an incremental approach to address capability gap analysis/studies. Contracts are anticipated to be awarded with LRIP options built in. An evolutionary acquisition strategy will be used to insert technology migration.

E. Performance Metrics

ADNS - Included in the ADNS program goals are the improvements to bandwidth throughput, to connectivity to multiple Radio Frequency (RF) paths, greater security, and system capability delivered within a smaller form factor. The ADNS program will, at a minimum, provide bandwidth throughput enhancements resulting in an increase from 2Mbps to 25 Mbps. ADNS will also provide the ability to transport data across multiple paths simultaneously vice the current limitations of single or secondary paths. ADNS will reduce the rack unit (U) requirement from 81U to 54U and investigate the ability to reduce this Unit allocation for smaller Navy platforms. ADNS will provide greater security posture by encrypting each enclave, and securing the core via cipher text.
Tactical Switching - Provide Evaluation, Research and Design for Joint IP Shore C4ISR Architectures. Leverages COTS technology to achieve Navy NetOps-Enterprise Network Management in support of FORCEnet. Efforts include Design of Infrastructure, Operational Testing, Network Control, Independent Verification & Validation Agent, Configuration Management, Analysis and Assessment support, Risk Management, Modeling and Simulation, Test Planning/Testing QA, System Engineering, and I/A Support. Metric: Numerous potential integration catastrophes have been mitigated.
MALN - Reduce the number of Network Communications capability gaps, in a SATCOM denied environment, to technology gaps.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	PO	SSC PAC/LANT	1.025	0.000		0.000		0.000		0.000	0.000	1.025	Continuing
Primary Hardware Development	Various/ CPFF	Northrop Grumman McLean, Virginia	7.793	0.000		0.000		0.000		0.000	0.000	7.793	Continuing
Primary Hardware Development	Various/ CPFF	General Dynamics Maryland	11.069	6.840	Apr 2010	2.666	Apr 2011	0.000		2.666	0.000	20.575	Continuing
Primary Hardware Development	Various/ CPFF	SRA San Diego	0.000	0.016	Dec 2009	0.006	Dec 2010	0.000		0.006	0.000	0.022	Continuing
Primary Hardware Development	Various/ FFP	Boeing Washington State	0.000	1.347	Jan 2010	1.106	Jan 2011	0.000		1.106	0.000	2.453	Continuing
Primary Hardware/ Software	Various/ CPFF	Air Force Various	2.078	0.000		0.000		0.000		0.000	0.000	2.078	Continuing
Primary Hardware/ Software	Various/ CPFF	RSS/Harris Melobourne, FL	0.000	0.324	Dec 2009	0.400	Dec 2010	0.000		0.400	0.000	0.724	Continuing
Integration and Test	Various/ CPFF	RSS/Harris Melobourne, FL	0.000	0.400	Dec 2009	0.100	Dec 2010	0.000		0.100	0.000	0.500	Continuing
Integration and Test	WR	SSC PAC/LANT	0.365	0.792	Feb 2010	0.217	Feb 2011	0.000		0.217	0.000	1.374	Continuing
Integration and Test	Various/ CPFF	VAR Various	0.030	0.049	Dec 2009	0.018	Dec 2010	0.000		0.018	0.000	0.097	Continuing
Systems Engineering	WR	SSC PAC/LANT	19.531	2.373	Nov 2009	1.039	Nov 2010	0.000		1.039	0.000	22.943	Continuing
Systems Engineering	Various/ Various	VAR Various	6.096	0.000		0.000		0.000		0.000	0.000	6.096	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	MIPR	CECOM (MITRE) New Jersey	0.585	0.000		0.000		0.000		0.000	0.000	0.585	Continuing
Systems Engineering	WR	NUWC Newport, RI	0.761	0.208	Dec 2009	0.076	Dec 2010	0.000		0.076	0.000	1.045	Continuing
Prime Mission Product	PO	SSC PAC/LANT	4.353	0.000		0.000		0.000		0.000	0.000	4.353	Continuing
		Subtotal	53.686	12.349		5.628		0.000		5.628	0.000	71.663	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	SSC PAC/LANT	0.160	0.000		0.000		0.000		0.000	0.000	0.160	Continuing
Software Development	Various/ Various	VAR Various	7.250	0.000		0.000		0.000		0.000	0.000	7.250	Continuing
Integrated Logistics Support	WR	SSC PAC/LANT	0.000	0.060	Nov 2009	0.062	Nov 2010	0.000		0.062	0.000	0.122	Continuing
Integrated Logistics Support	Various/ Various	VAR Various	1.150	0.000		0.000		0.000		0.000	0.000	1.150	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Documentation	Various/ Various	VAR Various	0.706	0.000		0.000		0.000		0.000	0.000	0.706	Continuing
Technical Data	Various/ Various	VAR Various	0.500	0.000		0.000		0.000		0.000	0.000	0.500	Continuing
Studies and Analysis	WR	SSC PAC/LANT	0.960	0.000		0.000		0.000		0.000	0.000	0.960	Continuing
		Subtotal	10.726	0.060		0.062		0.000		0.062	0.000	10.848	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	SSC PAC/LANT	4.632	1.912	Dec 2009	0.873	Nov 2010	0.000		0.873	0.000	7.417	Continuing
Developmental Test & Evaluation	MIPR	JTIC Fort Huachuca, AZ	0.145	0.099	Oct 2009	0.037	Oct 2010	0.000		0.037	0.000	0.281	Continuing
Operational Test & Evaluation	WR	COMOPTEVOR Norfolk, VA	0.776	0.367	Nov 2009	0.134	Nov 2010	0.000		0.134	0.000	1.277	Continuing
Operational Test & Evaluation	Various/ Various	VAR Various	4.955	0.000		0.000		0.000		0.000	0.000	4.955	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	10.508	2.378		1.044		0.000		1.044	0.000	13.930	

Remarks

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	VAR Various	0.546	0.000		0.000		0.000		0.000	0.000	0.546	Continuing
Contractor Engineering Support	Various/ CPFF	SSC PAC/LANT	0.000	0.000		0.000		0.000		0.000	0.000	0.000	Continuing
Government Engineering Support	WR	SSC PAC/LANT	0.817	0.000		0.000		0.000		0.000	0.000	0.817	Continuing
Program Management Support	WR	SSC PAC/LANT	2.485	0.000		0.000		0.000		0.000	0.000	2.485	Continuing
Program Management Support	Various/ CPAF	VAR Various	7.863	0.500	Nov 2009	0.000		0.000		0.000	0.000	8.363	Continuing
Program Management Support	Various/ CPAF	BAH McLean, Virginia	0.000	0.122	Nov 2009	0.071	Nov 2010	0.000		0.071	0.000	0.193	Continuing
Acquisition Workforce	Various/ Various	VAR Various	0.055	0.000		0.000		0.000		0.000	0.000	0.055	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			11.766	0.622		0.071		0.000		0.071	0.000	12.459	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	86.686	15.409		6.805		0.000		6.805	0.000	108.900	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
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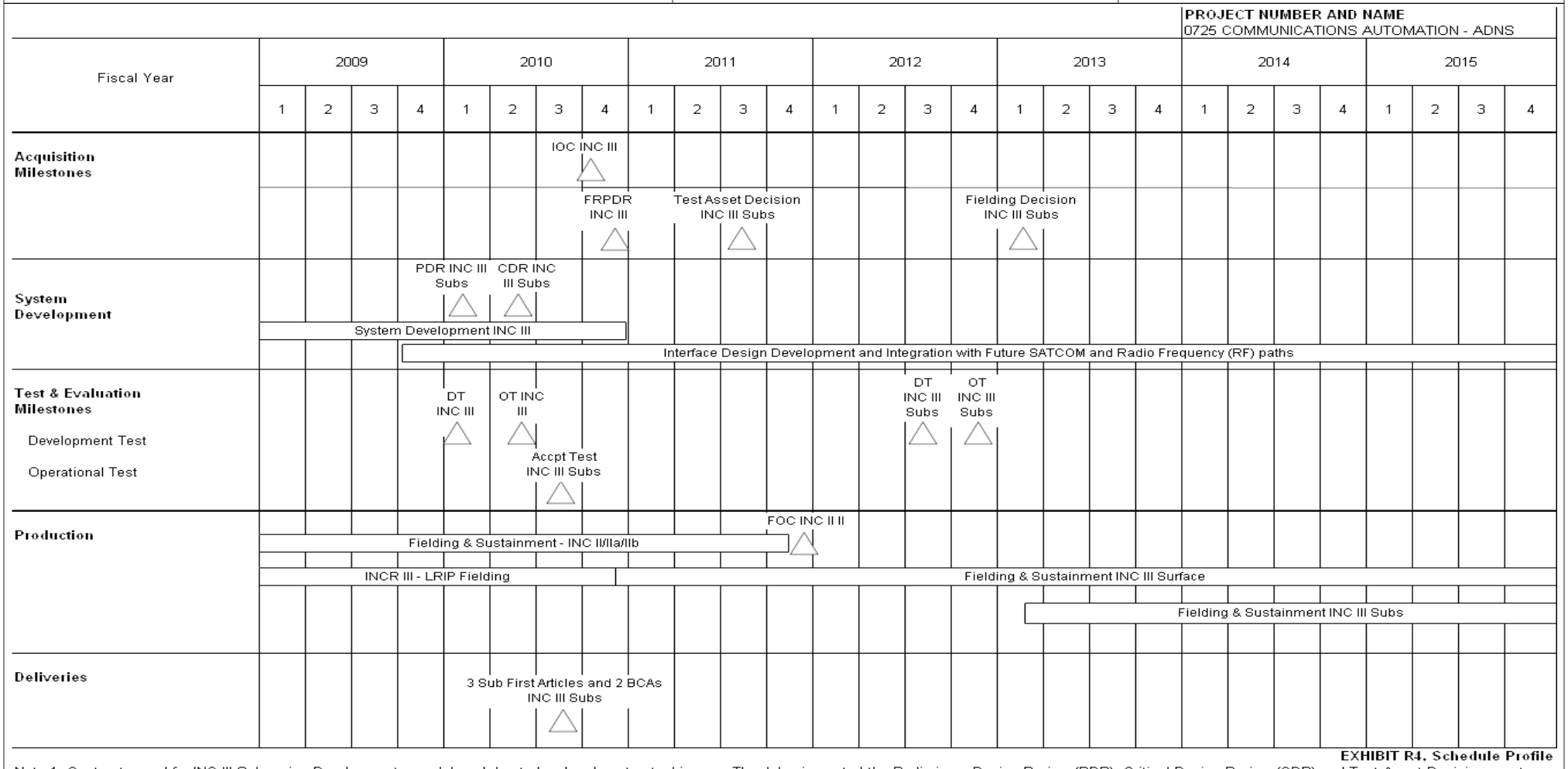

EXHIBIT R4, Schedule Profile

Note 1: Contract award for INC III Submarine Development was delayed due to legal and contractual issues. The delay impacted the Preliminary Design Review (PDR), Critical Design Review (CDR) and Test Asset Decision events.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			**DATE:** February 2010
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PROJECT NUMBER AND NAME
0725 COMMUNICATIONS AUTOMATION - TACTICAL MESSAGING

Fiscal Year	2009				2010				2011				2012				2013				2014				2015			
	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																												
System Development (Note 1)	TSC/C CDS																											
Software S/W Delivery (DMS Proxy V 1.0) (Note 2)																												
Test & Evaluation Milestones Interoperability Demonstration JITC IV&V Certification																												
Deliveries (Note 3, 4)				9			9																					

Notes:
1/ Navy discontinued TSC/C CDS Jan 8, 2009
2/ Software Deliveries canceled per Navy decision which redefined the way ahead for Naval Messaging.
3/ Quantities of deliveries were changed to reflect updated fielding plan.
4/ Deliveries represent OPN hardware quantities.

EXHIBIT R4, Schedule Profile

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
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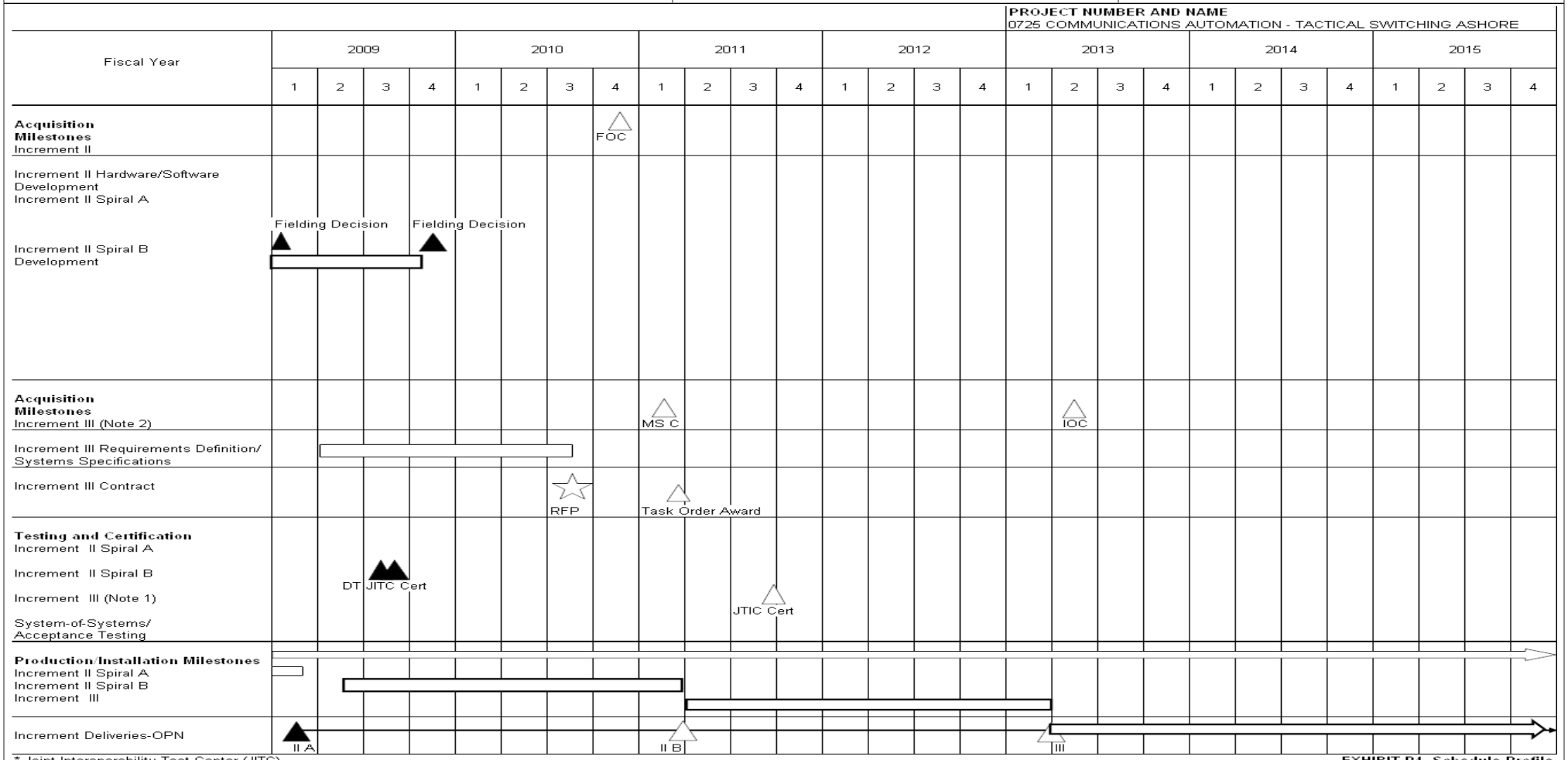

* Joint Interoperability Test Center (JITC)
Note 1 - FY11 Milestone C is production only. No development is required.

EXHIBIT R4, Schedule Profile

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
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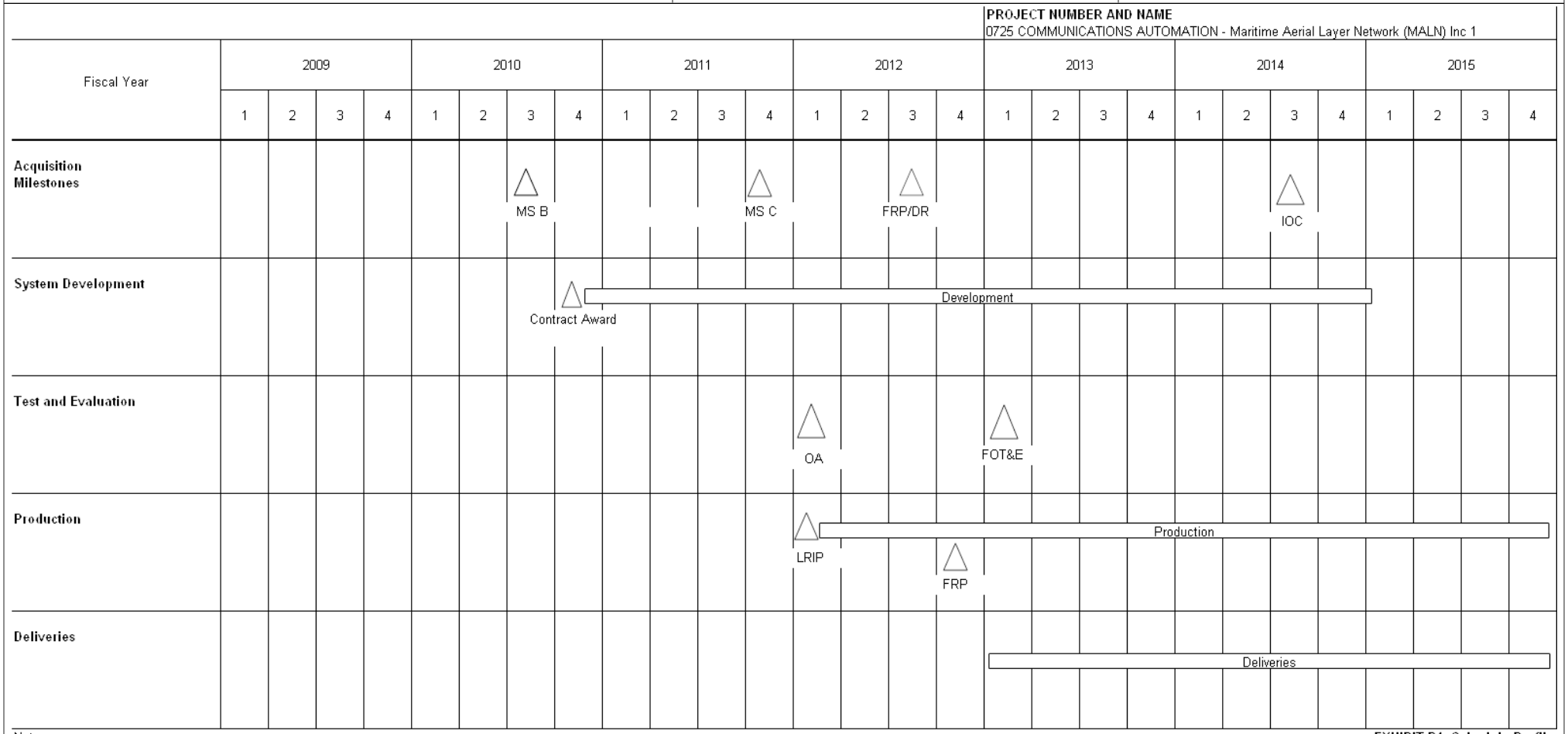
PROJECT NUMBER AND NAME
0725 COMMUNICATIONS AUTOMATION - Maritime Aerial Layer Network (MALN) Inc 1

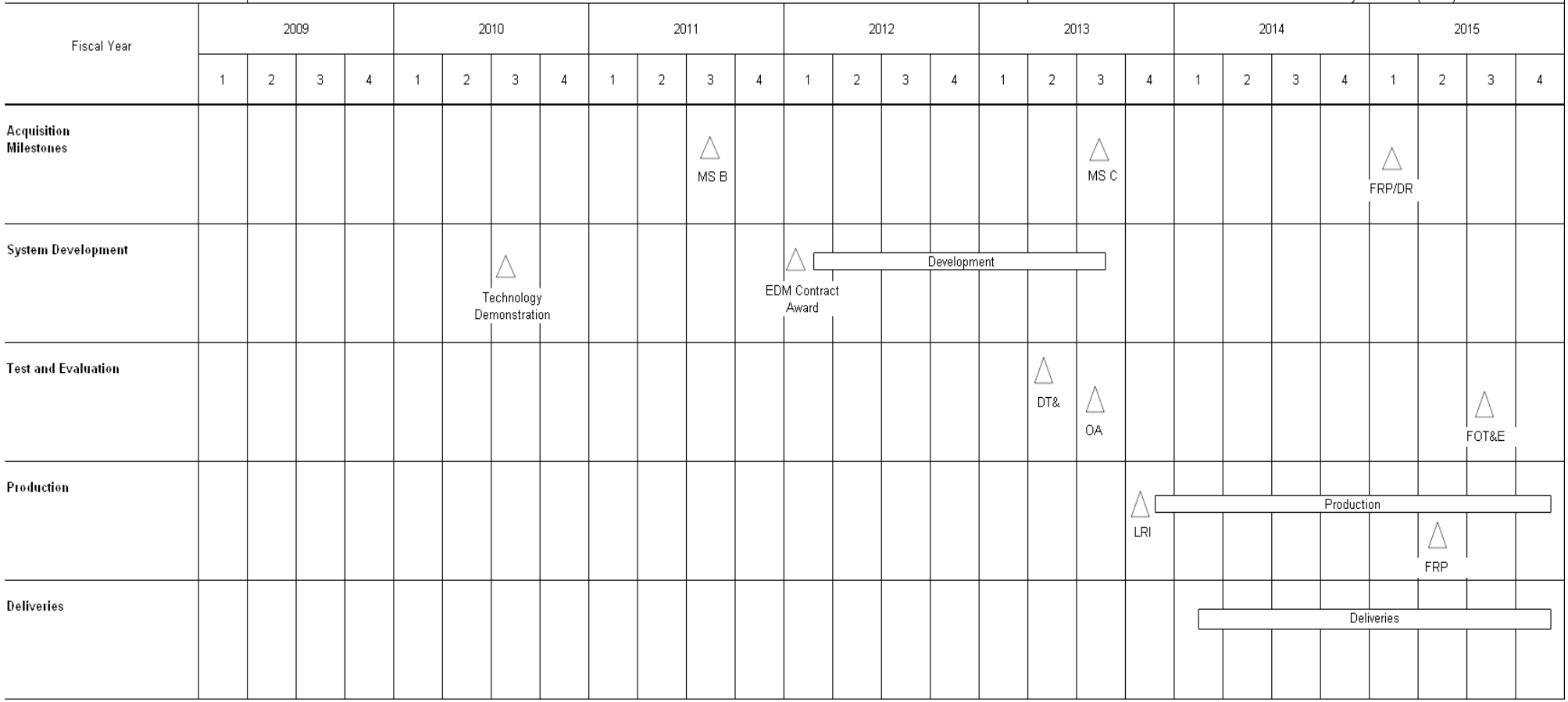


Notes:
1. Schedule update to more accurately depict program plans. No impact to related BLI 3057 OPN.
2. MS B slipped from 1QFY10 to 3QFY10, and MS C from 2QFY11 to 4QFY11. Full Rate Production (FRP) decision planned for 3QFY12.

EXHIBIT R4, Schedule Profile

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204163N: *Fleet Tactical Development*	**PROJECT** 0725: *Communication Automation*

PROJECT NUMBER AND NAME
0725 COMMUNICATIONS AUTOMATION - Maritime Aerial Layer Network (MALN) INC 2



Notes:
1. Schedule update to more accurately depict program plans. No impact to related BLI 3057 OPN.
2. MS B slipped from 1QFY10 to 3QFY11, and MS C from 1QFY12 to 3QFY13. Full Rate Production (FRP) decision planned for 1QFY15.

EXHIBIT R4, Schedule Profile

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
ADNS: INCREMENT III_Interface Design Development with SATCOM and Radio Frequency (RF) paths	4	2009	4	2015
ADNS: INCREMENT III_Fielding and Sustainment Inc III Surface	4	2010	4	2015
ADNS: INCREMENT III_Subs Preliminary Design Review (PDR)	1	2010	1	2010
ADNS: INCREMENT III_Subs Critical Design Review (CDR)	2	2010	2	2010
ADNS: INCREMENT III_Subs Acceptance Test	3	2010	3	2010
ADNS: INCREMENT III_Subs Deliver 3 Sub First Articles and 2 BCAs	3	2010	3	2010
ADNS: INCREMENT III_Subs Test Asset Decision	3	2011	3	2011
ADNS: INCREMENT III_Subs Developmental Testing (DT)	3	2012	3	2012
ADNS: INCREMENT III_Subs Operational Testing (OT)	4	2012	4	2012
ADNS: INCREMENT III_Fielding Decision	1	2013	1	2013
ADNS: INCREMENT III_Subs Initial Operational Capability (IOC)	1	2013	1	2013
ADNS: INCREMENT III_Subs Fielding and Sustainment	1	2013	4	2015
TACTICAL MESSAGING: System Development TS/C CDS	1	2009	3	2009
-TACTICAL SWITCHING: Increment II FOC	4	2010	4	2010
-TACTICAL SWITCHING: Increment II Spiral B Hardware/Software Development	1	2009	4	2009
-TACTICAL SWITCHING: Increment III Requirements Definition/Systems Specifications	2	2009	3	2010
-TACTICAL SWITCHING: Increment III Hardware/Software Production Contract Award	1	2011	1	2011
-TACTICAL SWITCHING: Increment III Milestone C	1	2011	1	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	Quarter	Year	Quarter	Year
-TACTICAL SWITCHING: Increment III IOC	2	2013	2	2013
-TACTICAL SWITCHING: Development Testing (DT) Increment II Spiral B	3	2009	3	2009
-TACTICAL SWITCHING: JTIC Increment III (Note 1)	3	2011	3	2011
-TACTICAL SWITCHING: IV&V/JITC Increment II Spiral B	3	2009	3	2009
-TACTICAL SWITCHING: Systems of Systems Testing	1	2009	1	2015
-TACTICAL SWITCHING: Increment II Spiral A Production/Installation	1	2009	1	2009
-TACTICAL SWITCHING: Increment II Spiral B Production/Installation	2	2009	1	2011
-TACTICAL SWITCHING: Increment III Production/Installation	2	2011	4	2015
-TACTICAL SWITCHING: Deliveries - OPN	1	2009	1	2013
MALN INC 1: Milestone B (MS B)	3	2011	3	2011
MALN INC 1: Contract Award	4	2011	4	2011
MALN INC 1: System Development	3	2011	4	2014
MALN INC 1: Milestone C (MS C)	3	2012	3	2012
MALN INC 1: Operational Assessment (OA)	4	2012	4	2012
MALN INC 1: Full Rate Production / Decision Review (FRP/DR)	3	2012	3	2012
MALN INC 1: Production	4	2012	4	2015
MALN INC 1: Low Rate Initial Production (LRIP)	3	2012	3	2012
MALN INC 1: Full Rate Production (FRP)	2	2013	2	2013
MALN INC 1: Follow On Test & Evaluation (FOT&E)	3	2013	3	2013
MALN INC 1: Deliveries	3	2013	4	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	Quarter	Year	Quarter	Year
MALN INC 1: Initial Operational Capability (IOC)	2	2015	2	2015
MALN INC 2: Technology Demonstration	3	2010	3	2010
MALN INC 2: Milestone B (MS B)	3	2011	3	2011
MALN INC 2: EDM Contract Award	1	2012	1	2012
MALN INC 2: System Development	1	2012	3	2013
MALN INC 2: Developmental Test & Evaluation (DT&E)	2	2013	2	2013
MALN INC 2: Milestone C (MS C)	3	2013	3	2013
MALN INC 2: Operational Assessment (OA)	3	2013	3	2013
MALN INC 2: Low Rate Initial Production (LRIP)	4	2013	4	2013
MALN INC 2: Production	4	2013	4	2015
MALN INC 2: Deliveries	1	2014	4	2015
MALN INC 2: Full Rate Production / Decision Review (FRP/DR)	1	2015	1	2015
MALN INC 2: Full Rate Production (FRP)	2	2015	2	2015
MALN INC 2: Follow On Test & Evaluation (FOT&E)	3	2015	3	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1083: *Shore To Ship Com System*	14.654	19.797	20.089	0.000	20.089	13.947	7.692	7.615	7.750	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 communication system elements which provide positive Command and Control (C2) of deployed submarines. This project provides enhancements to the shore-to-ship transmitting systems and provides submarine capabilities to the Broadcast Control Authority (BCA) consistent with the Network Operation Center (NOC) architecture. The BCA provides the oversight and control for all fixed submarine broadcasts.

The Low Band Universal Communications System (LBUCS) will ensure operational capability through the Very Low Frequency (VLF) architecture to ensure system life extension and flexibility of submarine broadcast traffic to the submarine in stealth posture. The flexibility includes enhanced throughput and anti-jam capability, ensuring more operational products are delivered to a submarine without risking mast exposure. The flexibility further includes simplified shore architecture to maintain capability while maximizing use of shore nodes (Broadcast Keying Sites). LBUCS also provides a replacement of the VLF receive system to ensure continued compliance with NTPC.

The Nuclear Command, Control and Communications Long Term Solution (NC3 LTS) is an acquisition program to replace the NC3 Hybrid Solution (NC3 HS) with a new NC3 architecture, the Defense Information Systems Network (DISN) Dedicated IP Network (DIN) NC3 LTS system. The primary function and mission of NC3 LTS is to provide accurate and reliable delivery of time-critical messages for the nuclear forces. Specifically, the NC3 LTS shall support the dissemination of EAMs, Nuclear Command and Control (NC2) messages including Nuclear Planning and Execution System (NPES) messages for force management, force direction, execution, and situation monitoring.

The Continued Evaluation Program (CEP) provides constant assessment of the effectiveness of the end-to-end network.

Allied interoperability issues for submarine communications in an IP environment are being investigated. Coalition architectures are developed and tested to address continued interoperability as new technology is applied. Interoperability between coalition Submarine Operating Authorities (SUBOPAUTH) and submarines under US operational control are evaluated to determine the most effective approaches for interoperability in an environment dealing with changing North Atlantic Treaty Organization (NATO) standards for submarine communication. These standards migrate from serial to IP based systems. The US and UK have agreed to develop a Network Enabled Operation (NEO) capability. This includes both submarine communications and Operational Control (OPCON) at shore sites. A SUBOPAUTH architecture provides for back-up capability among the four BCA/OPCONs to ensure Continuity-of-Operations Procedure in the event of a BCA outage. Concept

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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Development/System Planning provides Network Enabled Operations ensuring the integration of multiple combinations of US - Allied data exchange. This is achieved within and between the dimensional constraints of the US and Allied BCA/OPCON spaces. Concept Development/System Planning also provides the modeling of unique Very Low Frequency/Low Frequency (VLF/LF) submarine communications from the large physical shore broadcast antennas to underwater depth penetration can be reflected in the future BCA/OPCON planning tools. Technologies to improve high voltage insulators, helix house bushings and antenna components used in the Fixed VLF transmit systems are evaluated and tested through the High Voltage Improvement Program (HVIP).

Notes/Comments:
1) FY11 LBUCS: Complete development of PRA for transmit terminal.
2) FY11 NC3 LTS: Release Request for Proposal to industry.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Low Band Universal Communication System (LBUCS)	5.938	9.311	5.867	0.000	5.867
FY 2009 Accomplishments: Completed Request for Proposal (RFP). Awarded Prime Contract for Production Representative Article (PRA) development of transmit terminal for testing. Contractor commenced development and integration of LBUCS transmit hardware and software.					
FY 2010 Plans: Commence PRA. Contractor continues development effort and Integration of LBUCS transmit hardware and software. Commence Capabilities Production Document (CPD) development for transmit terminal in support of Milestone C. Complete Preliminary Design Review (PDR) for transmit terminal. Complete Critical Design Review (CDR) for transmit terminal. Continue updating acquisition documentation for Milestone C. Commence preparations of acquisition documentation for receive terminal.					
FY 2011 Base Plans: Complete acquisition documentation for Milestone C. Complete CPD for transmit terminal. Continue PRA development.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Nuclear Command, Control, Communications Long Term Solution (NC3 LTS)	3.858	4.817	8.908	0.000	8.908
FY 2009 Accomplishments: Continued development of Capability Development Document (CDD). Continued development of Request For Proposal/System Performance Specification (RFP/SPS). Commenced development of Test and Evaluation Master Plan (TEMP). Continued preparation of Milestone B acquisition documentation. *FY 2010 Plans:* Complete development of Request For Proposal/System Performance Specification (RFP/SPS). Continue development of Test and Evaluation Master Plan (TEMP). Continue preparation of Milestone B acquisition documentation. Complete CDD. *FY 2011 Base Plans:* Release RFP/SPS to industry. Complete TEMP. Complete MS B and issue Development Contract.					
Strategic Communications Assessment Program (SCAP)/Continuing Evaluation Program (CEP)	2.361	3.760	3.600	0.000	3.600
FY 2009 Accomplishments: Continued strategic communications capabilities and deficiencies assessment for evaluation of Nuclear Strategic Communications and Emergency Action Message (EAM) delivery. *FY 2010 Plans:* Continue strategic communications capabilities and deficiencies assessment for evaluation of Nuclear Strategic Communications and EAM delivery. *FY 2011 Base Plans:* Conduct mission analysis of TACAMO transmission and Ship Submersible Ballistic Nuclear Submarine (SSBNs) EAM reception for all SSBN patrols during FY11. Provide reports on performance,					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
adherence to delivery time requirements and shortfalls. Develop automated data collection and analysis tools to reduce latency time between missions and results availability.					
Concept Development/Systems Planning *FY 2009 Accomplishments:* Continued the integration of Joint/Allied Network Enabled Operations (NEO) with other US Navy enterprise network (FORCEnet) applications. *FY 2010 Plans:* Continue the integration of Joint/Allied NEO with other FORCEnet applications. *FY 2011 Base Plans:* Conduct US/UK developmental testing between US and UK Submarine Operating Authority (SUBOPAUTH) to validate NEO interoperability concepts.	1.519	0.944	0.850	0.000	0.850
High Voltage Improvement Program *FY 2009 Accomplishments:* Continued examination of ultra quick cut off devices to prevent overload conditions. Commenced examination of Nanocrystalline Ferrites to reduce the loss and size of Helix Enclosures. *FY 2010 Plans:* Complete examination of ultra quick cut off devices to prevent overload conditions. Continue examination of Nanocrystalline Ferrites to reduce the loss and size of Helix Enclosures. *FY 2011 Base Plans:* Complete the study of new ferrites to reduce the loss and size of Helix Enclosures. Commence the examination of the new ferrites to dynamic tuning elements with the goal of lowering of shore antenna frequencies allowing for greater broadcast signal in seawater depth penetration.	0.446	0.516	0.486	0.000	0.486

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Broadcast Control Authority *FY 2009 Accomplishments:* Commenced development of SUBOPAUTH communications tools to automate functionality at the SUBOPAUTH to reduce operational workload. *FY 2010 Plans:* Continue development of SUBOPAUTH communications tools. *FY 2011 Base Plans:* Complete development of waterspace management and messaging automation support tools, integrate into SUBOPAUTH toolset, and deliver to the fleet.	0.459	0.449	0.378	0.000	0.378
Acquisition Workforce Fund *FY 2009 Accomplishments:* FY09: Funded acquisition workforce fund	0.073	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	14.654	19.797	20.089	0.000	20.089

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/3107: *Submarine Broadcast Support*	3.130	0.105	0.000	0.000	0.000	13.885	24.695	32.421	31.362	Continuing	Continuing

D. Acquisition Strategy

Low Band Universal Communications System (LBUCS): LBUCS is the modernization program that will upgrade the Transmit and Receive subsystems of the Fixed Submarine Broadcast System (FSBS) which are approaching their operational end of life. A cost plus incentive fee contract will be awarded for Transmit subsystem

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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development in 4Q FY09 with three sequential fixed price options Contract Line Item Numbers (CLINs) for production and deployment. Contract award for the receive subsystem modernization is expected in 4Q FY12.

The Nuclear Command, Control and Communications Long Term Solution (NC3 LTS): NC3 LTS will provide accurate and reliable delivery of time-critical messages for the nuclear forces by developing a Defense Information Systems Network (DISN) Dedicated IP Network (DIN). Milestone B for the program is projected in 4Q FY11 with Milestone C occurring in 3Q FY14. Contract planning activities commenced in 4Q FY09, leading to a Request for Proposal release in 4Q FY10 and corresponding contract award in 3Q FY11. Full Operational Capability (FOC) is expected in 4Q FY17.

E. Performance Metrics

LBUCS: FY11: Continue development of Production Representative Article (PRA) for transmit terminal. Complete Capabilities Production Document (CPD).

NC3 LTS: FY11 : Release Request for Proposal to industry.

Continuing Evaluation Program (CEP): FY11: Delivery of patrol reports and development plan for automated data collection and analysis toolset.

Concept Development: FY11: Delivery of Network Enabled Operations (NEO) testing scenarios and shore architecture design to support the testing scenarios.

High Voltage Improvement Program: FY11: Complete Ferrite study to reduce loss and size of Helix enclosure. Commence examination of new Ferrites to allow greater broadcast signal.

Broadcast Control Authority (BCA): FY11: Delivery of a concept of operations document for automation tools and a users manual for operations within the BCA.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various/ Various	Various Various	18.861	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Ancillary Hardware Development	Various/ Various	Various Various	0.611	0.201	Feb 2010	0.400	Nov 2010	0.000		0.400	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	APL/JHU Baltimore, MD	29.925	3.124	Dec 2009	2.100	Dec 2010	0.000		2.100	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC PAC San Diego, CA	43.909	0.670	Feb 2010	0.685	Nov 2010	0.000		0.685	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC Newport Newport, RI	12.973	0.498	Feb 2010	0.498	Nov 2010	0.000		0.498	Continuing	Continuing	Continuing
Systems Engineering	MIPR	U.S. Army Monmouth, NJ	7.097	0.525	Nov 2009	0.525	Nov 2010	0.000		0.525	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	Various Various	16.154	0.000		0.000		0.000		0.000	0.000	16.154	Continuing
Primary Hardware Development	WR	NAVSEA Washington, DC	0.000	3.211	Feb 2010	3.900	Feb 2010	0.000		3.900	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPIF	SAIC San Diego, CA	0.000	6.183	Feb 2010	6.842	Feb 2010	0.000		6.842	Continuing	Continuing	Continuing
Ancillary Hardware Development	WR	SSC PAC San Diego, CA	1.130	0.374		0.744		0.000		0.744	0.000	2.248	Continuing
		Subtotal	130.660	14.786		15.694		0.000		15.694			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	Various Various	4.068	0.785	Feb 2010	0.759	Nov 2010	0.000		0.759	Continuing	Continuing	Continuing
Software Development	WR	SSC Pacific San Diego, CA	10.184	1.728	Feb 2010	1.661	Nov 2010	0.000		1.661	Continuing	Continuing	Continuing
Integrated Logistics Support	Various/ Various	Various Various	1.175	0.215	Feb 2010	0.215	Nov 2010	0.000		0.215	Continuing	Continuing	Continuing
Acquisition/Program Development	Various/ Various	Various Various	1.245	0.261	Feb 2010	0.261	Nov 2010	0.000		0.261	Continuing	Continuing	Continuing
Technical Data	Various/ Various	Various Various	2.822	0.000		0.000		0.000		0.000	0.000	2.822	Continuing
Development Support	WR	SSC PAC San Diego, CA	2.171	0.530		0.000		0.000		0.000	0.000	2.701	Continuing
		Subtotal	21.665	3.519		2.896		0.000		2.896			

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Strategic OP Systems Performance Evaluation	C/CPFF	APL/JHU Baltimore, MD	19.194	0.104	Dec 2009	0.106	Dec 2010	0.000		0.106	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Testing	Various/ Various	Various Various	8.407	0.448	Feb 2010	0.448	Dec 2010	0.000		0.448	Continuing	Continuing	Continuing
		Subtotal	27.601	0.552		0.554		0.000		0.554			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	MIPR	U.S. Army Monmouth, NJ	1.576	0.201	Nov 2009	0.201	Dec 2010	0.000		0.201	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various Various	1.821	0.456	Feb 2010	0.456	Dec 2010	0.000		0.456	Continuing	Continuing	Continuing
Program Management Support	Various/ Various	Various Various	5.166	0.233	Feb 2010	0.238	Dec 2010	0.000		0.238	Continuing	Continuing	Continuing
Travel	WR	Various Various	0.200	0.050	Oct 2009	0.050	Oct 2010	0.000		0.050	Continuing	Continuing	Continuing
Acquisition Workforce	Various/ Various	Various Various	0.073	0.000		0.000		0.000		0.000	0.000	0.073	Continuing
		Subtotal	8.836	0.940		0.945		0.000		0.945			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	188.762	19.797		20.089		0.000		20.089			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
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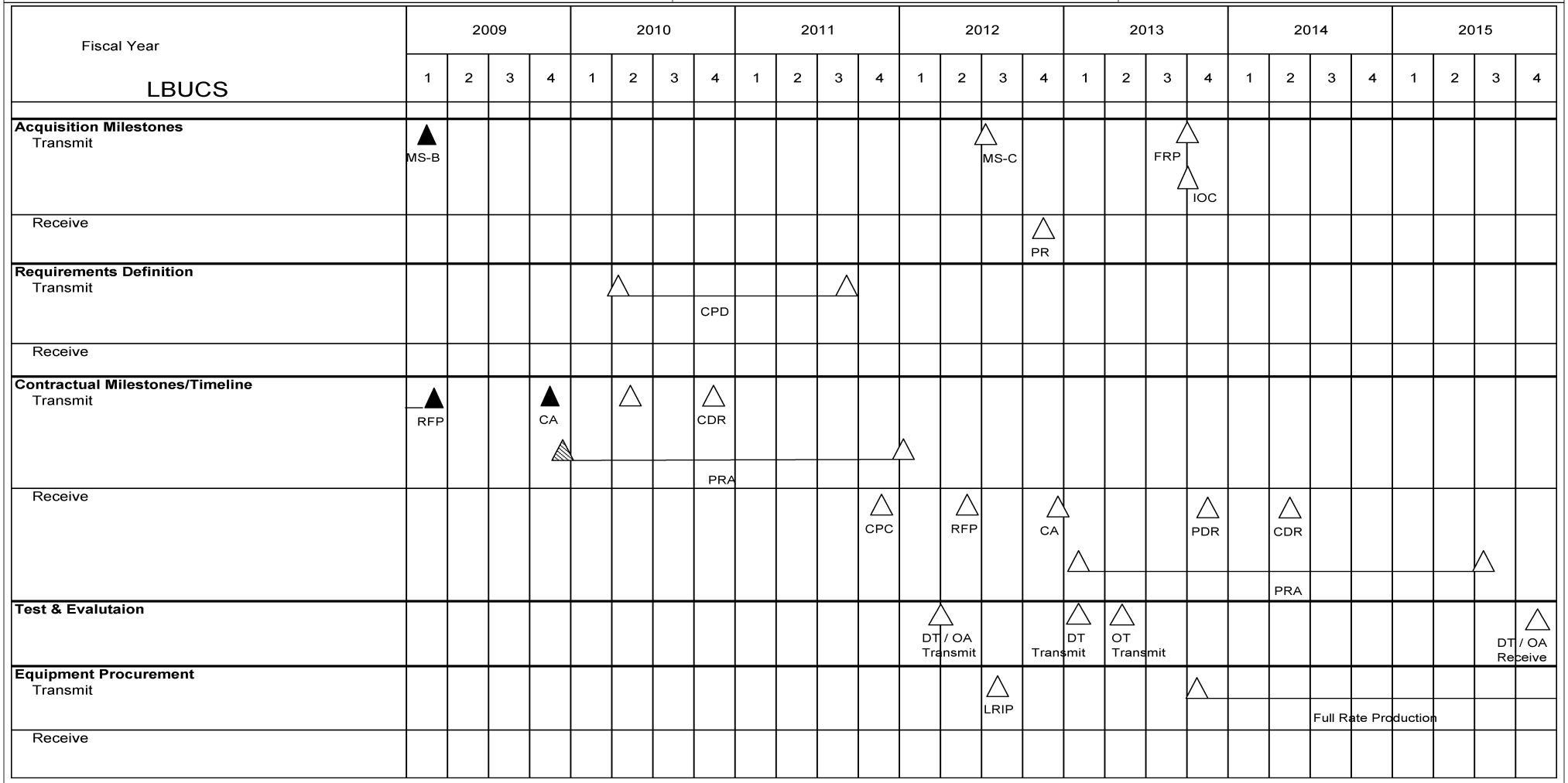

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
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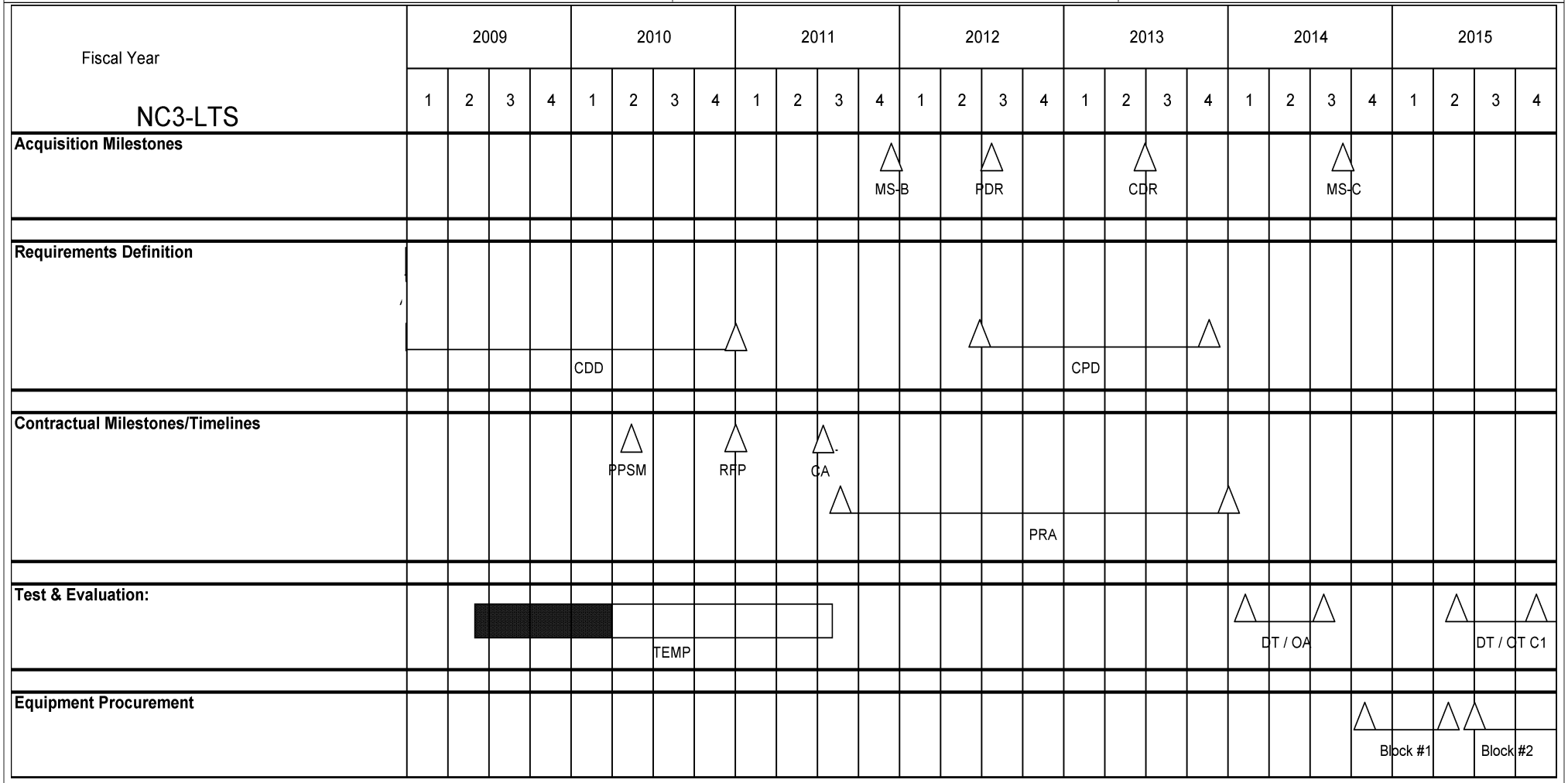

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
LBUCS: MS B	1	2009	1	2009
LBUCS: MS C	3	2012	3	2012
LBUCS: FRP - Transmit	3	2013	3	2013
LBUCS: IOC - Transmit	3	2013	3	2013
LBUCS: PR - Receive	4	2012	4	2012
LBUCS: CPD	2	2010	3	2011
LBUCS: RFP - Transmit	1	2009	1	2009
LBUCS: Contract Award - Transmit	4	2009	4	2009
LBUCS: PDR - Transmit	2	2010	2	2010
LBUCS: CDR - Transmit	4	2010	4	2010
LBUCS: PRA - Transmit	4	2009	1	2012
LBUCS: CPC - Receive	4	2011	4	2011
LBUCS: RFP - Receive	2	2012	2	2012
LBUCS: Contract Award - Receive	4	2012	4	2012
LBUCS: PRA - Receive	1	2013	3	2015
LBUCS: PDR - Receive	4	2013	4	2013
LBUCS: CDR - Receive	2	2014	2	2014
LBUCS: Test & Evaluation (DT/OA) - Transmit	1	2012	1	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	Quarter	Year	Quarter	Year
LBUCS: Test & Evaluation (DT/C1) - Transmit	1	2013	1	2013
LBUCS: Test & Evaluation (OT/C1) - Transmit	2	2013	2	2013
LBUCS: Test & Evaluation (DT/OA) - Receive	4	2015	4	2015
LBUCS: LRIP - Transmit	3	2012	3	2012
LBUCS: Full Rate Production - Transmit	4	2013	4	2013
NC3 LTS: MS B	4	2011	4	2011
NC3 LTS: PDR	3	2012	3	2012
NC3 LTS: CDR	2	2013	2	2013
NC3 LTS: MS C	3	2014	3	2014
NC3 LTS: CDD	1	2009	4	2010
NC3 LTS: CPD	2	2012	4	2013
NC3 LTS: PPSM	2	2010	2	2010
NC3 LTS: RFP	4	2010	4	2010
NC3 LTS: Contract Award	3	2011	3	2011
NC3 LTS: PRA	3	2011	4	2013
NC3 LTS: Test & Evaluation Master Plan	2	2009	3	2011
NC3 LTS: Test & Evaluation (DT)	1	2014	3	2014
NC3 LTS: Test & Evaluation (OA)	1	2014	3	2014
NC3 LTS: Test & Evaluation - Development (DT&E) C1	2	2015	4	2015
NC3 LTS: Test & Evaluation - Operational (OT&E) C1	4	2015	4	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	Quarter	Year	Quarter	Year
NC3 LTS: Equipment Deployment (Block 1)	4	2014	2	2015
NC3 LTS: Equipment Deployment (Block 2)	2	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	1.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.564
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Adds

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Shipboard Automated Radio Room System *FY 2010 Plans:* Shipboard Automated Radio Room System	0.000	1.593
Congressional Adds Subtotals	0.000	1.593

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Congressional Adds

E. Performance Metrics

Congressional Adds

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	17.556	17.077	10.587	0.000	10.587	9.333	9.050	9.186	9.370	Continuing	Continuing
0545: *TOMAHAWK*	13.567	13.174	10.587	0.000	10.587	9.333	9.050	9.186	9.370	Continuing	Continuing
9999: *Congressional Adds*	3.989	3.903	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.711

A. Mission Description and Budget Item Justification

The Tomahawk Weapons System (TWS) provides a Tomahawk cruise missile attack capability against targets on land (Tomahawk Land Attack Missile (TLAM)). The TLAM can be fitted with either conventional unitary warhead (TLAM/C), nuclear warhead (TLAM/N) or submunition dispenser (TLAM/D). This program ensures that the TWS exploits state-of-the-art technology to preserve the efficiency of this proven weapon system, and includes all missile development, mission planning system development, and submarine and surface ship weapons control system development.

The Tactical Tomahawk (TACTOM) All-Up-Round Block IV missile is a comprehensive spiral baseline upgrade to the TWS that provides the tactical commander a quick reaction response capability as well as improved flexibility, increased accuracy and higher lethality. A five-year multi-year (FY04-FY08) production contract was awarded in August 2004 for the production of up to 2200 Block IV Tomahawk missiles. The essential upgrades of the Block IV missile are: improved guidance, navigation, control and mission computer two-way satellite communications, and a lower production cost as compared to the Block III missile. Block IV provides a UHF SATCOM data link to enable the missile to receive in-flight mission modification messages, to transfer health and status messages and to broadcast Battle Damage Indication (BDI) messages. Block IV also includes a high anti-jam GPS receiver, navigation improvements and associated antenna systems. The Tomahawk Program (A0545) also includes development of Torpedo Tube Launch (TTL) capability for submarines and the continuing advances identified as spiral development under the Tomahawk Baseline IV Operational Requirements Document (ORD), to include development of the Joint Chiefs of Staff (JCS)-directed incorporation of Selective Availability Anti-Spoofing Module (SAASM) capability.

Under the umbrella of the Tomahawk Command and Control System (TC2S), the Theater Mission Planning Center (TMPC) has evolved into scalable configurations deployed at the Cruise Missile Support Activities (CMSAs) (2), TSMPCs (Tomahawk Strike and Mission Planning Cells) (3), Carriers (CVNs) (11), Firing Units/DDGs/ CGs (77), Command & Control (C2) Nodes (30), Training Sites (6), and Integration & Testing ((6) WPC & 5 other Labs), for a total of seven configurations at 135 sites. The Afloat Planning System (APS), a shipboard based version of TC2S, was migrated from CVNs to the TSMPCs in FY 2008. A smaller TC2S version is being fielded on CVNs to support deployed Strike Group Commanders. Systems fielded at the CMSAs and TSMPCs provide mission planning and employment support information for conventional TLAM, including the distribution of mission data and command information essential to TLAM employment via the Mission Distribution System (MDS) and associated communications infrastructure (CMSAs are the only organizations that can support TLAM-N). Development of Tactical Tomahawk capabilities in TMPC/APS/MDS includes software development, integration, test, and delivery, including support for TECHEVAL and OPEVAL, training development,

installation planning, and simulation/model development required by COMOPTEVFOR to offset live missile flights in TECHEVAL and OPEVAL. This project also includes development related to national and tactical imagery architectures, as well as software development to decrease mission-planning time and increase the quality and accuracy of each mission for Block III and IV TLAM.

The Tomahawk Weapons Control System provides launch capability for surface and submarine platforms. Development of the Tactical Tomahawk Weapons Control System (TTWCS) provides a common architecture to launch the Tactical Tomahawk Block IV and all variants in inventory. Development of upgrades to the Tactical Tomahawk Weapons Control System (TTWCS) is required to meet the DoD IT Standards Registry (DISR), to meet FORCEnet compliance and be Internet Protocol Version 6 (IPv6) ready in order to remain interoperable within the Joint Service Architecture and to retain weapons system viability and usability for our Sailors. These efforts provide battle-group tactical flexibility and responsiveness while maximizing TWS wartime capability.

The Tactical Tomahawk FY 09 and FY10 Congressional funding supporting the Cost Reduction Initiative (CRI) provides for development and implementation of an affordability process to identify, investigate, plan and execute viable cost reduction initiatives (CRIs) for the Tomahawk F415 engine.

FY 08 and FY 09 Congressional funding for the Precision Terrain-Aided Navigation (PTAN) provides for the development and design maturation of the PTAN subsystem and provides expertise in integrating the PTAN into the Tomahawk Bock IV (AUR). The efforts support simulations, test missions development and integration of PTAN with the Tomahawk Block IV avionics.

FY 09 Congressional funding for Image-Based Navigation provide analysis to assess reliability and performance of Image Navigation Reference Products in the TC2S. Additional funding received in FY10 will be added to the Phase 2.5 contract to support additional tasking in CONOPS development, hardware integration, and actual flight software development.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
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B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	18.132	13.238	0.000	0.000	0.000
Current President's Budget	17.556	17.077	10.587	0.000	10.587
Total Adjustments	-0.576	3.839	10.587	0.000	10.587
• Congressional General Reductions		-0.072			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.009			
• Congressional Adds		3.920			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.150	0.000			
• SBIR/STTR Transfer	-0.426	0.000			
• Program Adjustments	0.000	0.000	10.587	0.000	10.587

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *PRECISION TERRAIN AIDED NAVIGATION (PTAN)*	1.595	0.000
Congressional Add: *Tomawk Cost Reduction Initiatives*	1.596	3.266
Congressional Add: *Low-Cost Image-Based Navigation and Precision Targ*	0.798	0.637
Congressional Add Subtotals for Project: 9999	3.989	3.903
Congressional Add Totals for all Projects	3.989	3.903

Change Summary Explanation

Technical: Not applicable.

Schedule:

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
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The schedule for the software implementation of the SAASM features was shifted to align with the Tactical Tomahawk Weapons Control System (TTWCS) software version v5.4.0 development schedule. The four quarter difference between v5.4 and SAASM's IOC is for platform integration testing of SAASM once v5.4 is installed on the platforms.
SAASM capability will be demonstrated on an Operational Test Launch (OTL) Flight Test.

Launch Platform Integration covers integration of the Tomahawk Weapons System onto DDG-1000, VIRGINA Class, and SSGN platforms.

TTWCS v5.3.6 - maintenance build to fix DT/OT IIID issues.

TTWCS v5.4.0 - software build for DDG 112 integration.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0545: *TOMAHAWK*	13.567	13.174	10.587	0.000	10.587	9.333	9.050	9.186	9.370	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Tomahawk Weapons System (TWS) provides a Tomahawk cruise missile attack capability against targets on land (Tomahawk Land Attack Missile (TLAM)). The TLAM can be fitted with either conventional unitary warhead (TLAM/C), nuclear warhead (TLAM/N) or submunition dispenser (TLAM/D). This program ensures that the TWS exploits state-of-the-art technology to preserve the efficiency of this proven weapon system, and includes all missile development, mission planning system development, and submarine and surface ship weapons control system development.

The Tactical Tomahawk (TACTOM) All-Up-Round Block IV missile is a comprehensive spiral baseline upgrade to the TWS that provides the tactical commander a quick reaction response capability as well as improved flexibility, increased accuracy and higher lethality. A five-year multi-year (FY04-FY08) production contract was awarded in August 2004 for the production of up to 2200 Block IV Tomahawk missiles. The essential upgrades of the Block IV missile are: improved guidance, navigation, control and mission computer two-way satellite communications, and a lower production cost as compared to the Block III missile. Block IV provides a UHF SATCOM data link to enable the missile to receive in-flight mission modification messages, to transfer health and status messages and to broadcast Battle Damage Indication (BDI) messages. Block IV also includes a high anti-jam GPS receiver, navigation improvements and associated antenna systems. The Tomahawk Program (A0545) also includes development of Torpedo Tube Launch (TTL) capability for submarines and the continuing advances identified as spiral development under the Tomahawk Baseline IV Operational Requirements Document (ORD), to include development of the Joint Chiefs of Staff (JCS)-directed incorporation of Selective Availability Anti-Spoofing Module (SAASM) capability.

Under the umbrella of the Tomahawk Command and Control System (TC2S), the Theater Mission Planning Center (TMPC) has evolved into scalable configurations deployed at the Cruise Missile Support Activities (CMSAs) (2), TSMPCs (Tomahawk Strike and Mission Planning Cells) (3), Carriers (CVNs) (11), Firing Units/DDGs/CGs (77), Command & Control (C2) Nodes (30), Training Sites (6), and Integration & Testing ((6) WPC & 5 other Labs), for a total of seven configurations at 135 sites. The Afloat Planning System (APS), a shipboard based version of TC2S, was migrated from CVNs to the TSMPCs in FY 2008. A smaller TC2S version is being fielded on CVNs to support deployed Strike Group Commanders. Systems fielded at the CMSAs and TSMPCs provide mission planning and employment support information for conventional TLAM, including the distribution of mission data and command information essential to TLAM employment via the Mission Distribution System (MDS) and associated communications infrastructure (CMSAs are the only organizations that can support TLAM-N). Development of Tactical Tomahawk capabilities in TMPC/APS/MDS includes software development, integration, test, and delivery, including support for TECHEVAL and OPEVAL, training development, installation planning, and simulation/model development required by COMOPTEVFOR to offset live missile flights in TECHEVAL and OPEVAL. This project also

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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includes development related to national and tactical imagery architectures, as well as software development to decrease mission-planning time and increase the quality and accuracy of each mission for Block III and IV TLAM.

The Tomahawk Weapons Control System provides launch capability for surface and submarine platforms. Development of the Tactical Tomahawk Weapons Control System (TTWCS) provides a common architecture to launch the Tactical Tomahawk Block IV and all variants in inventory. Development of upgrades to the Tactical Tomahawk Weapons Control System (TTWCS) is required to meet the DoD IT Standards Registry (DISR), to meet FORCEnet compliance and be Internet Protocol Version 6 (IPv6) ready in order to remain interoperable within the Joint Service Architecture and to retain weapons system viability and usability for our Sailors. These efforts provide battle-group tactical flexibility and responsiveness while maximizing TWS wartime capability.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Tactical Tomahawk All-Up-Round (TACTOM AUR)	7.149	8.243	5.557	0.000	5.557
Continue Phase 2 ORD requirements, of which includes incorporating Selective Availability Anti-Spoofing Module (SAASM) capability into the GPS and continuing development and demonstration of a Precision Terrain Aided Navigation (PTAN) capability. Achieve SAASM IOC.					
FY 2009 Accomplishments: FY09: Continued Phase 2 ORD requirement hardware and software trade studies. Incorporating Selective Availability Anti-Spoofing Module (SAASM) capability into the GPS and continuing development of a Precision Terrain Aided Navigation (PTAN) capability. Completed a demonstration prototype of PTAN capability used in demonstrating real-time operation. Initiated PTAN advanced technology risk reduction efforts to develop next generation PTAN prototypes and to integrate PTAN capability into the missile simulation labs. Completed real-time processing capability for PTAN scenes. Continue integration and development of a precision Radar Altimeter.					
FY 2010 Plans: FY10: Continue launch platform SAASM integration. Continue ORDALT/TEMPALT efforts in support of the SEAWOLF program.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY11: Complete AUR platform integration of SAASM. Achieve SAASM program IOC.					
Tactical Tomahawk Weapons Control System (TTWCS) Initiate TTWCS Viability activities and complete SAASM integration of TTWCS V5.4.0 in order to enter TECHEVAL/OPEVAL for fleet release. *FY 2009 Accomplishments:* FY09: Initiated minimal TTWCS viability development activities to reduce risk in areas of overall TTWCS supportability, sustainability, HCI complexity, and interoperability with external interfaces. Began to address key DoD/DoN mandates, including Internet Protocol (IP)v6, FORCEnet, Open Architecture, and SAASM. *FY 2010 Plans:* FY10: Continue toward completion of SAASM integration of TTWCS v5.4.0. Complete DT/OT TRR for TTWCS v5.4.0. Complete v5.4.1 Increment 2 preliminary and detailed design review. Complete code porting of reuse code from UNIX to LINUX. Continue work to reduce HCI complexity. Perform development efforts in support of SSGN, DDG113, and DDG-1000. *FY 2011 Base Plans:* FY11: Complete development of TTWCS viability and enter TECHEVAL/OPEVAL. Prepare for Fleet Release of TTWCS v5.4.0. Continue development work on TTWCS v5.4.1 toward achievement of full TTWCS viability, and launch platform integration on platforms existing and in development.	3.790	2.323	2.245	0.000	2.245
Tactical Tomahawk Command and Control (TC2S) Development and incorporation of new capabilities in Tomahawk Command and Control systems (TC2S) necessary for the employment of Tactical Tomahawk. Imagery upgrades to Tomahawk	2.628	2.608	2.785	0.000	2.785

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Command and Control System. Continue Test & Evaluation support for Tomahawk Command and Control Systems. *FY 2009 Accomplishments:* FY09 - Completed verification of the Digital Scene Matching Area Correlator (DSMAC) planning and performance for Blocks III and IV missiles, ensuring it is responsive and consistently reliable regardless of mission planning environment. Evaluated the TC2S design process to ensure Tactical Tomahawk missile performance characteristics are adequately modeled in TC2S; e.g., aerodynamic models, GPS jamming models, threat models. Completed evaluation of imagery format changes, resulting from National Geospatial Agency (NGA) mandated updates and architectural changes to external interfaces. *FY 2010 Plans:* FY10- Continue TLAM navigation and accuracy and weapons delivery Circular Error Probable (CEP) studies and assessments necessary to ensure the TWS is properly employed; Continue evaluation of TC2S design process to ensure Tactical Tomahawk missile performance characteristics are adequately modeled in TC2S. Continue evaluation of all activities associated with TC2S's ability to effectively process evolving imagery formats resulting from NGA mandated architectural changes to external interfaces. *FY 2011 Base Plans:* FY11 - Continue TLAM navigation and accuracy and weapons delivery CEP studies and assessments necessary to ensure the TWS is properly employed; Continued evaluation of TC2S design process to ensure Tactical Tomahawk missile performance characteristics are adequately modeled in TC2S. Continue evaluation of imagery formats resulting from NGA mandated architectural changes.					
Accomplishments/Planned Programs Subtotals	13.567	13.174	10.587	0.000	10.587

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• WPN/2101: *Tomahawk*	280.267	276.500	300.178	0.000	300.178	305.398	313.896	322.554	322.814	1,857.673	14,573.717
• OPN/5253: *Tomahawk Support Equip*	55.312	88.203	88.698	0.000	88.698	74.830	75.497	67.415	64.901	979.600	1,549.167
• OPN/9020: *Initial and Vendor Direct Spares*	0.206	1.123	0.853	0.000	0.853	0.544	0.409	0.446	0.418	0.000	7.799

D. Acquisition Strategy

In 1998, the Tomahawk Baseline Improvement Program (TBIP) transitioned to the Tactical Tomahawk (Block IV) Program. This program is outlined in the Class Justification and Approval (CJ&A No. AIR-22448) signed by the Under Secretary of the Navy on 29 May 1998. The acquisition strategy was to transition the TBIP to Tactical Tomahawk. The Tactical Tomahawk development program was a cost-sharing contract between the Government and the Contractor to add capability to the missile. A multi-year full-rate production contract was awarded in August 2004 for FY 2004-2008 production.

Torpedo Tube Launch missile procurement began in FY08 within the current missile production budget as required to meet Fleet load-out requirements. Other spiral development capabilities (PTAN, Multi-effects Warhead, Anti Surface Warfare (ASUW) will be introduced after successful qualification and testing. Continue SAASM integration efforts.

The FY 09 through FY 11 BLK IV Missile procurement strategy utilizes a FY 09 annualized Firm Fixed Price contract, along with two fixed price option years for FY 10 and FY 11.

E. Performance Metrics

The Navy seeks to improve the Tomahawk cruise missile attack capability against land targets through research and development done predominantly through defense contractors and government field activities.

Examples in the area of the all-up-round include development of candidate warheads that will enhance weapon ability to cover all assigned target types, provide a quick reaction response capability for the weapon system, and improved guidance, navigation, control, mission computer two-way satellite communications, and a high anti-jam GPS receiver all in line with state of the art technology.

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In the area of the Weapon Control System, research and development is performed to ensure viability and usability of the system into the future, providing necessary upgrades to meet the DoD IT standards registry to comply with FORCENET requirements and be Internet Protocol Version 6 (IPv6) ready to remain interoperable within Joint Service Architecture, in order to provide battle group tactical flexibility and responsiveness needed to enable full wartime capability.

In the area of the Command and Control System, continue research and development in order to provide scalable configurations to deploy where and as needed to provide necessary command and control, development necessary to function with national and tactical imagery architectures, decrease mission planning time, and increase the quality and accuracy of each mission for the Tomahawk weapons System.

All of these research and development efforts contribute to the Navy providing the very best weapon system to the war fighter to accomplish the combat mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PHD - Weapons Control System	C/CPAF	Lockheed Martin Valley Force, PA	91.964	0.000		0.000		0.000		0.000	0.000	91.964	91.964
Award Fee	C/CPAF	Various Various	4.996	0.000		0.000		0.000		0.000	0.000	4.996	4.996
PHD - Weapons Control System	Reqn	NAVSEA WNY, DC	0.875	0.000		0.000		0.000		0.000	0.000	0.875	0.875
PHD - Mission Plan Systems TC2S	SS/CPFF	COMGLOBAL Sys, San Jose, CA	36.714	1.000	Dec 2009	0.000		0.000		0.000	3.100	40.814	40.814
Various	Various/ Various	Various Various	7.674	0.000		0.000		0.000		0.000	0.000	7.674	Continuing
Primary Hardware Dev - AUR	C/CPFF	Raytheon Co. Tucson, AZ	218.889	1.487	Mar 2010	1.063	Jun 2011	0.000		1.063	10.651	232.090	232.090
Primary Hardware Dev - PTAN	C/CPFF	Raytheon Co. Tucson, AZ	2.644	0.000		0.000		0.000		0.000	0.000	2.644	2.644
Primary Hardware De v - SAASM	C/CPFF	Raytheon Co. Tucson, AZ	6.725	0.000		0.000		0.000		0.000	0.000	6.725	6.725
Primary Hardware Dev - TTL	C/CPAF	Raytheon Co. Tucson, AZ	11.886	0.000		0.000		0.000		0.000	0.000	11.886	11.886
Primary Hardware Dev - TTL Award Fee	C/CPAF	Raytheon Co. Tucson, AZ	0.819	0.000		0.000		0.000		0.000	0.000	0.819	0.819
Primary Hardware Dev - TTPC	C/CPFF	Raytheon Co. Tucson, AZ	3.189	0.000		0.000		0.000		0.000	0.000	3.189	3.189
Primary Hardware Dev - ASUW	C/CPFF	Raytheon Co. Tucson, AZ	0.206	0.000		0.000		0.000		0.000	0.000	0.206	0.206

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardwae Dev - WCS	C/CPFF	Raytheon Co. Tucson, AZ	0.828	0.000		0.000		0.000		0.000	0.000	0.828	0.828
Ship Integration - Launch1	Reqn	NAVSEA WNY, DC	31.768	0.000		0.000		0.000		0.000	0.000	31.768	31.768
Ship Integration - Launch2	C/CPFF	NAVSEA WNY, DC	0.752	0.000		0.000		0.000		0.000	0.000	0.752	0.752
Systems Engineering	Reqn	JHU/APL Columbia, MD	4.831	0.000		0.000		0.000		0.000	0.000	4.831	4.831
Systems Engineering - AUR	Reqn	JHU/APL Columbia, MD	27.932	1.687	Feb 2010	1.655	Mar 2011	0.000		1.655	5.781	37.055	37.055
Systems Engineering - AUR	C/FP	Boeing St. Louis, MO	3.000	0.000		0.000		0.000		0.000	0.000	3.000	3.000
Systems Engineering - PTAN	Reqn	JHU/APL Columbia, MD	2.691	0.000		0.000		0.000		0.000	0.000	2.691	2.691
Systems Engineering - SAASM	C/CPFF	Various Various	0.972	0.260	Jan 2010	0.000		0.000		0.000	0.250	1.482	1.482
Systems Engineering - AUR	C/FP	Raytheon Co. Tucson, AZ	14.263	0.000		0.000		0.000		0.000	0.000	14.263	14.263
Systems Engineering - TTL	C/FP	Raytheon Co Tucson, AZ	0.496	0.000		0.000		0.000		0.000	0.000	0.496	0.496
Systems Engineering - TTL	SS/CPFF	JHU/APL Columbia, MD	0.912	0.000		0.000		0.000		0.000	0.000	0.912	0.912
1974 THRU TBIP cost 1996	Various/ Various	Various Various	2,176.447	0.000		0.000		0.000		0.000	0.000	2,176.447	Continuing
		Subtotal	2,651.473	4.434		2.718		0.000		2.718	19.782	2,678.407	494.286

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev Support - Weapons Control Sys	WR	NUWC Newport, RI	20.966	0.000		0.000		0.000		0.000	0.000	20.966	Continuing
Development Support	SS/CPFF	SAIC San Diego, CA	9.700	0.000		0.000		0.000		0.000	0.000	9.700	9.700
Development Support	WR	NSWC Dahlgren, VA	1.287	0.553	Feb 2010	0.228	Feb 2011	0.000		0.228	0.000	2.068	Continuing
Development Support - SAASM	C/CPFF	SAIC San Diego, CA	0.260	0.250	Nov 2009	0.000		0.000		0.000	0.000	0.510	0.510
Development Support - AUR	SS/CPFF	SAIC San Diego, CA	2.244	1.388	Nov 2009	0.973	Feb 2011	0.000		0.973	1.440	6.045	6.045
Development Support - AUR	WR	Various Various	0.813	0.703	Feb 2010	0.280	Feb 2011	0.000		0.280	13.140	14.936	Continuing
Development Support - AUR	WR	NAWC China Lake, CA	65.274	1.641	Feb 2010	1.358	Feb 2011	0.000		1.358	0.000	68.273	Continuing
Development Support - PTAN	Various/ Various	Various Various	0.020	0.000		0.000		0.000		0.000	0.000	0.020	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*	

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support - PTAN	C/CPFF	Honeywell Minneapolis, MN	3.924	0.000		0.000		0.000		0.000	0.000	3.924	3.924
Development Support - PTAN	WR	NAWC China Lake, CA	0.606	0.000		0.000		0.000		0.000	0.000	0.606	Continuing
Development Support - SAASM	WR	Various Various	2.114	0.000		0.000		0.000		0.000	0.000	2.114	Continuing
Development Support - TTL	SS/CPFF	SAIC San Diego, CA	0.576	0.000		0.000		0.000		0.000	0.000	0.576	0.576
Development Support - TTL	WR	NUWC Newport, RI	10.521	0.000		0.000		0.000		0.000	0.000	10.521	Continuing
Development Support - TTL	WR	Various Various	5.503	0.000		0.000		0.000		0.000	0.000	5.503	Continuing
Government Eng Sup - SAASM	WR	Strategic Sys Pro Washington, DC	3.383	0.000		0.000		0.000		0.000	0.000	3.383	Continuing
Government Eng Sup - SAASM	WR	Various Various	0.061	0.000		0.000		0.000		0.000	0.000	0.061	Continuing
Soft Dev-Mission Plan Sys TC2S	Reqn	Raytheon Co Tucson, AZ	5.100	0.000		0.000		0.000		0.000	0.000	5.100	5.100
Soft Dev-Mission Plan Sys TC2s	MIPR	HQ SEC of AF-FMB Washington, DC	0.951	0.000		0.000		0.000		0.000	1.243	2.194	Continuing
Soft Dev-Mission Plan Sys TC2S	Reqn	JHU/APL Columbia, MD	20.035	0.150	Feb 2010	1.174	Feb 2011	0.000		1.174	0.672	22.031	22.031
Soft Dev-Mission Plan Sys TC2S	C/CPFF	Lockheed Martin Valley Forge, PA	8.364	1.027	Jan 2010	0.000		0.000		0.000	0.000	9.391	9.391

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Soft Dev-Mission Plan Sys TC2S	Reqn	Navy Sys Mgt Act VA	10.276	0.455	Feb 2010	1.398	Feb 2011	0.000		1.398	6.223	18.352	14.026
Soft Dev-Mission Plan Sys TC2S	Reqn	CNA Arlington, VA	0.200	0.000		0.213	Feb 2011	0.000		0.213	0.000	0.413	Continuing
Soft Dev-Mission Plan Sys TC2S	Reqn	SAIC San Diego, CA	14.307	0.000		0.000		0.000		0.000	0.000	14.307	14.307
Soft Dev-Mission Plan Sys TC2S	WR	NSWC Dahlgren, VA	31.325	0.000		0.000		0.000		0.000	0.000	31.325	Continuing
Soft Dev-Dev Weapons Control Sys	C/CPFF	Lockheed Valley Forge, VA	103.525	2.323	Feb 2010	2.245	Feb 2011	0.000		2.245	0.000	108.093	108.093
Soft Dev-Weapons Control Sys	Reqn	Various Various	1.438	0.000		0.000		0.000		0.000	0.000	1.438	1.438
Soft Dev-PTAN	Reqn	JHU/APL Columbia, MD	1.702	0.000		0.000		0.000		0.000	0.000	1.702	Continuing
		Subtotal	324.475	8.490		7.869		0.000		7.869	22.718	363.552	195.141

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test and Eval	SS/CPFF	Raytheon Co Tucson, AZ	42.883	0.000		0.000		0.000		0.000	0.800	43.683	43.683
Operational Test and Eval	Reqn	JHU/APL Columbia, MD	1.730	0.000		0.000		0.000		0.000	0.000	1.730	Continuing
Live Fire Test and Eval	WR	Various Various	37.593	0.250	Feb 2010	0.000		0.000		0.000	0.000	37.843	Continuing
Test Assets	WR	Various Various	0.275	0.000		0.000		0.000		0.000	0.000	0.275	Continuing
Tooling	WR	NUWC Newport, RI	0.681	0.000		0.000		0.000		0.000	0.000	0.681	Continuing
		Subtotal	83.162	0.250		0.000		0.000		0.000	0.800	84.212	43.683

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Sup	SS/CPFF	SAIC San Diego, CA	0.401	0.000		0.000		0.000		0.000	0.000	0.401	0.401
		Subtotal	0.401	0.000		0.000		0.000		0.000	0.000	0.401	0.401

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,059.511	13.174		10.587		0.000		10.587	43.300	3,126.572	733.511

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204229N: *Tomahawk Mssn Planning Ctr*	**PROJECT** 0545: *TOMAHAWK*

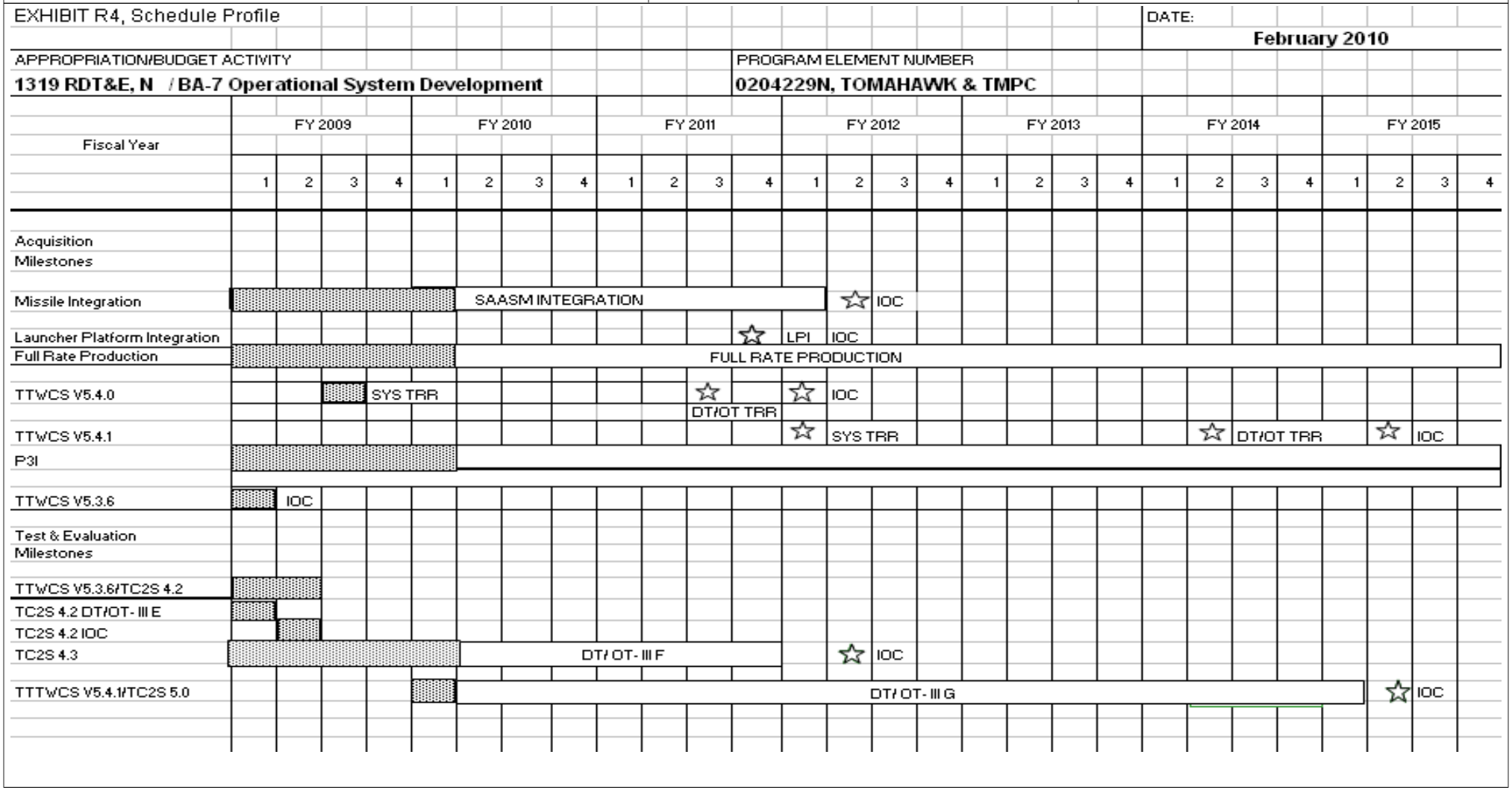

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204229N: *Tomahawk Mssn Planning Ctr*	**PROJECT** 0545: *TOMAHAWK*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
TT SAASM Integrations	1	2009	2	2012
SAASM IOC	2	2012	2	2012
Launcher Platform Integration IOC	4	2011	4	2011
Full Rate Production	1	2009	4	2015
TTWCS V5.4.0 Sys TRR	3	2009	3	2009
TTWCS V5.4.0 DT/OT TRR	3	2011	3	2011
TTWCS V5.4.0 IOC	1	2012	1	2012
TTWCS V5.4.1 Sys TRR	1	2012	1	2012
TTWCS V5.4.1 DT/OT TRR	2	2014	2	2014
TTWCS V5.4.1 IOC	2	2015	2	2015
TT Preplanned Product Improvement (P3)	1	2009	4	2015
TTWCS V5.3.6 IOC	1	2009	1	2009
TTWCS V5.3.6/TC2S 4.2	1	2009	2	2009
TC2s 4.2 IOC	2	2009	2	2009
TC2S 4.2 DT/OT III E	1	2009	1	2009
TC2S 4.3 DT/OT - III F	1	2009	4	2011
TC2S 4.3 IOC	2	2012	2	2012
TC2S 5.0 DT/OT - III G	1	2010	1	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*

	Start		End	
Event	Quarter	Year	Quarter	Year
TC2S 5.0 IOC	2	2015	2	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	3.989	3.903	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.711
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Tactical Tomahawk FY 09 and FY10 Congressional funding supporting the Cost Reduction Initiative (CRI) provides for development and implementation of an affordability process to identify, investigate, plan and execute viable cost reduction initiatives (CRIs) for the Tomahawk F415 engine.

FY 09 Congressional funding for the Precision Terrain-Aided Navigation (PTAN) provides for the development and design maturation of the PTAN subsystem and provides expertise in integrating the PTAN into the Tomahawk Bock IV (AUR). The efforts support simulations, test missions development and integration of PTAN with the Tomahawk Block IV avionics.

FY 09 Congressional funding for Image-Based Navigation provide analysis to assess reliability and performance of Image Navigation Reference Products in the TC2S. Additional funding received in FY10 will be added to the Phase 2.5 contract to support additional tasking in CONOPS development, hardware integration, and actual flight software development.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: PRECISION TERRAIN AIDED NAVIGATION (PTAN)	1.595	0.000
FY 2009 Accomplishments: FY09 Accomplishments: - Developed navigation initialization method for the playback capability - Integrated updated correlation model into TAFS-MC - Initiated ICD updates to support flight test - Coordinated mission data requirements - Mission planning iterative tasking		

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Tomawk Cost Reduction Initiatives *FY 2009 Accomplishments:* FY09 Accomplishments: - Completed 3 approved CRIs - Initiate remaining approved CRI initiatives *FY 2010 Plans:* Planned FY10 Activities: - Continue efforts to plan and execute the remaining approved CRI's - Continue Evaluation of new CRIs while capitalizing on Reuse, Refurbishment, and Service Life Extension opportunities	1.596	3.266
Congressional Add: Low-Cost Image-Based Navigation and Precision Targ *FY 2009 Accomplishments:* In FY09, Congressional Mark funding was used to initiate a study by APL on the government side, and to fund an SBIR contract with Scientific Systems Company, Inc (SSCI) to continue nescient development of the Image Navigation software module. SSCI was able to demonstrate in a lab simulation the efficacy of their software algorithm and to complete the analysis of data collected under the previous and continuing efforts. Specifically, a contract was awarded on 1 Dec 09 to begin phase 2.5 of the SBIR development program. This phase will support further simulation integration into the Raytheon TAFS-MC simulation program, a real time prototype operating on a missile representative hardware board, and further integration into mission data formats and requirements analysis. *FY 2010 Plans:* Additional funding received in FY10 will be added to the Phase 2.5 contract to support additional tasking in CONOPS development, hardware integration, and actual flight software development.	0.798	0.637

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Adds Subtotals	3.989	3.903

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

E. Performance Metrics

Not required for Congressional Adds.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0204311N: *Integrated Surveillance System*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	28.677	26.225	23.464	0.000	23.464	23.938	24.318	24.864	25.373	Continuing	Continuing
0766: *IUSS Detect/Classif System*	20.499	24.632	23.464	0.000	23.464	23.938	24.318	24.864	25.373	Continuing	Continuing
9999: *Congressional Adds*	8.178	1.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.082

A. Mission Description and Budget Item Justification

This Program Element (PE) comprises two projects - 0766 and 9999. Project 0766 provides for Integrated Undersea Surveillance Systems (IUSS) Research and Development Projects under the Maritime Surveillance Systems (MSS) Program Office (PEO LMW PMS 485). IUSS provides the Navy with its primary means of submarine detection both nuclear and diesel. A portion of project 0766 (FSS) is classified, with details available at a higher classification level. Project 9999 consists of three Congressional Adds: Autonomous Anti-Submarine Vertical Beam Array (FY09 and FY10), Distributed Maritime Surveillance System (FY09), and Low-Cost, Expendable, Fiber Optic Sensor Array (FY09).

U) JUSTIFICATION FOR BUDGET ACTIVITY:
The IUSS Research and Development project (0766) funds SURTASS Passive and SURTASS Low Frequency Active (LFA) developments. SURTASS provides the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cueing for tactical weapons platforms against both diesel and nuclear powered submarines. SURTASS LFA provides an active adjunct capability for IUSS passive and tactical sensors to assist in countering the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters.

(U) In order to continue with reductions in life cycle costs and continue with system-wide consolidation, a short-term goal is to develop a common IUSS processor based on NAVSEA's Acoustic Rapid COTS Insertion (ARCI) program. The IUSS Integrated Common Processor (ICP) will have the capability to process and display data from all fixed and mobile underwater systems. The IUSS ICP will be used for all new system installations and replace the legacy systems as they reach end of life and require upgrading. Additionally, SURTASS has consolidated on the TB-29A Twin-line array, a variant of the Submarine TB-29A Long line array. This reduced the number of array variants employed by SURTASS from 3 to 1, and will enable development and logistics cost savings by leveraging off the submarine TB-29A program.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204311N: *Integrated Surveillance System*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	28.677	24.835	0.000	0.000	0.000
Current President's Budget	28.677	26.225	23.464	0.000	23.464
Total Adjustments	0.000	1.390	23.464	0.000	23.464
• Congressional General Reductions		-0.110			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.100			
• Congressional Adds		1.600			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	23.464	0.000	23.464

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *AUTONOMOUS ANTI-SUB VERTICAL BEAN ARRAY*	1.596	1.593
Congressional Add: *DISTRIBUTED MARITIME SURVEILLANCE SYSTEM*	1.596	0.000
Congressional Add: *Low Cost, Expendable, Fiber Optic Sensor Array*	4.986	0.000
Congressional Add Subtotals for Project: 9999	8.178	1.593
Congressional Add Totals for all Projects	8.178	1.593

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204311N: *Integrated Surveillance System*	PROJECT 0766: *IUSS Detect/Classif System*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0766: *IUSS Detect/Classif System*	20.499	24.632	23.464	0.000	23.464	23.938	24.318	24.864	25.373	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
A. (U) This project includes efforts for both FSS* and SURTASS. The SURTASS project comprises the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cueing for tactical weapons platforms against both diesel and nuclear powered submarines. SURTASS also provides the undersea surveillance necessary to support regional conflicts and sea-lane protection. SURTASS has experienced recent passive and active success against diesel submarines operating in shallow water. SURTASS is leveraging existing developments and reducing costs by using Non-Developmental Items and commercial hardware; supporting common Navy Undersea Warfare processing and towed array developments; and increasing operator efficiency through computer aided detection and classification processing. SURTASS development efforts include: LFA improvements, common IUSS processing, twin-line array development and processing, improved detection and classification/passive automation to counter quieter threats; additional signal processing and bi-static active capability; integrated active and passive operations; improved Battle Group support; and improved information processing.

(U) LFA provides an active adjunct capability for IUSS passive and tactical sensors to counter the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters. Improvements include TL-29A/LFA integration enhancements; advanced waveforms for littoral/shallow water operations including Doppler sensitive waveforms; and processing algorithms to reduce clutter and reverberation false alarms in shallow water. The LFA task includes development and testing of a compact LFA transmit source array for SWATH-P ships, and upgrade of LFA processing capability into the IUSS Integrated Common Processing architecture. The Integrated Common Processor (ICP) is a derivitive of the NAVSEA Submarine Acoustic Rapid COTS Insertion (ARCI) program, and is being augmented for IUSS requirements. Together, the LFA improvements, TL-29A, and the ICP support the SURTASS Active Improvement Program.

(U) Functional improvements are delivered to the Fleet in software "Builds", while hardware improvements are delivered through the "Tech Insertion" (TI) process. Software builds are based upon the Advanced Processor Build (APB) process begun by the NAVSEA Submarine USW program. Each APB will introduce new capabilities into SURTASS systems including improved automation, normalizer techniques, adaptive beam forming, and display enhancements. SURTASS participates in the process by contributing algorithms for consideration, supplying peer group members for review of candidate algorithms, participating in test evolutions, and incorporating improved algorithms into operational systems. The "Tech Insertion" process, modelled after the NAVSEA Submarine USW hardware improvement program, delivers processing technology improvements to platforms on roughly a 4-year cycle. Hardware upgrades for active and passive arrays and communications systems will also be provided during "TI" upgrades, but not on a regular planned development cycle as for the processing upgrades.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204311N: *Integrated Surveillance System*	**PROJECT** 0766: *IUSS Detect/Classif System*

B. (U) PEO LMW is involved with the development and maintenance of various IUSS systems. These systems include FDS, FDS-C, SDS and SURTASS. The near-term goal is development of ICP, which will result in a a single IUSS processor baseline, with minor maintenance efforts continuing on fielded systems. The existing system architecture, signal processing, contact management, and reporting requirements will be evaluated as well as the requirements for future systems. The development of the ICP will take advantage of automation advancement, array technology improvements, and IUSS, submarine, and surface USW system commonality. Additionally, a long term goal is to activate all IUSS sensors as part of a coordinated Active Improvement Program.

*A portion of project 0766 (FSS) is classified, with details available at a higher classification level.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Classified Effort	6.575	5.955	5.580	0.000	5.580
A protion of project 0766 (FSS) is classified with details available at a higher classification level. *FY 2009 Accomplishments:* A protion of project 0766 (FSS) is classified with details available at a higher classification level. *FY 2010 Plans:* A protion of project 0766 (FSS) is classified with details available at a higher classification level. *FY 2011 Base Plans:* A protion of project 0766 (FSS) is classified with details available at a higher classification level.					
ASW Study	0.700	0.681	0.659	0.000	0.659
FY 2009 Accomplishments: FY 09: ASW Study continued conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204311N: *Integrated Surveillance System*	PROJECT 0766: *IUSS Detect/Classif System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 10: ASW Study continue conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models. *FY 2011 Base Plans:* FY 11: ASW Study continue conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.					
Compact Low Frequency Active *FY 2009 Accomplishments:* FY 09: Completed incorporation and at-sea test of final design changes in support of CLFA production program. Continued DT for Active Improvement Program (CLFA/TL-29A/IUSS Common Processor). *FY 2010 Plans:* FY 10: Continue DT and conduct OT for CLFA/TL-29A/IUSS Common Processor. Development of product improvements and corrections recommended or required from DT/OT. Conduct FOT&E for LFA/TL-29A/IUSS Common Processor. *FY 2011 Base Plans:* FY 11: Continue OT of CLFA/TL-29A/ICP. Continue development of product improvements and corrections associated with CLFA DT/OT and LFA FOT&E. Conduct at-sea testing of product improvements.	6.595	2.285	1.890	0.000	1.890
TB-29A/Twin-Line	2.000	1.948	1.889	0.000	1.889

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204311N: *Integrated Surveillance System*	PROJECT 0766: *IUSS Detect/Classif System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 09: Continued development of connectionless array technologies and true fiber-optic arrays. Continued efforts to explore Twin-line variants of new submarine Long-line arrays for future application to SURTASS. Continued development and test of fishing (line and net) mitigation approaches. *FY 2010 Plans:* FY 10: Continue development of connectionless array technologies and true fiber-optic arrays. Investigate Twin-line variants of new submarine Long-line arrays for future application to SURTASS. Continue development and test of additional fishing net mitigation approaches. *FY 2011 Base Plans:* FY 11: Continue development of connectionless array technologies and true fiber-optic arrays. Continue efforts to explore Twin-line variants of new submarine Long-line arrays for future application to SURTASS. Continue development of fishing net mitigation approaches.					
Integrated Common Processor (ICP) *FY 2009 Accomplishments:* FY 09: Continued development of new automation algorithms and techniques for addressing multi-array, high beam count requirements. Continued development of Littoral LFA and bi-static receive improvements. *FY 2010 Plans:* FY 10: Begin tech refresh development in coordination with the Submarine Acoustic Rapid COTS Insertion (ARCI) Program Advanced Processing Build (APB) tech refresh. Continue development of new automation algorithms and techniques for addressing multi-array, high beam count requirements. Continue development of Littoral LFA and bi-static receive improvements.	4.629	13.763	13.446	0.000	13.446

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204311N: *Integrated Surveillance System*	PROJECT 0766: *IUSS Detect/Classif System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 11: Continue development of new automation algorithms and techniques for addressing multi-array high beam count requirements. Continue development of Littoral LFA and bi-static receive improvements. Continue tech refresh development in coordination with the Submarine Acoustic Rapid COTS Insertion (ARCI) Program Advanced Processing Build (APB) tech refresh.					
Accomplishments/Planned Programs Subtotals	20.499	24.632	23.464	0.000	23.464

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN 2237: *Surveillance Towed Array Sensor System*	26.596	24.034	8.468	0.000	8.468	11.204	2.292	2.029	2.541	0.000	120.064

D. Acquisition Strategy

FY 2009: Engineering Milestones: ICP LFA Variant (9/09); T&E Milesones: CLFA/TL-29A/ICP DT; Contract Milestones: CLFA Production
FY 2010: Engineering Milestones: ICP Bi-Static Variant (9/10); T&E Milestones: CLFA/TL-29A/ICP DT and CLFA/TL-29A/ICP OT&E; LFA/TL-29A/ICP FOT&E
FY 2011: Engineering Milestones: ICP Tech Refresh; T&E Milestones: Bi-static FOT&E

E. Performance Metrics

Successfully achieve CLFA Initial Operational Capability. Successfully complete CLFA Operation Test Readiness Review. Successfully complete CLFA Developmental Test / Operational Test. Successful demonstration of Bi-static active capability. Successful transition of Submarine Advanced Processing Build (APB) functionality into IUSS products. Successful transition of net mitigation technologies into Towed Array baseline.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204311N: *Integrated Surveillance System*	PROJECT 0766: *IUSS Detect/Classif System*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
IUSS COMMON ARCHITECTURE	C/CPFF	LM / APL Not Specified	53.176	9.637	Nov 2009	9.327	Nov 2010	0.000		9.327	Continuing	Continuing	Continuing
ACTIVE IMPROVEMENT/CLFA/ LFA	C/CPFF	APL / BAE / SSC/VARIOUS Not Specified	115.276	0.930	Nov 2009	0.782	Nov 2010	0.000		0.782	Continuing	Continuing	Continuing
N74 ASW STUDY	WR	SSC PAC / APL Not Specified	6.654	0.681	Nov 2009	0.659	Nov 2010	0.000		0.659	Continuing	Continuing	Continuing
ARRAY IMPROVEMENTS	C/CPFF	APL / VARIOUS Not Specified	5.854	1.770	Nov 2009	1.697	Nov 2010	0.000		1.697	Continuing	Continuing	Continuing
Classified	Various/ TBD	TBD Not Specified	0.000	5.955	Nov 2009	5.580	Nov 2010	0.000		5.580	Continuing	Continuing	Continuing
		Subtotal	180.960	18.973		18.045		0.000		18.045			

Remarks

A portion of project 0766 (FSS) is classified with details available at a higher classification level.

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
IUSS COMMON ARCHITECTURE	WR	VARIOUS Not Specified	2.300	0.970	Nov 2009	0.991	Nov 2010	0.000		0.991	Continuing	Continuing	Continuing
	C/CPFF	NGC/VARIOUS	6.920	0.197	Nov 2009	0.127	Nov 2010	0.000		0.127	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204311N: *Integrated Surveillance System*	PROJECT 0766: *IUSS Detect/Classif System*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ACTIVE IMPROVEMENTS/ CLFA/LFA		Not Specified											
		Subtotal	9.220	1.167		1.118		0.000		1.118			

Remarks

A portion of project 0766 (FSS) is classified with details available at a higher classification level.

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
IUSS COMMON ARCHITECTURE	WR	VARIOUS Not Specified	3.337	2.364	Nov 2009	2.370	Nov 2010	0.000		2.370	Continuing	Continuing	Continuing
ACTIVE IMPROVEMENTS/ CLFA/LFA	WR	VARIOUS Not Specified	19.578	0.960	Nov 2009	0.791	Nov 2010	0.000		0.791	Continuing	Continuing	Continuing
ARRAY IMPROVEMENTS	WR	VARIOUS Not Specified	2.390	0.178	Nov 2009	0.192	Nov 2010	0.000		0.192	Continuing	Continuing	Continuing
		Subtotal	25.305	3.502		3.353		0.000		3.353			

Remarks

A portion of project 0766 (FSS) is classified with details available at a higher classification level.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204311N: *Integrated Surveillance System*	PROJECT 0766: *IUSS Detect/Classif System*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
IUSS COMMON ARCHITECTURE	WR	VARIOUS Not Specified	2.837	0.792	Nov 2009	0.758	Nov 2010	0.000		0.758	Continuing	Continuing	Continuing
ACTIVE IMPROVEMENTS/ CLFA/LFA	WR	VARIOUS Not Specified	15.119	0.198	Nov 2009	0.190	Nov 2010	0.000		0.190	Continuing	Continuing	Continuing
		Subtotal	17.956	0.990		0.948		0.000		0.948			

Remarks

A portion of project 0766 (FSS) is classified with details available at a higher classification level.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	233.441	24.632		23.464		0.000		23.464			

Remarks

The R3 and the R4 / R4A reflect the UNCLASSIFIED portion of the PE.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204311N: *Integrated Surveillance System*	PROJECT 0766: *IUSS Detect/Classif System*

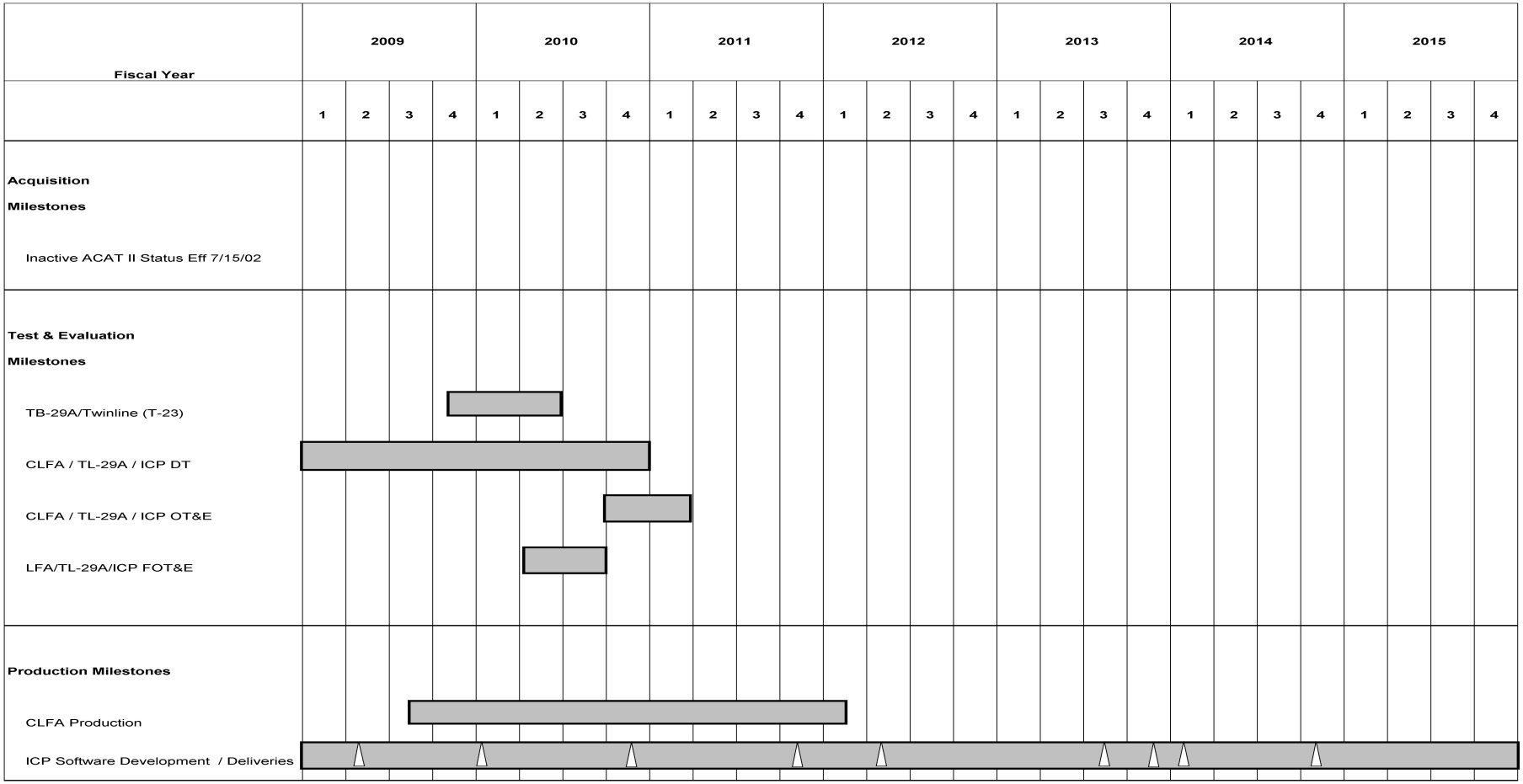

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204311N: *Integrated Surveillance System*	**PROJECT** 0766: *IUSS Detect/Classif System*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
TB-29A TL SYSTEM INSTALLATION / TEST (T-23)	4	2009	2	2010
CLFA / TL-29A/ ICP DT	1	2009	4	2010
CLFA / TL-29A/ ICP OT & E	4	2010	1	2011
LFA / TL-29A/ ICP FOT & E	2	2010	3	2010
CLFA PRODUCTION SYSTEMS	3	2009	1	2012
ICP SOFTWARE DEVELOPMENT/DELIVERIES	1	2009	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204311N: *Integrated Surveillance System*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	8.178	1.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.082
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Add.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: AUTONOMOUS ANTI-SUB VERTICAL BEAN ARRAY *FY 2009 Accomplishments:* Funds will be used to investigate incorporation of vertical beam arrays into existing fixed surveillance system hardware designs to provide a ready volumetric array capability for increased detection and system performance. *FY 2010 Plans:* Funding for continued investigation into the incorporation of vertical beam arrays into existing fixed surveillance system hardware designs to provide a ready volumetric array capability for increased detection and system performance.	1.596	1.593
Congressional Add: DISTRIBUTED MARITIME SURVEILLANCE SYSTEM *FY 2009 Accomplishments:* Funding for an anchored buoy-based underwater acoustic system.	1.596	0.000
	4.986	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204311N: *Integrated Surveillance System*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Low Cost, Expendable, Fiber Optic Sensor Array *FY 2009 Accomplishments:* Funding for continued development of a low-cost, expendable, ultra-thin fiber-optic array with applications to littoral, high fishing density OPAREAs.		
Congressional Adds Subtotals	8.178	1.593

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional add.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204413N: *Amphibious Tactical Supt Units*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	2.271	2.314	4.357	0.000	4.357	4.802	5.128	5.356	5.100	Continuing	Continuing
2231: *LCU Replacement and DMFD*	2.271	2.314	4.357	0.000	4.357	4.802	5.128	5.356	5.100	Continuing	Continuing

A. Mission Description and Budget Item Justification

TECHNOLOGY TRANSITION: Provides for research efforts on LCAC Future Naval Capabilities to transfer technologies to functional uses on current LCACs. Current S&T initiatives include the following: sustainability/readiness/performance analysis; enhanced LCAC cost model; friction stir welding equipment evaluation; LCAC communications improvements; analysis of electrical systems during cold weather operations; LCAC model hydrodynamic testing; LCAC structural loads analysis; development and qualification of full authority digital engine controller for LCAC engines, vibration reduction/active balancing analysis and new torque meter design for ETF40B engines.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	2.316	2.324	0.000	0.000	0.000
Current President's Budget	2.271	2.314	4.357	0.000	4.357
Total Adjustments	-0.045	-0.010	4.357	0.000	4.357
• Congressional General Reductions		-0.010			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.045	0.000			
• Program Adjustments	0.000	0.000	4.357	0.000	4.357

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204413N: *Amphibious Tactical Supt Units*

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204413N: *Amphibious Tactical Supt Units*	PROJECT 2231: *LCU Replacement and DMFD*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2231: *LCU Replacement and DMFD*	2.271	2.314	4.357	0.000	4.357	4.802	5.128	5.356	5.100	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Current S&T initiatives include the following: sustainablility/readiness/performance analysis; enhanced LCAC cost model; friction stir welding equipment evaluation; LCAC communications improvements; analysis of electrical systems during cold weather operations; LCAC model hydrodynamic testing; LCAC structural loads analysis; development and qualification of full authority digital engine controller for LCAC engines, and vibration reduction/active balancing analysis and new torque meter design for ETF40B engines.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
LCU Replacement and DMFD	2.271	2.314	4.357	0.000	4.357
FY 2009 Accomplishments: Began vibration reduction/active balancing analysis; development of enhanced LCAC cost model; completed LCAC structural loads analysis; performed analysis of electrical systems during cold weather ops					
FY 2010 Plans: Award contract for development PC tablet; begin redevelopment of full authority digital engine controller for LCAC engines;					
FY 2011 Base Plans: Complete development and achieve qualification of full authority digital engine controller; Begin design of new torque meters for ETF40B engines					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204413N: *Amphibious Tactical Supt Units*	PROJECT 2231: *LCU Replacement and DMFD*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	2.271	2.314	4.357	0.000	4.357

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN 0970: *Amphibious Tactical Support Units*	0.172	6.622	9.142	0.000	9.142	0.029	25.273	16.807	10.028	0.000	68.073
• OPN 0981/1: *HM&E <5,000 (Material)*	6.413	5.085	6.333	0.000	6.333	9.435	9.579	7.849	6.258	0.000	50.952
• OPN 0981/2: *HM&E < 5,000 (Install)*	13.821	14.355	13.002	0.000	13.002	13.371	13.480	13.312	13.290	0.000	94.631
• SCN 5139: *LCAC SLEP*	110.587	63.660	83.035	0.000	83.035	82.134	86.964	87.581	88.761	365.800	968.522

D. Acquisition Strategy

TECHNOLOGY TRANSFER - RDT&E efforts commenced in FY06. Multiple contracts and Field Activities are involved through FY15 to complete the various projects.

E. Performance Metrics

FY10 - Award FY10 contract for development of PC tablet software and accomplish successful testing of software
Deliver an approved plan for the redevelopment of the full authority digital engine controller and begin redesign
FY11 - Complete development and achieve qualification of full authority digital engine controller
Deliver approved plan for redesign of ETF40B engine torque meters and begin redesign

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204413N: *Amphibious Tactical Supt Units*	PROJECT 2231: *LCU Replacement and DMFD*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Component Development	C/TBD	Various Various	1.962	1.500	May 2010	2.254	Jan 2011	0.000		2.254	11.306	17.022	Continuing
Systems Engineering	C/TBD	Various Various	1.201	0.147	May 2010	0.860	Jan 2011	0.000		0.860	4.858	7.066	Continuing
		Subtotal	3.163	1.647		3.114		0.000		3.114	16.164	24.088	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	Various Various	0.960	0.041		0.357		0.000		0.357	1.487	2.845	Continuing
		Subtotal	0.960	0.041		0.357		0.000		0.357	1.487	2.845	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204413N: *Amphibious Tactical Supt Units*	PROJECT 2231: *LCU Replacement and DMFD*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental T & E	WR	Various Various	0.287	0.000		0.104		0.000		0.104	0.600	0.991	Continuing
Operational T & E	WR	Various Various	0.167	0.500		0.258		0.000		0.258	0.300	1.225	Continuing
Test Assets	WR	Various Various	0.308	0.050		0.100		0.000		0.100	0.800	1.258	Continuing
		Subtotal	0.762	0.550		0.462		0.000		0.462	1.700	3.474	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	WR	Various Not Specified	0.708	0.050	Jan 2010	0.240	Jan 2011	0.000		0.240	1.200	2.198	Continuing
Program Management Support	WR	Various Not Specified	0.304	0.026	Jan 2010	0.184	Jan 2011	0.000		0.184	0.900	1.414	Continuing
Travel	WR	NAVSEA Not Specified	0.084	0.000		0.000		0.000		0.000	0.100	0.184	Continuing
DAWDF	C/TBD	OSD Not Specified	0.011	0.000		0.000		0.000		0.000	0.000	0.011	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204413N: *Amphibious Tactical Supt Units*	PROJECT 2231: *LCU Replacement and DMFD*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			1.107	0.076		0.424		0.000		0.424	2.200	3.807	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.992	2.314		4.357		0.000		4.357	21.551	34.214	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204413N: *Amphibious Tactical Supt Units*	PROJECT 2231: *LCU Replacement and DMFD*

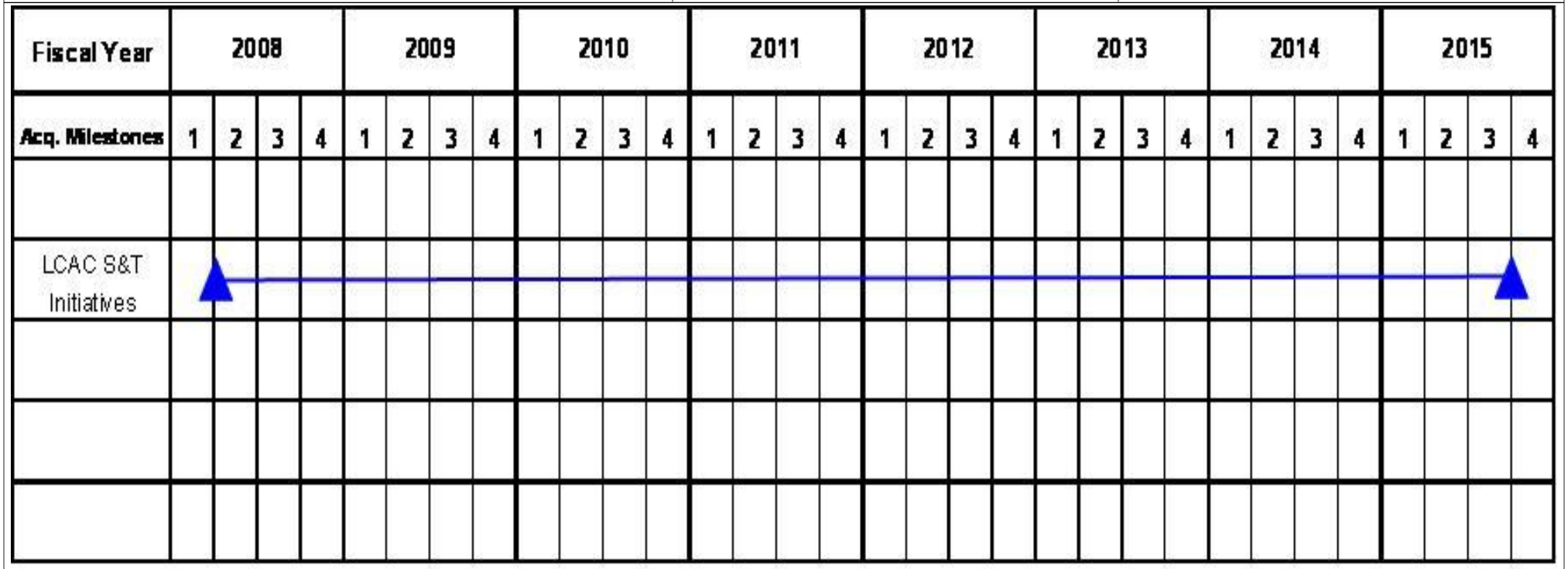

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204413N: *Amphibious Tactical Supt Units*	**PROJECT** 2231: *LCU Replacement and DMFD*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
LCAC S & T Initiatives	1	2009	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	24.646	41.511	50.750	0.000	50.750	46.510	34.671	24.609	25.128	Continuing	Continuing
0604: *Training Range & Instr Dev*	3.804	3.817	3.335	0.000	3.335	3.507	3.546	3.589	3.660	Continuing	Continuing
1427: *Surface Tactical Team Trainer (STTT)*	9.114	8.269	5.485	0.000	5.485	5.802	5.853	5.939	6.061	Continuing	Continuing
2124: *Air Warfare Training*	1.706	1.766	1.665	0.000	1.665	1.761	1.789	1.814	1.850	Continuing	Continuing
3087: *Curriculum & Trainer Development*	4.467	18.963	24.146	0.000	24.146	22.090	14.492	4.237	4.340	Continuing	Continuing
3093: *TACTS/LATR Replacement*	2.923	6.306	16.119	0.000	16.119	13.350	8.991	9.030	9.217	Continuing	Continuing
9999: *Congressional Adds*	2.632	2.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.550

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION:

0604 - The Training Range and Instrumentation Development Systems (TRIDS) program provides development of range systems including a range electronic warfare simulator, advanced weapons training systems, laser training systems, Tactical Aircrew Combat Training System (TACTS), Large Area Tracking Range (LATR), and Training Enabling Architecture interoperability, combat training system improvements, and undersea warfare range technology (previously called shallow water range technology).

1427/3087/3087A - The Surface Tactical Team Trainer (STTT) develops Battle Force Tactical Training (BFTT) system capabilities and interfaces to provide realistic combat system coordinated team, unit, and collective Strike Group/Force level training events using Distributed Interactive Simulation (DIS) protocols. Curriculum and Trainer Development develops the Total Ship Training Capability (TSTC) as a Pre-Planned Product Improvement to the BFTT system that facilitates evolving combat system interfaces, implements High Level Architecture (HLA) and common modeling for future interoperability and integrates advanced technology and open design required for future combat systems. The need for transforming training is documented within the Office of Force Transformation Military Transformation Initiative, DoD Training Transformation Plan, the Chief of Naval Operations Fleet Response Plan, and Commander United States Fleet Forces Command Fleet Readiness Training Plan. The FY 09 Congressional Add provides funding for the demonstration of the voice command recognition and assessment capability to the TSTC Support System.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204571N: *Consolidated Trng Sys Dev*

2124 - The Air Warfare Training Development (AWTD) program provides technology development and risk mitigation for aviation training systems, including mission rehearsal simulation technologies and the Aviation Training Technology Integration Facility (ATTIF). The ATTIF provides for incremental development, prototype evaluation, and final fleet T&D prior to technology transition.

3093 - The Tactical Combat Training System (TCTS) will provide the Navy a replacement for the TACTS and LATR systems. TCTS will also provide fleet deployable instrumentation for at sea training and tactics development. By providing a rangeless capability, the system will greatly increase the area where live instrumented training can be conducted. Initial fielding of a Non Developmental Item (NDI) Pod system as NAS Key West is complete. The Program incorporates evolutionary development (incremental) towards a system capable of supporting a broad spectrum of naval platforms through weapons simulations, participant weapons system stimulation, open architecture, and a high capacity/long range.

9C57A - Undersea Warfare (USW) Training is essential to effective USW warfighting operations, i.e. the "Fight as you Train" principle. The Navy's Supportability Peer Review Process Work Group - SupWG, whose membership spans across the US Navy, National laboratories, and private industry representatives, develops common core Training elements in support of the US Navy's warfighting missions. The ultimate goal of the working group is to achieve theater-wide common, interoperable, and high fidelity USW training baselines for the shipboards, undersea, airborne, and shore-based USW communities.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	27.505	49.293	0.000	0.000	0.000
Current President's Budget	24.646	41.511	50.750	0.000	50.750
Total Adjustments	-2.859	-7.782	50.750	0.000	50.750
• Congressional General Reductions		-0.182			
• Congressional Directed Reductions		-10.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		2.400			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-2.494	0.000			
• SBIR/STTR Transfer	-0.365	0.000			
• Program Adjustments	0.000	0.000	50.750	0.000	50.750

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *NAVAIR High Fidelity Oceanographic Library*	0.000	2.390

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204571N: *Consolidated Trng Sys Dev*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add: *TOTAL SHIP TRAINING SYSTEM (TSTS)*	1.037	0.000
Congressional Add: *ASW TRAINING INTEROPERABILITY ENTERPRISE DEMO TEST*	1.595	0.000
Congressional Add Subtotals for Project: 9999	2.632	2.390
Congressional Add Totals for all Projects	2.632	2.390

Change Summary Explanation

Schedule:
AWTD Changes:
FM: TO:
SOFTWARE & GOS FY09 2Q FY09 3Q. E2-D moved to 3Q.

Weapons Server and Network Technologies

TEST AND EVALUATION MILESTONES
CDMS & AARS Spec/Demos: FY09 4Q. MH-60R/S CDMTS design improvement.
Sensor Stimulation (3)/Sensor Fusion: FY09 4Q, FY11 4Q. JHMCS w/NVD effort rescheduled.

Technical:
Increased funding for JTRS integration with TCTS

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 0604: *Training Range & Instr Dev*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0604: *Training Range & Instr Dev*	3.804	3.817	3.335	0.000	3.335	3.507	3.546	3.589	3.660	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 specialized instrumentations systems for fleet readiness training while minimizing life cycle costs. Tasks include development of the following: electronic warfare simulators and associated subsystems, target control systems, TACTS, LATR improvements, Test and Training Enabling Architecture (TENA) interoperability, combat training systems improvements, underwater technology, ranges interoperability and information architecture, and assorted Advanced Weapons Training Systems (AWTS), such as Imaging Weapons Training Systems (IWTS), Remote Strafe Scoring System (RSSS), and weapon and countermeasure simulations for use with various range training systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
LATR	3.311	3.817	3.335	0.000	3.335
LATR: Designed, integrated and tested modules to eliminate obsolete components in the LATR Pod. Completed design, integration and test of LATR software 5.0 baseline upgrade. Completed design, integration, and test of Participant Instrumentation Packages (PIP) modules to address obsolescence, high failure components and to improve operability and performance. Conducted and completed installation of the Ground System Rehost. Conducted and completed security testing and assessment for LATR system certification and accreditation for Ground System Rehost. Complete development, test and integration of software and hardware modifications to system test sets. Developed interface software using TENA increase Tactical Training Ranges (TTR) systems interoperability with other services training instrumentation. Completed development of LATR rotary wing re-size and LATR Datalink emulator. Complete development, test and integration of LATR data translator. Complete follow-on obsolescence study to identify sub-projects required through FY17. Complete ground system and PIP refresh sub-project. Complete semi-annual system block upgrades.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 0604: *Training Range & Instr Dev*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Developed and updated LATR range software to 5.3.0. New capabilities included: Ability for LATR to output its tracks for a configurable amount of time to smooth any loss in RF, enable LATR ACM to change IDs during real-time operation, enable LATR operators to manually correlate LATR and Identification Friend or Foe (IFF) tracks so a IFF track could be substituted for a LATR track automatically after a given amount of time and to enable a configurable ability to automatically decay tracks off LATR displays and to filter IFF tracks by Mode. 2. Updated Electronic Warfare (EW) Server threats. *FY 2010 Plans:* Initiate LATR enhancement planning in the areas of EW integration, Common Alternative Track Source inclusion, LINK 16 integration, and Time, Space and Position Information (TSPI) improvements. *FY 2011 Base Plans:* Develop the site acceptance for EW integration, Common Alternative Track Source inclusion, LINK 16 integration, and TSPI improvements.					
TACTS TACTS: Developed additional training capabilities for the personal computer based Joint Display Subsystem (JDS) and the Electronic Warfare Processor (EW PROC). Enhanced capability for Advanced Systems Operator Console (ASOC), enhanced Radar Display Subsystem (RADS), and ancillary systems interfaces. Continued development and deployment of LINK 16 interface for TTR applications. Complete Semi-annual CCS Block upgrades. *FY 2009 Accomplishments:* Updated JDS and RAD in support of current TCTS ops and future TCTS deployment.	0.493	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 0604: *Training Range & Instr Dev*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	3.804	3.817	3.335	0.000	3.335

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The TRID program is a non-ACAT program. The integrated program teams that develop new TRID capabilities include government and contractor engineering personnel.

E. Performance Metrics

Metric/Description:
Tybrin Corp: # of TTR software product improvements and new capabilities. Successful design, development, and testing of product improvements and new capabilities. Site acceptance of product improvements with no Priority 1 or 2 problem reports.
NAWC-AD: # of LATR software product improvements and new capabilities. Successful application of system engineering processes. Design and development of improvements. Site acceptance of product improvements with no Priority 1 or 2 problem reports. Completion of 1 upgrade per year.
NAWC-WD: # of TTR upgrades per year. Successful application of system engineering processes. Design and development of improvements. Site acceptance of product improvements with no Priority 1 or 2 problem reports. Completion of 2 upgrade per year.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 0604: *Training Range & Instr Dev*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	Various/ Various	Various Various	89.351	0.000		0.000		0.000		0.000	0.000	89.351	Continuing
Systems Engineering	Various/ Various	NAWC-AD PAX RIVER, MD	3.298	1.104	Nov 2009	0.828	Nov 2010	0.000		0.828	0.000	5.230	Continuing
Systems Engineering	Various/ Various	NAWC-WD CHINA LAKE, CA	2.538	0.950	Nov 2009	0.907	Nov 2010	0.000		0.907	0.000	4.395	Continuing
Systems Engineering	SS/FFP	TYBRIN CORP FORT WALTON BEACH, FL	1.425	1.370	Nov 2009	1.270	Nov 2010	0.000		1.270	0.000	4.065	Continuing
Systems Engineering	Various/ Various	NSWC CORONA, CA	0.081	0.120	Nov 2009	0.110	Nov 2010	0.000		0.110	0.000	0.311	Continuing
Systems Engineering	Various/ Various	NAWC-TSD ORLANDO, FL	0.220	0.273	Nov 2009	0.220	Nov 2010	0.000		0.220	0.000	0.713	Continuing
		Subtotal	96.913	3.817		3.335		0.000		3.335	0.000	104.065	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	Various/ Various	Various Various	10.576	0.000		0.000		0.000		0.000	0.000	10.576	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 0604: *Training Range & Instr Dev*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	10.576	0.000		0.000		0.000		0.000	0.000	10.576	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	Various/ Various	Various Various	5.299	0.000		0.000		0.000		0.000	0.000	5.299	Continuing
		Subtotal	5.299	0.000		0.000		0.000		0.000	0.000	5.299	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various/ Various	Various Various	2.513	0.000		0.000		0.000		0.000	0.000	2.513	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 0604: *Training Range & Instr Dev*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			2.513	0.000		0.000		0.000		0.000	0.000	2.513	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	115.301	3.817		3.335		0.000		3.335	0.000	122.453	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 0604: *Training Range & Instr Dev*	

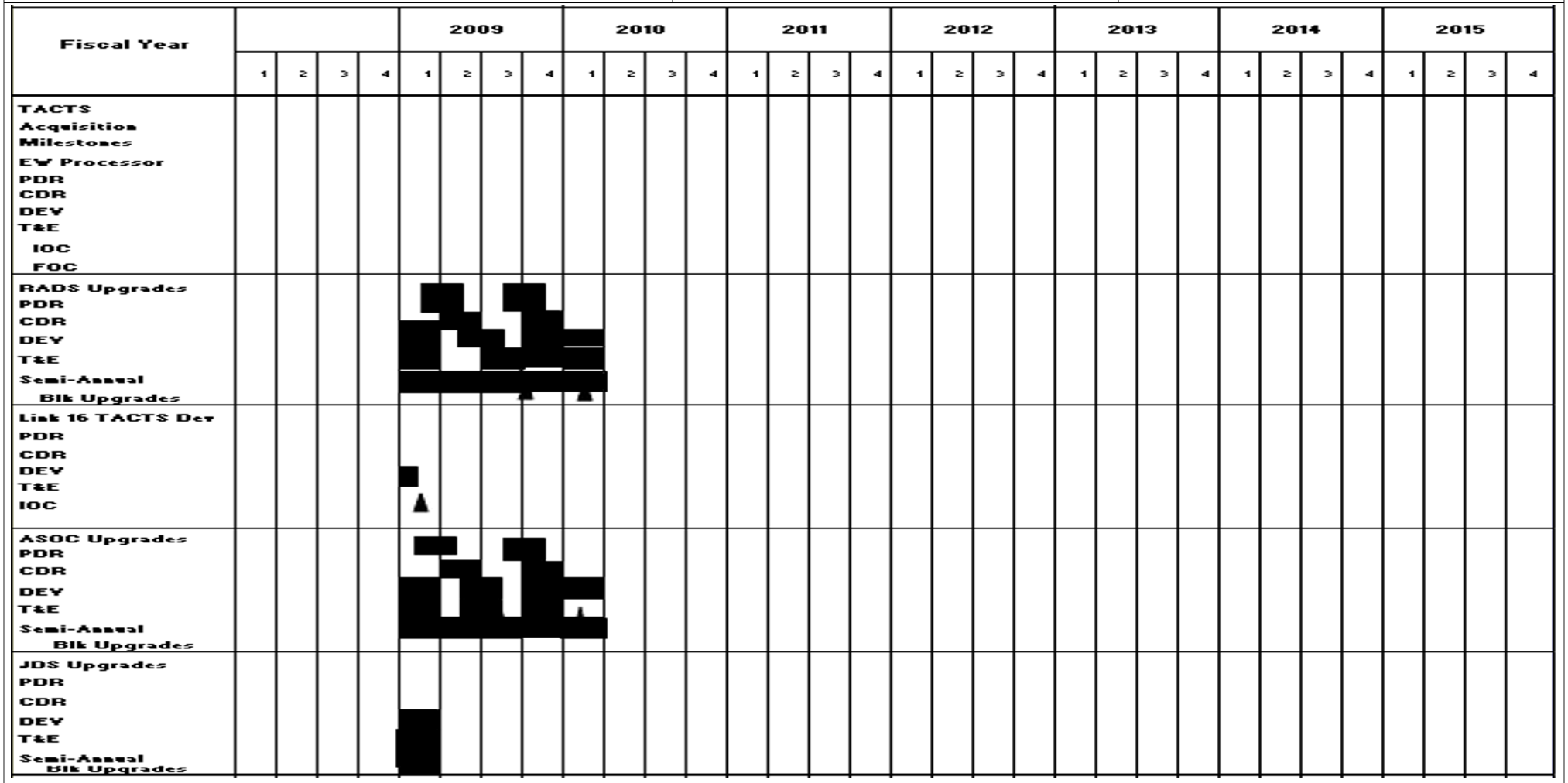

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204571N: *Consolidated Trng Sys Dev*	**PROJECT** 0604: *Training Range & Instr Dev*

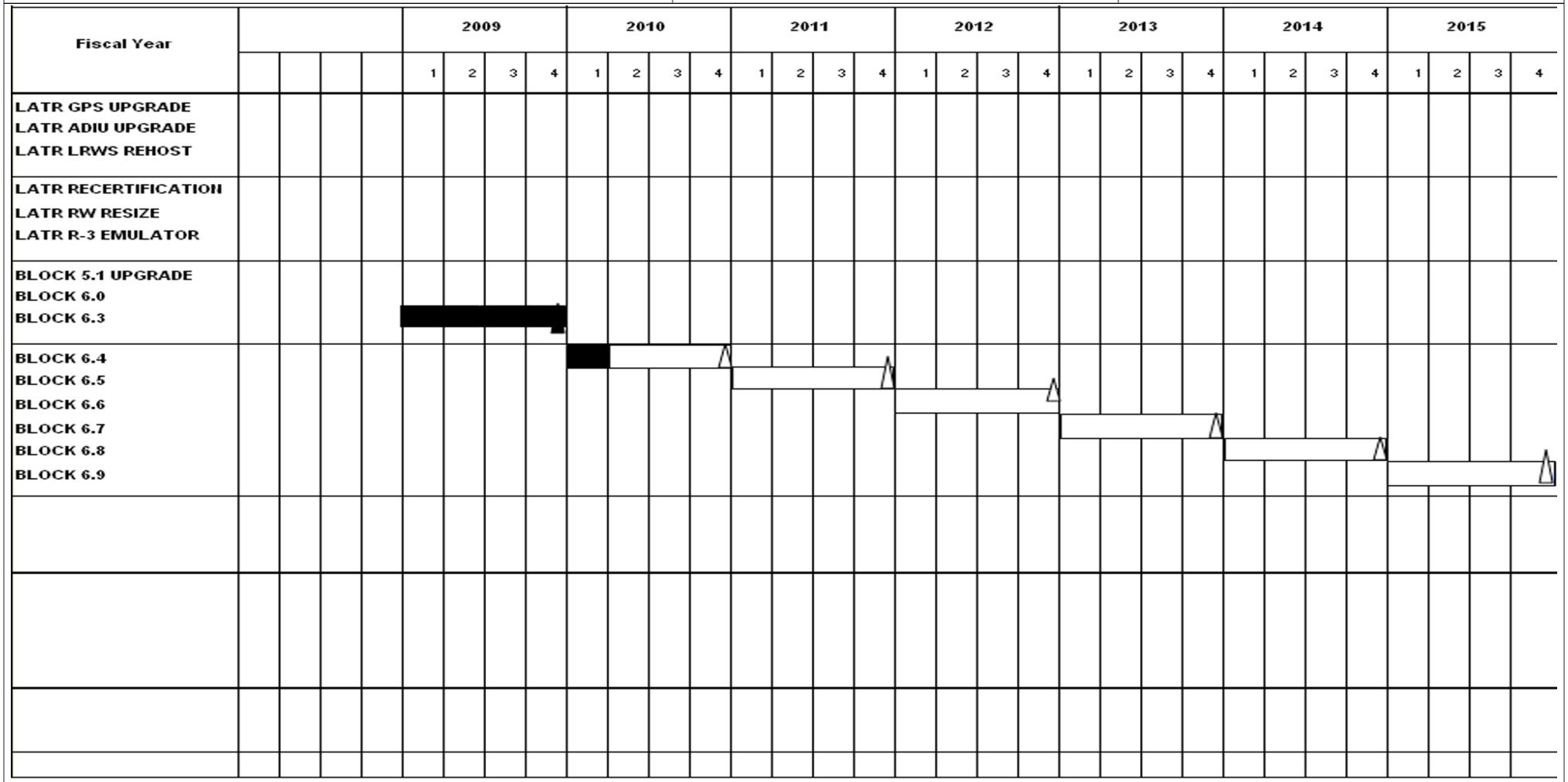

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 0604: *Training Range & Instr Dev*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
TACTS - RADS UPGRADES - PDR	1	2009	4	2009
TACTS - RADS UPGRADES - CDR	2	2009	4	2009
TACTS - RADS UPGRADES - DEV	1	2009	1	2010
TACTS - RADS UPGRADES - T & E	1	2009	1	2010
TACTS - RADS UPGRADES - SEMI ANNUAL BLK UPGRADES	1	2009	1	2010
TACTS - LINK 16 TACTS DEV - T & E	1	2009	1	2009
TACTS - LINK 16 TACTS DEV - IOC	1	2009	1	2009
TACTS - ASOC UPGRADES - PDR	1	2009	4	2009
TACTS - ASOC UPGRADES - CDR	2	2009	4	2009
TACTS - ASOC UPGRADES - DEV	1	2009	1	2010
TACTS - ASOC UPGRADES - T & E	1	2009	1	2010
TACTS - ASOC UPGRADES - SEMI ANNUAL BLK UPGRADES	1	2009	1	2010
TACTS - JDS UPGRADES - DEV	1	2009	1	2009
TACTS - JDS UPGRADES - T & E	1	2009	1	2009
TACTS - JDS UPGRADES - SEMI ANNUAL BLK UPGRADES	1	2009	1	2009
LATR - 6.3 UPGRADE	1	2009	4	2009
LATR - 6.4 UPGRADE	1	2010	4	2010
LATR - 6.5 UPGRADE	1	2011	4	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 0604: *Training Range & Instr Dev*

	Start		End	
Event	Quarter	Year	Quarter	Year
LATR - 6.6 UPGRADE	1	2012	4	2012
LATR - 6.7 UPGRADE	1	2013	4	2013
LATR - 6.8 UPGRADE	1	2014	4	2014
LATR - 6.9 UPGRADE	1	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 1427: *Surface Tactical Team Trainer (STTT)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1427: *Surface Tactical Team Trainer (STTT)*	9.114	8.269	5.485	0.000	5.485	5.802	5.853	5.939	6.061	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

BFTT Program provides realistic joint warfare training across the spectrum of armed conflict; realistic unit level team training in all warfare areas; a means to link ships together which are in different homeports for coordinated training; external stimulation of shipboard training systems; and simulation of non-shipboard forces. BFTT uses a distributed architecture, integrating existing training systems, and uses DIS/HLA protocols. BFTT provides ships' Commanding Officers and Battle Group/ Battle Force Commanders with the ability to conduct coordinated realistic, high stress, combat system level team training as an integral part of the Afloat Training Organizations, the Tactical Training Groups and C2F/C3F Fleet Synthetic Training Exercises (FSTs). BFTT provides a baseline capability/system that meets the Operational Requirements Document (ORD). Without an operating BFTT system, the ship will be unable to complete system level testing impacting overall combat system operability testing.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Surface Tactical Team Trainer (STTT)	9.114	8.269	5.485	0.000	5.485
FY 2009 Accomplishments: Complete Build 3.3.2 certification to support the Cruiser Guided Modernization Combat System improvements; development of the BFTT Security Classification Guide (SCG) in accordance with SCG OPNAVINST S5513.1F and program protection plan; scope and define BFTT Build 3.5 development addressing Obsolescence issues, security network redesign, and incorporation of Ballistic Missile Defense (BMD) and ASW interface upgrades (conjunctive BFTT system improvements with BMD and ASW programs); and continue development and integration of new software capabilities and system interfaces to address emergent requirements.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 1427: *Surface Tactical Team Trainer (STTT)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Government Acceptance Testing (GAT), testing, certification, and safety assessment of BFTT Build 3.5; scope, design and begin development of build 3.5.1 to address database improvements, architecture and content improvements to support LSD 41/49 Class mid-life combat system upgrade; AEGIS ACB12, T46D installation on SSDS ships and continue development and integration of new software capabilities and system interfaces to address emergent requirements. Funding was also provided for a Joint Threat Emitter (JTE) Shipboard Compatibility effort. *FY 2011 Base Plans:* Complete development and begin Final testing and certification of BFTT Software load 3.5.1 for AEGIS ACB12, LSD 41/49 Class and SSDS ships. Finalize requirements and begin design of BFTT Software 3.5.2 for CVN 78.					
Accomplishments/Planned Programs Subtotals	9.114	8.269	5.485	0.000	5.485

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN 276200: *(Surface BFTT/ TSTC portion only)*	20.950	24.095	21.642	0.000	21.642	22.576	23.684	28.561	32.007	0.000	173.515

D. Acquisition Strategy

The BFTT acquisition strategy for system development utilizes the spiral development model, as mandated by OSD. Incremental acquisition and fielding, utilizing COTS to the extent possible, is in accordance with the BFTT ACAT IVM Milestone III approved documentation.

E. Performance Metrics

NSWC Dam Neck: # of BFTT/TSTC software and hardware product improvements and new capabilities. Successful design, development, and testing of product improvements and new capabilities. Site acceptance of product improvements with no Priority 1 or 2 problem reports.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204571N: *Consolidated Trng Sys Dev*	**PROJECT** 1427: *Surface Tactical Team Trainer (STTT)*

NSWC Dahlgren: # of Test events and Training System interface problem resolutions documented. Successful application of system engineering processes. Safety Reviews in direct support of Element Certifications. Completion of 1 upgrade per year.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 1427: *Surface Tactical Team Trainer (STTT)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	WR	NAVSEA 02/ CDSA Dam Neck	8.680	3.246	Feb 2010	0.000		0.000		0.000	0.000	11.926	Continuing
Systems Engineering	WR	NSWC Dam Neck/NSWC Dahlgren/ NAVSEA 02 Dam Neck/NSWC Dahlgren	4.251	1.564	Dec 2009	1.574	Dec 2010	0.000		1.574	0.000	7.389	Continuing
		Subtotal	12.931	4.810		1.574		0.000		1.574	0.000	19.315	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	NSWC Dam Neck/NAVSEA 02 WR/REQN	5.316	1.997	Feb 2010	2.481	Feb 2011	0.000		2.481	0.000	9.794	Continuing
		Subtotal	5.316	1.997		2.481		0.000		2.481	0.000	9.794	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC PHD/ NSWC Dam Neck/NAVSEA 02 WR/REQN	1.647	0.604	Dec 2009	0.911	Dec 2010	0.000		0.911	0.000	3.162	Continuing
		Subtotal	1.647	0.604		0.911		0.000		0.911	0.000	3.162	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NSWC Dam Neck/NSWC Dahlgren WR/REQN	2.579	0.858	Jan 2010	0.519	Jan 2011	0.000		0.519	0.000	3.956	Continuing
		Subtotal	2.579	0.858		0.519		0.000		0.519	0.000	3.956	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	22.473	8.269		5.485		0.000		5.485	0.000	36.227	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 1427: *Surface Tactical Team Trainer (STTT)*

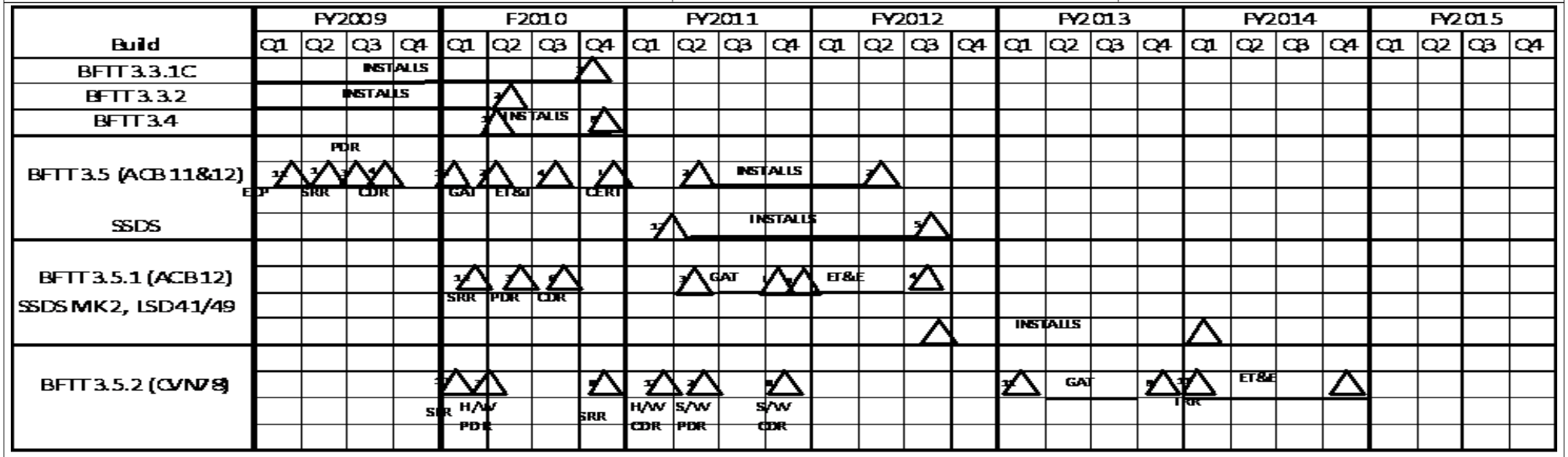

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204571N: *Consolidated Trng Sys Dev*	**PROJECT** 1427: *Surface Tactical Team Trainer (STTT)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
BFTT 3.3.1C	1	2010	4	2010
BFTT 3.3.2 CS WSERB	1	2009	1	2009
BFTT 3.3.2 DELIVERY	2	2009	2	2010
BFTT 3.4 DELIVERY	2	2010	4	2010
BFTT 3.5 DEVELOPMENT	1	2009	4	2009
BFTT 3.4 GAT	1	2010	2	2010
BFTT 3.5 ET&E	2	2010	3	2010
BFTT 3.5 DELIVERY	2	2010	3	2012
BFTT 3.5.1 DEVELOPMENT	1	2010	1	2011
BFTT 3.3.1 GAT	2	2011	4	2011
BFTT 3.5.1 ET&E	4	2011	3	2012
BFTT 3.5.1 WSERB	1	2012	1	2012
BFTT 3.5.1 DELIVERY	3	2012	1	2014
BFTT 3.5.2 DEVELOPMENT (CVN 78)	1	2011	4	2012
BFTT 3.5.2 GAT	1	2013	4	2013
BFTT 3.3.2 ET&E	1	2014	4	2014
BFTT 3.5.2 DELIVERY (CVN 78)	4	2014	1	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 2124: *Air Warfare Training*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2124: *Air Warfare Training*	1.706	1.766	1.665	0.000	1.665	1.761	1.789	1.814	1.850	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 transitions new training system technologies for use in Naval Aviation training. Products from this effort are directly tied to the Navy and Marine Corps Aviation Simulation Master Plans (NASMP) and (MCASMP) ($479M), the MH-60R/S master plan, the F/A-18C-F Requirements Procurement Plan (RPP), the Multi-Mission Maritime Aircraft (MMA/P-8) program, and will support the development and design of future naval aviation training/mission rehearsal systems, (fixed and deployed). Tasks include: 1) Advanced training systems specification development to provide for common, modular, HLA-compliant, high fidelity Distributed Mission Training (DMT) and mission rehearsal capabilities, ashore and afloat. Technologies to be developed and interaged include: intelligent semi-automated forces technology, Advanced Net-ready weapons simulation, AA/A-G, weather server, common Mission Training Station (MTS) technologies, advanced visual-sensor technology, high-resolution helmet mounted, and/or flat panel displays, 20-20 visual acuity image generation, Navy portable source initiative (NPSI) common dataset technology, common software/date/database reuse technologies, advanced environmental effects modeling, fused radar/infra-red/electro-optic and acoustic sensor simulations, physics-based Infra Red (IR) stimulations; and final T&E within the ATTIF, NAWCAD, which is a man-in-the loop test bed for the integration of software, hardware, and operational equipment. This ATTIF capability provides a window to fleet aviators for critical comment, evaluation, and fine tuning of new, interoperable, and innovative technologies before final transition to the Fleet. Master Training Station (MTS), Debrief/AAR and intelligent trainfing support tools for the virtual environment are focused on human performance enhancements for Fleet readiness and distributed missions, training, all levels.

Metrics - These technology transitions will both lower Total Ownership Costs (TOC) of the training systems, and life-cycle costs, including: visual system database re-use, reduced instructor manning profiles, software-based fidelity enhancements, and increased fleet readiness by enhancing overall system fidelity to the projected operating enrironments. NASMP / MCSMP readiness inprovements are conservatively forecast at 14-35% following associated technology upgrades to stand alone, or networked simulators. Individual technology transition investments have routinely exceeded 300+% financial Return on Investment (ROI). Technology readiness levels (TRLs), fleet readiness and financial metrics are used.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
HUMAN SYSTEMS INTEGRATION	0.801	0.543	0.780	0.000	0.780

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
HUMAN SYSTEMS INTEGRATION: (Mission Training Station (MTS), Intelligent Semi-Automated-Forces (SAF) technologies). MTS designs to lower NASMP/Platform simulator life-cycle costs, integrate VOICE-Capable SAF component technologies, improve common instructor interface effectiveness and provide for milti-SAF exercise utilization. Analyze, develop, and integrate open architecture components for FA-18C-F, MH-60R/S, UAS, E-2C/D & USMC mission areas, intelligent instructor operator components, TACAIR/MMA/ROBD common GUI initiatives, common threat system formats and Next Generation Threat System connectivity, Joint SAF and MCSMP Tactical Experimental Network (TEN) compatability, performance measurement, and AAR/debrief, thereby maximizing ROI for mission training station-related technology investments. *FY 2009 Accomplishments:* Provided for modular MTS designs to lower NASMP/Platform simulator life-cycle costs, integrated VOICE-Capable (SAF) component technologies, improved common instructor interface effectiveness and provided for multi-SAF exercise utilization. Analyzed, developed, and integrated open architecture components for FA-18C-F, MH-60R/S, UAS, E-2C/D & USMC mission areas, intelligent instructor operator components, TACAIR/MMA/ROBD common GUI initiatives, common threat system formats and Next Generation Threat System connectivity, Joint SAF and MCSMP TEN compatability, performance measurement, and AAR/debrief, thereby maximizing ROI for mission training station-related technology investments. *FY 2010 Plans:* Continue to provide for modular MTS designs to lower NASMP/Platform simulator life-cycle costs, integrate VOICE-Capable (SAF) component technologies, improve common instructor interface effectiveness and provide for milti-SAF exercise utilization. Analyze, develop, and integrate open architecture components for FA-18C-F, MH-60R/S, UAS, E-2C/D & USMC mission areas, intelligent instructor operator components, TACAIR/MMA/ROBD common GUI initiatives, common threat system formats and Next Generation Threat System connectivity, Joint SAF and MCSMP TEN compatability,					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
performance measurement, and AAR/debrief, thereby maximizing ROI for mission training station-related technology investments. *FY 2011 Base Plans:* Continue to provide for modular MTS designs to lower NASMP/Platform simulator life-cycle costs, integrate VOICE-Capable (SAF) component technologies, improve common instructor interface effectiveness and provide for milti-SAF exercise utilization. Continue to analyze, develop, and integrate open architecture components for FA-18C-F, MH-60R/S, UAS, E-2C/D & USMC mission areas, intelligent instructor operator components, TACAIR/MMA/ROBD common GUI initiatives, common threat system formats and Next Generation Threat System connectivity, Joint SAF and MCSMP TEN compatability, performance measurement, and AAR/debrief, thereby maximizing ROI for mission training station-related technology investments.					
SENSORS SENSORS: Integrate common IR and Forward Looking Infra-Red sensor simulation) with Government, Off the Shelf Software (GOTS). Perform risk reduction, advanced displays T&E, integration and production of Inter-service Common Sensor Model (ICSM) for Navy DMT and legacy devices. Demonstrate GOTS capability for cost-effective database materialization, and develop NAVAIR Portable Source Initiative (NPSI) specifications and processes for implementation on DMT, deployed trainers, legacy, and new visual system upgrade programs. Develop texture storage, sensor-environmental effects, Sensor-scene Environmental Radiometry Environment NPSI material reference processes/standards, and automated technology applications for Real Time (RT) publishing, RT shadows, cultural lighting, RT combat effects and very high-resolution visualization. *FY 2009 Accomplishments:* Integrated common IR and Forward Looking Infra-Red sensor simulation) with GOTS. Performed risk reduction, advanced displays T&E, integration and production of ICSM for Navy DMT and legacy devices. Demonstrated GOTS capability for cost-effective database materialization, and developed	0.360	0.479	0.325	0.000	0.325

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NPSI specifications and processes for implementation on DMT, deployed trainers, legacy, and new visual system upgrade programs. Developed texture storage, sensor-environmental effects, Sensor-scene Environmental Radiometry Environment NPSI material reference processes/standards, and automated technology applications for RT publishing, RT shadows, cultural lighting, RT combat effects and very high-resolution visualization. *FY 2010 Plans:* Continue to integrate common IR and Forward Looking Infra-Red sensor simulation) with GOTS. Perform risk reduction, advanced displays T&E, integration and production of ICSM for Navy DMT and legacy devices. Demonstrate GOTS capability for cost-effective database materialization, and develop NPSI specifications and processes for implementation on DMT, deployed trainers, legacy, and new visual system upgrade programs. Develop texture storage, sensor-environmental effects, Sensor-scene Environmental Radiometry Environment NPSI material reference processes/standards, and automated technology applications for RT publishing, RT shadows, cultural lighting, RT combat effects and very high-resolution visualization. *FY 2011 Base Plans:* Continue to integrate common IR and Forward Looking Infra-Red sensor simulation) with GOTS. Perform risk reduction, advanced displays T&E, integration and production of ICSM for Navy DMT and legacy devices. Demonstrate GOTS capability for cost-effective database materialization, and develop NPSI specifications and processes for implementation on DMT, deployed trainers, legacy, and new visual system upgrade programs. Develop texture storage, sensor-environmental effects, Sensor-scene Environmental Radiometry Environment NPSI material reference processes/standards, and automated technology applications for RT publishing, RT shadows, cultural lighting, RT combat effects and very high-resolution visualization.					
SYSTEM ENGINEERING & INTEGRATION	0.445	0.408	0.460	0.000	0.460

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SYSTEMS ENGINEERING & INTEGRATION: Integrate and test open architecture LVC components for Navy DMT, deployable readiness and rehearsal systems and training devices. Provide GOTS component TRL assessment for intelligent synthetic forces, tactical FUIs, and tactical scenario-control technologies. Demonstrate low-cost LVC capable DMT & Distributed Mission readiness Trainer (DMRT) configuratons, and virtual range technologies, while maintaining or increasing fidelity. Analyze GOTS/COTS alternatives for network centric warfare connnectivity in the simulated battlespace, Network-centric Training Environment (NCTE) interoperability, while reducing training system life cycle cost. Ensure proper TRL levels for integrating software components. *FY 2009 Accomplishments:* Integrated and tested open architecture LVC components for Navy DMT, deployable readiness and rehearsal systems and training devices. Provided GOTS component TRL assessment for intelligent synthetic forces, tactical FUIs, and tactical scenario-control technologies. Demonstrated low-cost LVC capable DMT & DMRT configuratons, and virtual range technologies, while maintaining or increasing fidelity. Analyzed GOTS/COTS alternatives for network centric warfare connnectivity in the simulated battlespace, NCTE interoperability, while reducing training system life cycle cost. Ensured proper TRL levels for integrating software components. *FY 2010 Plans:* Continue to integrate and test open architecture LVC components for Navy DMT, deployable readiness and rehearsal systems and training devices. Provide GOTS component TRL assessment for intelligent synthetic forces, tactical FUIs, and tactical scenario-control technologies. Demonstrate low-cost LVC capable DMT & DMRT configuratons, and virtual range technologies, while maintaining or increasing fidelity. Analyze GOTS/COTS alternatives for network centric warfare connnectivity in the simulated battlespace, NCTE interoperability, while reducing training system life cycle cost. Ensure proper TRL levels for integrating software components.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue to integrate and test open architecture LVC components for Navy DMT, deployable readiness and rehearsal systems and training devices. Provide GOTS component TRL assessment for intelligent synthetic forces, tactical FUIs, and tactical scenario-control technologies. Demonstrate low-cost LVC capable DMT & DMRT configuratons, and virtual range technologies, while maintaining or increasing fidelity. Analyze GOTS/COTS alternatives for network centric warfare connnectivity in the simulated battlespace, NCTE interoperability, while reducing training system life cycle cost. Ensure proper TRL levels for integrating software components.					
VISUALS	0.100	0.336	0.100	0.000	0.100
VISUALS: AWTD visual engineering provides for risk mitigation and next generation visual system component test and evaluation for both stand-alone and small footprint deployable devices. Supporting the NASMP and Type/Model/Series (T/M/S) programs, advanced visual system display configurations are assessed and developed to include next generation technology. *FY 2009 Accomplishments:* Supported the NASMP and T/M/S visual research programs to include the development of advanced visual system display configurations using next generation technology for both stand-alone and small footprint deployable devices. *FY 2010 Plans:* Continue to support the NASMP and T/M/S visual research programs to include the development of advanced visual system display configurations using next generation technology for both stand-alone and small footprint deployable devices.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue to support the NASMP and T/M/S visual research programs to include the development of advanced visual system display configurations using next generation technology for both stand-alone and small footprint deployable devices.					
Accomplishments/Planned Programs Subtotals	1.706	1.766	1.665	0.000	1.665

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/0705/1: *USMC Federation Simulators*	41.129	41.073	32.723	0.000	32.723	32.389	33.069	33.763	34.472	0.000	248.618
• APN/0705/2: *Fleet Aircrew Simulator Training (FAST)*	51.922	43.987	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95.909
• APN/0705/3: *Naval Aviation Simulator Master Plan (NASMP)*	0.000	0.000	35.067	0.000	35.067	32.977	30.453	27.990	36.787	0.000	163.274

D. Acquisition Strategy

AWTD is a 6.4 RDT&E joint technology transition program tied to the NASMP and the various platform simulation master plans with the purpose of transitioning advanced training and mission rehearsal technologies. AWTD provides risk mitigation, test and evaluation, and prototype development for stand-alone, distributed, and deployed training systems for the warfighter utilizing an Integrated Product Team (IPT) approach and a combination of reimbursable and direct cite Time and Materials (T&M) contracts.

E. Performance Metrics

NAWC-TSD: # of transitions to Fleet Platforms. For each transition, successful TRL testing and device Ready for Training (RFT) to Fleet platforms.

NAWC-AD: Complete TRL & compliance testing for NASMP and Information Assurance.
L3 Communications: Successful Interin Training Capability (ITC) testing or device RFT.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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Alion Sciences: Successful ITC and Contractor Final Inspection (CFI) testing or device RFT.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering (Adv Sensor)	Various/ Various	NAWC TSD ORLANDO, FL	9.421	0.030	Nov 2009	0.352	Nov 2010	0.000		0.352	0.000	9.803	Continuing
Systems Engineering (ITST)	Various/ Various	NAWC TSD ORLANDO, FL	4.312	0.912	Feb 2010	0.733	Feb 2011	0.000		0.733	0.000	5.957	Continuing
Systems Engineering (Visuals)	Various/ Various	NAWC AD PAX RIVER, MD	0.943	0.300	Feb 2010	0.143	Feb 2011	0.000		0.143	0.000	1.386	Continuing
Systems Engineering (Synthetic)	Various/ Various	NPS MONTEREY, CA	0.100	0.100	Nov 2009	0.100	Nov 2010	0.000		0.100	0.000	0.300	Continuing
		Subtotal	14.776	1.342		1.328		0.000		1.328	0.000	17.446	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	Various/ Various	Various Various	1.529	0.184	Dec 2009	0.000		0.000		0.000	0.000	1.713	Continuing
Support Equipment Development	Various/ Various	Various Various	0.020	0.000		0.020	Dec 2010	0.000		0.020	0.000	0.040	Continuing
		Subtotal	1.549	0.184		0.020		0.000		0.020	0.000	1.753	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 2124: *Air Warfare Training*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various/ Various	Vaious Various	5.643	0.125	Dec 2009	0.100	Dec 2010	0.000		0.100	0.000	5.868	Continuing
		Subtotal	5.643	0.125		0.100		0.000		0.100	0.000	5.868	

Remarks

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various/ Various	Various Various	0.194	0.094	Dec 2009	0.202	Dec 2010	0.000		0.202	0.000	0.490	Continuing
Travel	Various/ Various	Various Various	0.445	0.021	Dec 2009	0.015	Dec 2010	0.000		0.015	0.000	0.481	Continuing
		Subtotal	0.639	0.115		0.217		0.000		0.217	0.000	0.971	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	22.607	1.766		1.665		0.000		1.665	0.000	26.038	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 2124: *Air Warfare Training*	

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 2124: *Air Warfare Training*

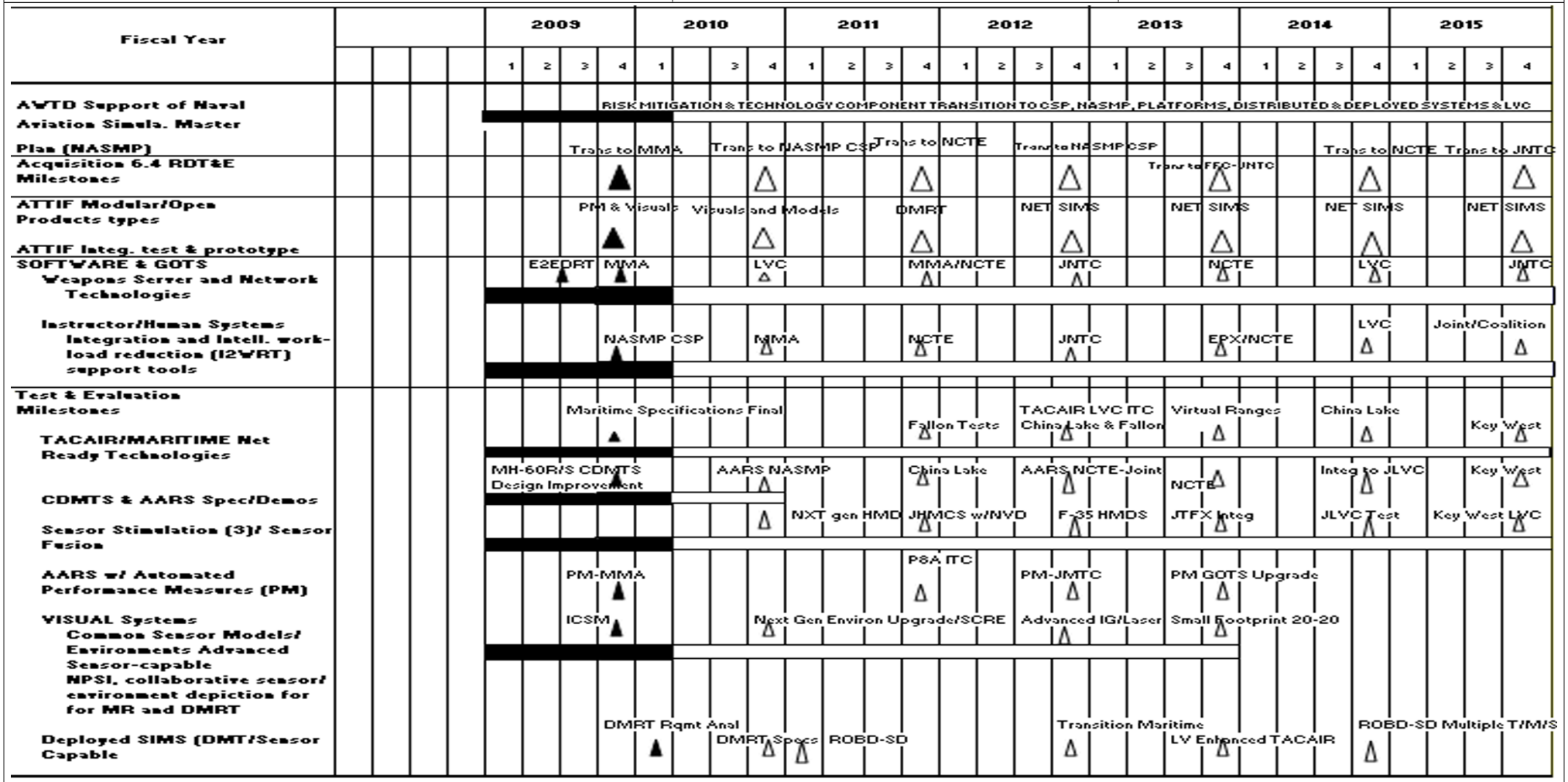

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204571N: *Consolidated Trng Sys Dev*	**PROJECT** 2124: *Air Warfare Training*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
AWTD Support of Naval Aviation Simulation Master Plan (NASMP)	1	2009	4	2015
Acquisition 6.4 RDT&E Milestones	4	2009	4	2015
ATTIF Modular/Open Product Types - Integration, Test and Prototype	4	2009	4	2015
Software & GOTS - Weapons Server and Network Technologies	1	2009	4	2015
Software & GOTS - Instructor/Human Systems Integration and Intelligence workload	1	2009	4	2015
Test and Evaluation Milestones - TACAIR/MARITIME Net ready Technologies	1	2009	4	2015
Test and Evaluation Milestones - CDMTS & AARS Spec/Demos	1	2009	4	2010
Test and Evaluation Milestones - Sensor stimulation (3)/Sensor Fusion	1	2009	4	2015
Test and Evaluation Milestones - AARS w/automated Performance Measure (PM)	4	2009	4	2013
Test and Evaluation Milestones - Visual Systems - Common Sensor Models/ Environments, Advanced sensor-capable NPSI, collaborative sensor/environmental depiction for MR & DMRT	1	2009	2	2013
Test and Evaluation Milestones - Deployed SIMS (DMT/Sensor capable)	1	2010	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3087: *Curriculum & Trainer Development*	4.467	18.963	24.146	0.000	24.146	22.090	14.492	4.237	4.340	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Total Ship Training Capability supports DoD Training Transformation and the updated Surface Warfare Training Manual COMNAVSURFOR INST 3502.01D (1 July 07) requirements which call for continuous learning and realistic mission training environments with measurable warfighter performance linked to readiness across the training continuum from in-port CONUS to in-theater mission rehearsal. TSTC Spiral 1 ship and shore based capabilities are critical to accomplishing Fleet Training Board of Directors strategy and objectives for warfighting performance improvements in the areas of ASW, BMD, and Surface Warfare and Information Warfare improvements. The TSTC Combat System Trainer (CST) enhancements to ship and shore trainers shall employ a spiral development process to allow continuous incremental implementation of core training system functionality and critical warfighting training capabilities in multiple mission areas as prioritized by the Fleet. TSTC will improve upon the current embedded trainer and interface interoperability limitations and model databases by developing the requisite architecture and associated computer programs to facilitate the transition to HLA and common modeling, scenario generation and control and assessment. Migration to TSTC is required to ensure continued, persistent FST interoperability via the NTCE. TSTC will integrate existing and emergent onboard training and assessment system capabilities to simulate realistic, train like you fight, combat-like conditions across combat systems, engineering, damage control and navigation systems. It shall provide a continuous shipboard organic learning environment through On-Demand, Just In Time, scenario-driven, Objective Based Training, and mission rehearsal capabilities initially available in port, and ultimately underway and in-theater.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Curriculum & Trainer Development	4.467	18.963	24.146	0.000	24.146
Funds development of ship and shore TSTC core capabilities. TSTC shall be implemented as a System of Systems (SoS) capability. In the near term, TSTC development is focused on Combat Systems improvements and Navigation and Engineering trainer integration. In the long term, TSTC may expand to include Damage Control, Logistics, Aviation, Visit, Board, Search, and Seizure, Medical, Sentry/					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Lookout, Intelligence, and Security Force training. Development of TSTC Spiral 1 includes development of the completely redesigned, re-architected, and enhanced CST with the following characteristics: decoupled models and entity database; FST HLA compatibility; FST filtering improved training system usability; readiness based assessment objective based planning; and high band width encryption. TSTC shall integrate internal environments and interoperate with external environments via the NCTE. The TSTC common integrating element will be the Training Management System (TMS) capability. Establishing the architecture of the TMS is also part of TSTC Spiral 1 development. The need for transforming training is documented within the Office of Force Transformation Military Transformation Initiative, DoD Training Transformation Plan, the Chief of Naval Operations Fleet Response Plan, and Commander United States Fleet Forces Command Fleet Readiness Training Plan. TSTC efforts include scenario development, knowledge management, common environment system/software engineering, technical system design, software design, safety assessment, program management, software development, system integration, test and evaluation and logistics support. Prototypes of the various TSTC hardware and software subsystems will be designed and documented in design specifications. *FY 2009 Accomplishments:* Accomplishments include: Definition of TSTC Spiral 1 identified by the draft Capabilities Development Document as a subset of the TSTC Initial Capabilities Document. TSTC FY 09 efforts include overarching architecture definition/development, configuration management, integrated logistics efforts, software development specifications, system Test and Evaluation (T&E) plans, and certification plans. TSTC component definition includes planning services, training objectives, training scenario, data collection, debrief material, permission to train, and knowledge management. TSTC interfaces definition to platform unique sensor,weapon and combat system elements like AEGIS Advanced Capability Build (ACB14). The TSTC ICD defines TSTC as the CST program targeted to meet COMNAVSURFORs requirements for synthetic combat systems crew training for AEGIS modernization, CVN 78, and all subsequent ships after FY 14. TSTC supports DoD Training Transformation and the updated Surface Warfare Training Manual COMNAVSURFOR					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 3087: *Curriculum & Trainer Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
INST 3502.01D (1 July 07) requirements which call for continuous learning and realistic mission training environments with measurable warfighter performance linked to readiness across the training continuum for inport CONUS to in-theater mission rehearsal. TSTC Spiral 1 is the cornerstone of shipboard embedded training and critical to accomplishing Fleet strategy and objectives for warfighting performance improvements in the areas of ASW, BMD, and Surface Warfare and Information Warfare improvements within the Open Architecture and COTS modernization standards for shipboard systems in FY 14. *FY 2010 Plans:* Planned Accomplishments: Commence overall TSTC design. For all identified requirements for TSTC Baseline 1, development of TSTC will start the Design Phase for the Training Management Services (TMS) Services. The combat system stimulation elements of the CST component support the stimulation of a training environment for the AEGIS modernization and CVN 78 platforms. ASW, BMD, IW enhanced Warfighter capabilities and requirements identified in FY 09 stall start development. Integration of the Service Oriented Architecture elements of TMS shall start design phase to allow integration of planning and assessment tools into shipboard training systems. Requirements engineering for the SSDS CVNs. *FY 2011 Base Plans:* Planned Accomplishments - Continue development, prototyping and element testing.					
Accomplishments/Planned Programs Subtotals	4.467	18.963	24.146	0.000	24.146

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 3087: *Curriculum & Trainer Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN 276200: *(Surface (N86) BFTT/TSTC portion only)*	20.950	24.095	21.642	0.000	21.642	22.576	23.684	28.561	32.007	0.000	173.515

D. Acquisition Strategy

The TSTC acquisition strategy for system development utilizes the spiral development model, as mandated by OSD and incremental acquisition and fielding, utilizing commercial off-the-shelf technology to the extent possible.

E. Performance Metrics

NSWC Dam Neck: # of BFTT/TSTC software and hardware product improvements and new capabilities. Successful design, development, and testing of product improvements and new capabilities. Site acceptance of product improvements with no Priority 1 or 2 problem reports.
NSWC Dahlgren: # of Test events and Training System interface problem resolutions documented. Successful application of system engineering processes. Safety Reviews in direct support of Element Certifications. Completion of 1 upgrade per year.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 3087: *Curriculum & Trainer Development*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/CPFF	VARIOUS VARIOUS	0.000	2.200	Mar 2010	0.600	Mar 2011	0.000		0.600	0.000	2.800	Continuing
Ship Integration	Various/ Various	VARIOUS VARIOUS	0.000	0.000		0.000		0.000		0.000	0.000	0.000	Continuing
Systems Engineering	WR	NSWC PHD/ CDSA/NUWC Newport/NSWC Dahlgren/ NAVSEA VARIOUS	1.913	2.657	Jan 2010	1.754	Dec 2010	0.000		1.754	0.000	6.324	Continuing
		Subtotal	1.913	4.857		2.354		0.000		2.354	0.000	9.124	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	NSWC PHD/ CDSA/NUWC Newport/NSWC Dahlgren/ NAVSEA 02	0.555	11.412	Mar 2010	16.676	Mar 2011	0.000		16.676	0.000	28.643	Continuing
	WR		0.548	0.000		0.000		0.000		0.000	0.000	0.548	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 3087: *Curriculum & Trainer Development*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Documentation		NSWC PHD/ CDSA/NUWC Newport/NSWC Dahlgren/ NAVSEA 02											
		Subtotal	1.103	11.412		16.676		0.000		16.676	0.000	29.191	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC PHD/ CDSA/Various VARIOUS	0.400	1.070	Jan 2010	2.558	Dec 2010	0.000		2.558	0.000	4.028	Continuing
		Subtotal	0.400	1.070		2.558		0.000		2.558	0.000	4.028	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 3087: *Curriculum & Trainer Development*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Services	WR	CDSA/NSWC Dahlgren/Various VARIOUS	1.000	1.624	Jan 2010	2.558	Jan 2011	0.000		2.558	0.000	5.182	Continuing
DAWDF	Various/ Various	VARIOUS VARIOUS	0.051	0.000		0.000		0.000		0.000	0.000	0.051	Continuing
		Subtotal	1.051	1.624		2.558		0.000		2.558	0.000	5.233	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.467	18.963		24.146		0.000		24.146	0.000	47.576	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 3087: *Curriculum & Trainer Development*	

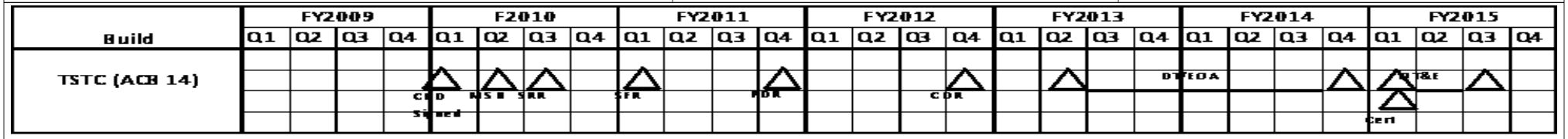

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204571N: *Consolidated Trng Sys Dev*	**PROJECT** 3087: *Curriculum & Trainer Development*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
TSTC CDD DEVELOPMENT/APPROVAL	1	2010	1	2010
TSTC MILESTONE B	2	2010	2	2010
TSTC SRR	3	2010	3	2010
TSTC SFR	1	2011	1	2011
TSTC DEVELOPMENT PDR	4	2011	4	2011
TSTC CDR	4	2012	4	2012
TSTC DT/EOA	2	2013	3	2015
TSTC CERTIFICATION	1	2015	1	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 3093: *TACTS/LATR Replacement*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3093: *TACTS/LATR Replacement*	2.923	6.306	16.119	0.000	16.119	13.350	8.991	9.030	9.217	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

TCTS will provide the Navy a replacement for major portions of the TACTS and LATR. TCTS will also provide fleet deployable training for at-sea training and tactics development. By providing a rangeless capability, the system will greatly increase the area where live instrumented training can be conducted. Initial fielding of a Non-Developmental Item (NDI) Pod system was at NAS Key West. The program incorporates an evolutionary development (incremental) towards a system capable of supporting a broad spectrum of naval platforms through weapons simulations, participant weapons system stimulation, open architecture and a high capacity/long range secure data link. The Milestone Decision Authority (MDA) approved program rebaseline on May 23, 2005.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
TACTS/LATR REPLACEMENT	2.923	6.306	16.119	0.000	16.119
TCTS: Qualified and completed the NDI Rangeless Pod system fielded at NAS Key West, including the complete Integrated Logistics products and training. Developed and implemented track exchange interface between TCTS live monitor and TACTS Control and Computation Subsystem (CCS). Defined Test and TENA compliant interface between TCTS and an Advance Display System. Developed F/A-18 (C/D/E/F) and AV-8B Internal Subsystem (IS) and began qualification testing. Initiated development of the Fixed Ground Subsystem and data link uplink control for fielding at larger navy training ranges. Develop and deliver Integrated Logistics products for the IS and for fielding the TCTS system for deployed and fixed Range applications. Initiated the development of a Rack-Mounted subsystem for use on rotary wing and transport aircraft. Continue development of the Advanced Data Link (ADL) waveform and the JTRS advance data link. Address and fund development of the JTRS radio and synchronize the budget to schedule. Develop shipboard ground subsystem and related training range integration.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204571N: *Consolidated Trng Sys Dev*	**PROJECT** 3093: *TACTS/LATR Replacement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Completed RIW Critical Design Review (CDR). RIW team received JTRS Small Form Fit (SFF-K) Hardware Development Environment (HDE) for Software (SW) update to begin RIW integration with SFF-K. SFF-K completed SW review with planned SW PDR by end of FY (Hardware PDR completed). Conducted development evaluations to support ADL integration with TCTS participant and ground subsystem: SOW and Specification development, pre-SRR activities. *FY 2010 Plans:* Complete SFF-K CDR with transition to development of JTRS SFF-K radio. Release RFP for ADL integration contract with associated activities to support contract award. Coordinate ADL development with NSA to support encryption certification. *FY 2011 Base Plans:* Planned delivery of JTRS SFF-K Engineering Development Model (EDM) to support integration of ADL with TCTS participant and ground subsystems. Conduct TCTS ADL integration PDR. Coordinate ADL development with NSA to support encryption certification.					
Accomplishments/Planned Programs Subtotals	2.923	6.306	16.119	0.000	16.119

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/4204: *Weapons Range Support Equipment (WRSE)/TCTS*	7.637	5.338	5.200	0.000	5.200	5.342	5.465	5.604	5.682	0.000	40.268
	27.788	23.787	7.579	0.000	7.579	11.322	14.151	15.480	16.079	0.000	116.186

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/0725: *Other Production Charges/Tactical Combat Training System (TCTS)*											

D. Acquisition Strategy

TCTS will employ an evoluntionary incremental acquisition strategy to procure base NDI Systems and provide for the development of the system to meet the full ORD requirements. TCTS is a cooperative program with the USAF P5 Combat Training System (CTS) program. The USAF awarded a 10-year contract in June 2003.

E. Performance Metrics

Rockwell Collins, Inc: RIW hosted on JTRS SFF-K. RIW successfully operating on JTRS SFF-K hardware.
General Dynamics: NSA approved JTRS SFF-K . Successful EDM testing of JTRS SFF-K performance requirements with NSA and JTE.

Cubic DAI: Integration of JTRS SFF-K with TCTS equipment. Full integration of JTRS SFF-K with TCTS equipment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPAF	CUBIC DEFENSE APPL SAN DIEGO, CA	9.811	0.000		0.000		0.000		0.000	0.000	9.811	Continuing
Award Fees	Various/ Various	VARIOUS VARIOUS	1.090	0.000		0.000		0.000		0.000	0.000	1.090	Continuing
		Subtotal	10.901	0.000		0.000		0.000		0.000	0.000	10.901	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	SS/CPAF	CUBIC DEFENSE APPL SAN DIEGO, CA	10.391	1.825	Nov 2009	10.960	Nov 2010	0.000		10.960	0.000	23.176	Continuing
Software Development	SS/CPAF	ROCKWELL COLLINS CEDAR RAPIDS, IA	1.772	2.790	Nov 2009	0.000		0.000		0.000	0.000	4.562	Continuing
Integrated Logistics Support	Various/ Various	VARIOUS VARIOUS	0.503	0.045	Nov 2009	1.907	Nov 2010	0.000		1.907	0.000	2.455	Continuing
	SS/CPAF		0.914	0.000		0.000		0.000		0.000	0.000	0.914	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support		CUBIC DEFENSE APPL SAN DIEGO, CA											
Award Fees	Various/ Various	VARIOUS VARIOUS	1.530	0.000		0.000		0.000		0.000	0.000	1.530	Continuing
Software Development	SS/CPAF	GENERAL DYNAMICS SCOTTSDALE, AZ	3.800	0.000		1.748	Nov 2010	0.000		1.748	0.000	5.548	Continuing
		Subtotal	18.910	4.660		14.615		0.000		14.615	0.000	38.185	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various/ Various	VARIOUS VARIOUS	3.157	0.225	Nov 2009	0.300	Nov 2010	0.000		0.300	0.000	3.682	Continuing
Operational Test & Evaluation	WR	OPER T&E NORFOLK, VA	0.043	0.000		0.000		0.000		0.000	0.000	0.043	Continuing
		Subtotal	3.200	0.225		0.300		0.000		0.300	0.000	3.725	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 3093: *TACTS/LATR Replacement*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	VARIOUS VARIOUS	0.977	0.535	Nov 2009	0.150	Nov 2010	0.000		0.150	0.000	1.662	Continuing
Government Engineering Support	Various/ Various	VARIOUS VARIOUS	4.612	0.884	Nov 2009	1.052	Nov 2010	0.000		1.052	0.000	6.548	Continuing
Travel	Various/ Various	VARIOUS VARIOUS	0.014	0.002	Nov 2009	0.002	Nov 2010	0.000		0.002	0.000	0.018	Continuing
		Subtotal	5.603	1.421		1.204		0.000		1.204	0.000	8.228	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	38.614	6.306		16.119		0.000		16.119	0.000	61.039	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 3093: *TACTS/LATR Replacement*

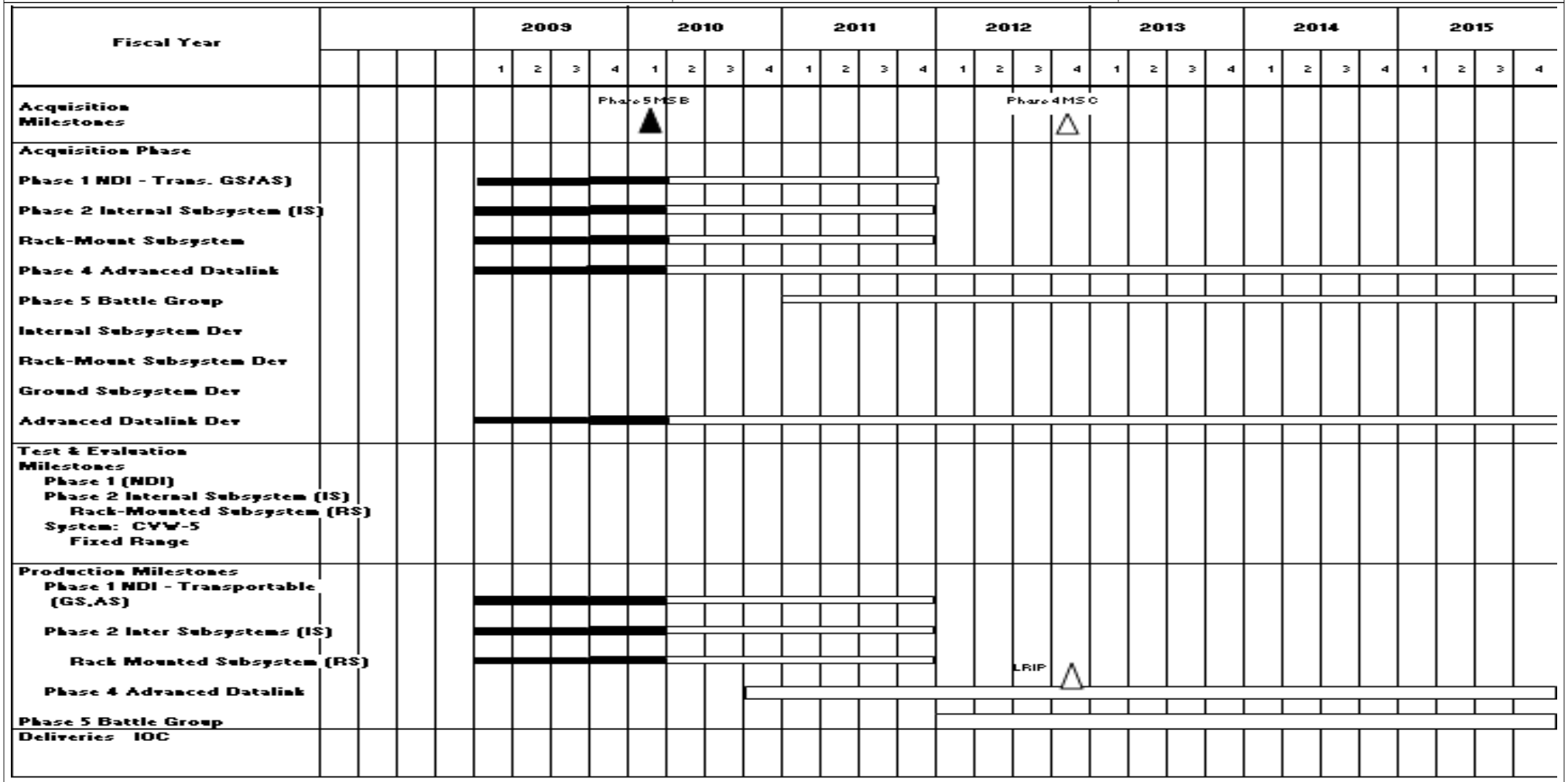

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204571N: *Consolidated Trng Sys Dev*	**PROJECT** 3093: *TACTS/LATR Replacement*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones - Phase 5 MS B	1	2010	1	2010
Acquisition Milestones - Phase 4 MS C	4	2012	4	2012
Acquisition Phase - Phase 1 NDI - Transportable (GS, AS)	1	2009	4	2011
Acquisition Phase - Phase 2 Internal Subsystem (IS)	1	2009	4	2011
Acquisition Phase - Phase 5 Battle Group	1	2011	4	2015
Acquisition Phase - Advanced Datalink Development	1	2009	4	2015
Production Milestones - Phase 1 NDI - Transportable (GS, AS)	1	2009	4	2011
Production Milestones - Phase 2 Internal Subsystem (IS)	1	2009	4	2011
Production Milestones - Rack-Mount Subsystem	1	2009	4	2011
Production Milestones - Phase 4 Advanced Datalink	4	2010	4	2015
Production Milestones - Phase 5 Battle Group	1	2012	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	2.632	2.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.550
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Congressional Add

A. Mission Description and Budget Item Justification

Total Ship Training System (TSTS) PU 3087A: FY08 Congressional Add in the amount of $1.542M supports development of a voice command recognition and assessment capability to the TSTS Support System and completes preparation for demonstration in FY09 ($1.037M). The voice recognition capability is to be used to monitor the performance of Officers during a training scenario and to support the automated assessment of their performance. This will reduce the shipboard manpower requirements to run and assess a shipboard team training event.

ASW: Congressional Add.

NAVAIR High Fidelity Oceanographic Library: Congressional Add.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: NAVAIR High Fidelity Oceanographic Library *FY 2010 Plans:* Congressional Add.	0.000	2.390
Congressional Add: TOTAL SHIP TRAINING SYSTEM (TSTS)	1.037	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204571N: *Consolidated Trng Sys Dev*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: The FY 09 Congressional Add in the amount of $1.037M provides funding for the demonstration of the voice command recognition and assessment capability to the TSTS. The voice recognition capability is to be used to monitor the performance of Officers during a training scenario and to support the automated assessment of their performance. This will reduce the shipboard manpower requirements to run and assess a shipboard team training event.		
Congressional Add: ASW TRAINING INTEROPERABILITY ENTERPRISE DEMO TEST *FY 2009 Accomplishments:* ASW: The SupWG (subgroup of SupFS) supplies open architecture training products, developed through a successful build-test-build, best-of-breed process to support rapid technology improvement and deployment. SupWG training technology is a scalable, configurable, hardware independent modular software solution, designed to support both deployed combat systems and shore based training systems. SupWG products support a wide range of USW platforms including AN/SQQ-89A(V), 15 Surface Combatant; Improved Performance Sonar Surface Combatant; Littoral Combat Ship ASW Mission Package; DDG1000 Zumwalt Class; P-8A Poseidon (formerly the Multimission Maritime Aircraft.	1.595	0.000
Congressional Adds Subtotals	2.632	2.390

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

E. Performance Metrics

Not required for Congressional Adds.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0204574N: *Cryptologic Direct Support*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	1.437	1.602	1.519	0.000	1.519	1.567	1.897	1.939	1.979	Continuing	Continuing
3091: *Advanced Cryptological Sys Eng (CCOP)*	1.437	1.602	1.519	0.000	1.519	1.567	1.897	1.939	1.979	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Advanced Cryptologic Systems Engineering - Cryptologic Carry On Program develops state-of-the-art signal acquisition software in response to Combatant Command requirements for a quick-reaction surface, subsurface and airborne cryptologic carry-on capability. There are approximately 100 cryptologic capable surface ships in the current Navy inventory. Each of these ships is a potential user of this carry-on equipment, depending on deployment schedules and the tempo of operations. In addition, there are numerous subsurface and air platforms that are also potential users. This funding line will provide the resources to enable rapid transition of available Commercial Off-The-Shelf (COTS) and Government Off-The-Shelf (GOTS) technologies that apply to Fleet requirements for carry-on system functionalities. These technologies typically require various levels of integration to leverage on-board systems that provide system and mission management, product reporting and data analysis. COTS/GOTS system documentation and training materials usually require some level of adaptation or modification to meet fleet operator requirements, or entirely new training materials may need to be developed. Before deployment for operational use, systems must be systematically tested to ensure suitable and reliable operation, tested for network vulnerabilities if connected to shipboard Local Area Networks, and tested relative to interoperability requirements. Certification testing is conducted to meet Office of Naval Intelligence security requirements and network testing is conducted in accordance with Information Technology (IT)-21 requirements to allow connection to Navy networks. This Research, Development, Test & Evaluation will also provide resources to address rapid deployment of enhancements or improvements to the common hardware and/or software baseline of all other carry-on subsystems to meet emergent requirements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204574N: *Cryptologic Direct Support*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	1.437	1.609	0.000	0.000	0.000
Current President's Budget	1.437	1.602	1.519	0.000	1.519
Total Adjustments	0.000	-0.007	1.519	0.000	1.519
• Congressional General Reductions		-0.007			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	1.519	0.000	1.519

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204574N: *Cryptologic Direct Support*	PROJECT 3091: *Advanced Cryptological Sys Eng (CCOP)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3091: *Advanced Cryptological Sys Eng (CCOP)*	1.437	1.602	1.519	0.000	1.519	1.567	1.897	1.939	1.979	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Advanced Cryptologic Systems Engineering - Cryptologic Carry On Program program develops state-of-the-art signal acquisition software in response to Combatant Command requirements for a quick-reaction surface, subsurface and airborne cryptologic carry-on capability. There are approximately 100 cryptologic capable surface ships in the current Navy inventory. Each of these ships is a potential user of this carry-on equipment, depending on deployment schedules and the tempo of operations. In addition, there are numerous subsurface and air platforms that are also potential users. This funding line will provide the resources to enable rapid transition of available Commercial Off-The-Shelf (COTS) and Government Off -The-Shelf (GOTS) technologies that apply to Fleet requirements for carry-on system functionalities. These technologies typically require various levels of integration to leverage on-board systems that provide system and mission management, product reporting and data analysis. COTS/GOTS system documentation and training materials usually require some level of adaptation or modification to meet fleet operator requirements, or entirely new training materials may need to be developed. Before deployment for operational use, systems must be systematically tested to ensure suitable and reliable operation, tested for network vulnerabilities if connected to shipboard Local Area Networks, and tested relative to interoperability requirements. Certification testing is conducted to meet Office of Naval Intelligence security requirements and network testing is conducted in accordance with Information Technology (IT)-21 requirements to allow connection to Navy networks. This Research, Development, Test & Evaluation will also provide resources to address rapid deployment of enhancements or improvements to the common hardware and/or software baseline of all other carry-on subsystems to meet emergent requirements.

FY11 funds will continue to integrate, test, and document identified COTS and GOTS technologies and subsystems that meet emergent and on-going Fleet requirements as specified in the Signals of Interest (SOI) and target threat list. Funds will continue to develop upgrades to existing systems and subsystems according to Fleet requirements. Additional funds will aid in the development of new SOI algorithms in support of cryptologic systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Advanced Cryptological Sys Eng (CCOP)	1.437	1.602	1.519	0.000	1.519

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204574N: *Cryptologic Direct Support*	PROJECT 3091: *Advanced Cryptological Sys Eng (CCOP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Integrated, tested, and documented identified Commercial Off-The-Shelf (COTS) and Government Off -The-Shelf (GOTS) technologies and subsystems that met emergent and on-going Fleet requirements as specified in the FY09 Signals of Interest (SOI) and target threat list. Developed upgrades to existing systems and subsystems according to Fleet requirements. *FY 2010 Plans:* Continue to integrate, test, and document identified COTS and GOTS technologies and subsystems that meet emergent and on-going Fleet requirements as specified in the FY10 SOI and target threat list. Continue to develop upgrades to existing systems and subsystems according to Fleet requirements. Additional funds will aid in the development of new SOI algorithms in support of cryptologic systems. *FY 2011 Base Plans:* Continue to integrate, test, and document identified COTS and GOTS technologies and subsystems that meet emergent and on-going Fleet requirements as specified in the FY11 SOI and target threat list. Continue to develop upgrades to existing systems and subsystems according to Fleet requirements.					
Accomplishments/Planned Programs Subtotals	1.437	1.602	1.519	0.000	1.519

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204574N: *Cryptologic Direct Support*	PROJECT 3091: *Advanced Cryptological Sys Eng (CCOP)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN / 3501: *Cryptologic Communications Equipment*	22.167	16.787	18.322	0.000	18.322	18.100	18.615	18.933	19.265	Continuing	Continuing

D. Acquisition Strategy

Acquisition, management and contracting strategies are to support engineering and manufacturing development by providing funds to Space and Naval Warfare (SPAWAR) Systems Centers Atlantic and Pacific, and miscellaneous contractors, with management oversight by SPAWAR.

E. Performance Metrics

Cryptologic Carry On Program (CCOP) program will deliver state-of-the-art signal acquisition software for CCOP systems in response to Combatant Command requirements for a quick-reaction surface, subsurface and airborne cryptologic carry-on capability. There are approximatley 250 CCOP systems in inventory.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204574N: *Cryptologic Direct Support*	PROJECT 3091: *Advanced Cryptological Sys Eng (CCOP)*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	Various/ Various	Various Various	1.719	0.196	Dec 2009	0.197	Dec 2010	0.000		0.197	Continuing	Continuing	Continuing
		Subtotal	1.719	0.196		0.197		0.000		0.197			

Remarks

No remarks.

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	Various/ Various	Various Various	4.997	1.112	Feb 2010	1.027	Dec 2010	0.000		1.027	Continuing	Continuing	Continuing
		Subtotal	4.997	1.112		1.027		0.000		1.027			

Remarks

No remarks.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204574N: *Cryptologic Direct Support*	PROJECT 3091: *Advanced Cryptological Sys Eng (CCOP)*	

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various/ Various	Various Various	0.268	0.065	Dec 2009	0.066	Dec 2010	0.000		0.066	Continuing	Continuing	Continuing
		Subtotal	0.268	0.065		0.066		0.000		0.066			

Remarks

No remarks.

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various/ Various	Various Various	0.778	0.180	Dec 2009	0.180	Dec 2010	0.000		0.180	Continuing	Continuing	Continuing
Travel	Various/ Various	DTS Various	0.217	0.049	Nov 2009	0.049		0.000		0.049	Continuing	Continuing	Continuing
		Subtotal	0.995	0.229		0.229		0.000		0.229			

Remarks

No remarks.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204574N: *Cryptologic Direct Support*	PROJECT 3091: *Advanced Cryptological Sys Eng (CCOP)*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.979	1.602		1.519		0.000		1.519			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204574N: *Cryptologic Direct Support*	PROJECT 3091: *Advanced Cryptological Sys Eng (CCOP)*

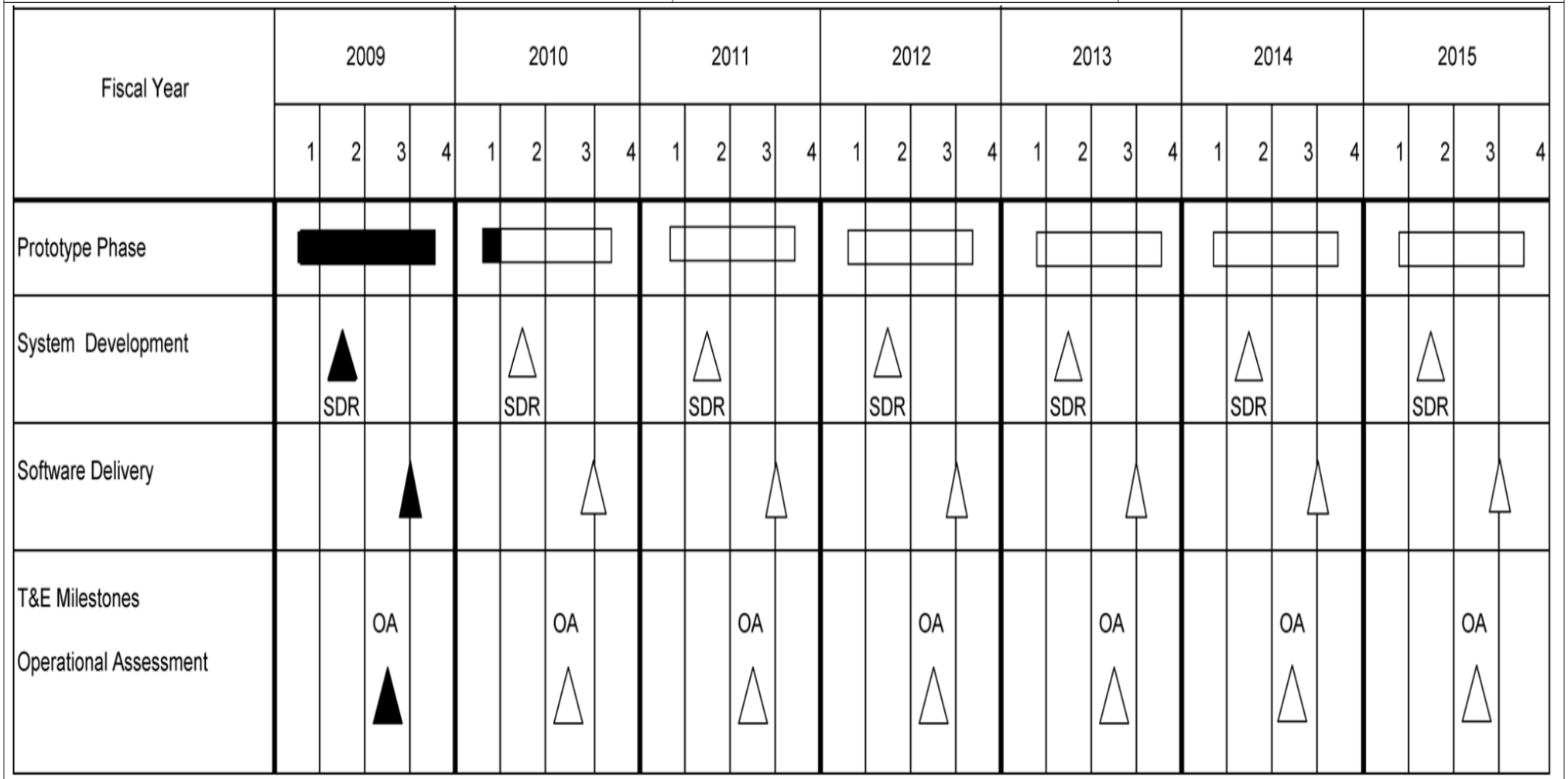

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204574N: *Cryptologic Direct Support*	**PROJECT** 3091: *Advanced Cryptological Sys Eng (CCOP)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Prototype Phase	1	2009	4	2015
System Design Review (SDR) - 2009	2	2009	2	2009
System Design Review (SDR) - 2010	2	2010	2	2010
System Design Review (SDR) - 2011	2	2011	2	2011
System Design Review (SDR) - 2012	2	2012	2	2012
System Design Review (SDR) - 2013	2	2013	2	2013
System Design Review (SDR) - 2014	2	2014	2	2014
System Design Review (SDR) - 2015	2	2015	2	2015
Software Delivery - 2009	3	2009	4	2009
Software Delivery - 2010	3	2010	4	2010
Software Delivery - 2011	3	2011	4	2011
Software Delivery - 2012	3	2012	4	2012
Software Delivery - 2013	3	2013	4	2013
Software Delivery - 2014	3	2014	4	2014
Software Delivery - 2015	3	2015	4	2015
Operational Assessment (OA) - 2009	3	2009	3	2009
Operational Assessment (OA) - 2010	3	2010	3	2010
Operational Assessment (OA) - 2011	3	2011	3	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204574N: *Cryptologic Direct Support*	PROJECT 3091: *Advanced Cryptological Sys Eng (CCOP)*

	Start		End	
Event	Quarter	Year	Quarter	Year
Operational Assessment (OA) - 2012	3	2012	3	2012
Operational Assessment (OA) - 2013	3	2013	3	2013
Operational Assessment (OA) - 2014	3	2014	3	2014
Operational Assessment (OA) - 2015	3	2015	3	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	23.537	37.368	39.398	0.000	39.398	51.800	55.056	56.149	54.046	Continuing	Continuing
2263: *Information Warfare System*	23.537	37.368	39.398	0.000	39.398	51.800	55.056	56.149	54.046	Continuing	Continuing

A. Mission Description and Budget Item Justification

Information Operations(IO) Mission Management: Develops command and control mechanism for remote use of Electronic Attack(EA)assets to include frequency, antenna alignment and weapon firing data transfer. Develops a modeling and simulation laboratory for the program office to use in the development, intended effect, and risk reduction of new EA capabilities.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	24.206	37.524	0.000	0.000	0.000
Current President's Budget	23.537	37.368	39.398	0.000	39.398
Total Adjustments	-0.669	-0.156	39.398	0.000	39.398
• Congressional General Reductions		-0.156			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.669	0.000			
• Program Adjustments	0.000	0.000	39.398	0.000	39.398

Change Summary Explanation

Technical: N/A
Schedule: N/A

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2263: *Information Warfare System*	23.537	37.368	39.398	0.000	39.398	51.800	55.056	56.149	54.046	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Information Operations(IO) Mission Management: Develops command and control mechanism for remote use of Electronic Attack(EA)assets to include frequency, antenna alignment and weapon firing data transfer. Develops a modeling and simulation laboratory for the program office to use in the development, intended effect, and risk reduction of new EA capabilities.

IO Counter Measure(CM) Capability Research & Development. Develops software to account for antenna modeling, weather calculations, Radio Frequency (RF) modeling, signals mapping and terrain modeling for warfighter use in configuring optimal EA from afloat.

MCS-21 Systems Development & Support: Develops and fields spiral EA capabilities against Fleet Forces Command prioritized signals and target sets. EA capabilities will be integrated into a software architecture baseline that is deployed on subsurface, airborne and surface IO platforms (Classic Troll, Banshee and SSEE-Inc E/ F.) Also included is the Navy's investment in ICADS proof of concept system.

Research, Analysis & R&D Technical Spt. Conducts vulnerability analysis and reverse engineering on emerging threats and targets and provides specialized technical, engineering and management support to the program management office.
(Specific details held at a higher classification level.)

Computer Network Operations (CNO): Funds development and testing of adversary target networks for modeling, simulation, and tailoring of CNO capabilities. Develops specific CNO capabilities to be used against adversary networks. Supports Electronic Target Folder database which provides a means of sharing and storing common CNO data. Studies unique adversary CNO vulnerabilities for exploitation. (Specific development details held at a higher classification level.)

Increasing emphasis on Ballistic Missile Defense/High Value Units (BMD/HVU) and Red Flash will provide additional and/or enhanced IO capabilities to enable OPLANs and support Major Combat Operations (MCO) scenarios. This effort leverages and continues the development of Computer Network Attack (CNO) capabilities and also provides for the delivery of two MCS21 mobile/ground components. (Specific development and capability details are held at a higher classification level.)

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Information Warfare System/Information Operation Mission Management	3.585	3.797	3.869	0.000	3.869
IO Mission Management: Develops command and control mechanism for remote use of Electronic Attack assets to include frequency, antenna alignment and weapon firing data transfer. Develops a modeling and simulation laboratory for the program office to use in the development, intended effect, and risk reduction of new EA capabilities. *FY 2009 Accomplishments:* Conducted the following tasks on the following requirements: RF Propagation Modeling IO Mission Management Remote Control Antenna Modeling Terrain Modeling *FY 2010 Plans:* Continue the following programs task requirements: RF Propagation Modeling Mission Planning Optimization & Tasking Services (MPOTS) Contractor Engineering Support *FY 2011 Base Plans:* Continue the following programs task requirements: RF Propagation Modeling MPOTS Contractor Engineering Support					
Electronic Warfare/Information Operation Counter Measure Capability Research & Development	2.126	5.628	7.650	0.000	7.650

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
IO CM Capability Research & Development. Develops and test IO Countermeasure capabilities across various platforms. Develops specific waveforms to attack adversary systems. Develops and uses modeling and simulation techniques to prototype and test emergent waveforms *FY 2009 Accomplishments:* Conducted: Modeling & Simulation Lab IW/IO EA capability development (Details held at higher classification level) *FY 2010 Plans:* Continue: Modeling & Simulation Lab (Applied/projected level of effort) IW/IO EA capability development (Details held at higher classification level) Waveform Weapon Development *FY 2011 Base Plans:* Continue: Modeling & Simulation Lab (Applied/projected level of effort) IW/IO EA capability development (Details held at higher classification level) Waveform Weapon Development					
Electronic Warfare Readiness Support/MCS-21 Systems Development & Support MCS-21 Systems Development & Support: Develops and fields spiral EA capabilities against Fleet Forces Command prioritized signals and target sets. EA capabilities will be integrated into a software architecture baseline that is deployed on subsurface, airborne and surface IO platforms (Classic Troll, Banshee and SSEE-Inc E/ F.) Also included is the Navy's investment in ICADS proof of concept system.	6.785	13.321	15.219	0.000	15.219

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Conducted: EA Systems Development (Details held at higher classification level) EA antenna development - Spiral capability upgrade delivery of Photonics antenna IW/IO EA capability development (Details held at higher classification level) ICADS (Details held at higher classification level) Testing *FY 2010 Plans:* Continue: EA Systems Development (Details held at higher classification level) EA antenna development - Spiral capability upgrade of Photonics antenna IW/IO EA capability development & integration (Details held at higher classification level) Contractor Systems Engineering & OPS Development Support Testing *FY 2011 Base Plans:* Continue: EA Systems Development (Details held at higher classification level) EA antenna development - Spiral capability upgrade of Photonics antenna IW/IO EA capability development & integration (Details held at higher classification level) Contractor Systems Engineering & OPS Development Support Testing					
Electronic Warfare/ Research, Analysis & R&D Technical Support Research, Analysis & R&D Technical Spt. Conducts vulnerability analysis and reverse engineering on emerging threats and targets and provides specialized technical, engineering and management support to the program management office. (Specific details held at a higher classification level.)	5.471	6.758	6.829	0.000	6.829

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Conducted: Technical and intelligence related studies and contractor engineering, technical & management support Research & Analysis (Details held at higher classification level) *FY 2010 Plans:* Continue: Technical and intelligence related studies and contractor engineering, technical & management support Navy IO Architecture process development Research & Analysis (Details held at higher classification level) *FY 2011 Base Plans:* Continue: Technical and intelligence related studies and contractor engineering, technical & management support Navy IO Architecture process development Research & Analysis (Details held at higher classification level)					
Electronic Warfare/ Computer Network Operations (CNO) Computer Network Operations (CNO): Funds development and testing of adversary target networks for modeling, simulation, and tailoring of CNO capabilities. Develops specific CNO capabilities to be used against adversary networks. Supports Electronic Target Folder database which provides a means of sharing and storing common CNO data. Studies unique adversary CNO vulnerabilities for exploitation. (Specific development details held at a higher classification level.)	5.570	7.864	5.831	0.000	5.831

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Conducted: CNO R&D Integrated Testing Facility Computer Network Attack Capabilities Development (Details held at higher classification level) Demonstration of Advanced Computer Network Operations Concept (Details held at higher classification level) *FY 2010 Plans:* Continue: CNO R&D Integrated Testing Facility Computer Network Attack Capabilities Development (Details held at higher classification level) Demonstration of Advanced Computer Network Operations Concept (Details held at higher classification level) *FY 2011 Base Plans:* Continue: CNO R&D Integrated Testing Facility Computer Network Attack Capabilities Development (Details held at higher classification level) Demonstration of Advanced Computer Network Operations Concept (Details held at higher classification level)					
Accomplishments/Planned Programs Subtotals	23.537	37.368	39.398	0.000	39.398

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDTEN/0604270N/1742: *Electronic Warfare Technical Development*	5.300	5.000	5.100	0.000	5.100	5.200	5.300	5.400	5.600	0.000	26.900

D. Acquisition Strategy

These programs are designated non-ACAT and operate under streamlined acquisition. This designation supports a streamlined acquisition process using the Advanced Concept Technology Demonstration (ACTD) documentation of the Defense Acquisition Guidance.

E. Performance Metrics

The Navy Offensive Cyber and Information Warfare Program (NOCIWP) discovers adversary vulnerabilities, develops capabilities to exploit these vulnerabilities, and transitions these capabilities for operational use. Investments are made in high risk/high payoff non kinetic opportunities and result in technologies and capabilities that provide unique, innovative, life-saving, and potentially cost saving applications into Department of Navy and Department of Defense classified acquisition and intelligence programs. Measures include quality and impact of new ideas and approaches, the success of the technology application in satisfying COCOM and Fleet requirements, and successful cost effective transition of the capability into operational systems. The goal of these investments is to provide to Commanders non kinetic options to influence adversaries and prevent escalation of crises. Due to the nature and classification of these efforts qualitative measures are used. It is the intent through the development of modeling and simulation scenarios and capabilities to develop quantitative metrics. The success of this depends heavily on the insight obtained via various intelligence community efforts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various/ Various	Various Various	14.428	3.100	Sep 2010	2.600	Sep 2011	0.000		2.600	Continuing	Continuing	Continuing
Ancillary Hardware Development	Various/ Various	Various Various	9.150	2.100	Sep 2010	1.350	Sep 2011	0.000		1.350	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	Applied Research Laboratory University Park, PA	0.340	0.360	Nov 2009	0.370	Nov 2010	0.000		0.370	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	ARGON Fairfax, VA	3,420.000	0.435	Oct 2009	0.445	Nov 2010	0.000		0.445	0.000	3,420.880	Continuing
Systems Engineering	Various/ Various	NRL Washington, DC	1.405	1.205	Nov 2009	0.785	Nov 2010	0.000		0.785	0.000	3.395	Continuing
		Subtotal	3,445.323	7.200		5.550		0.000		5.550			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various/ Various	ARGON Fairfax, VA	8.753	1.075	Oct 2009	1.200	Oct 2010	0.000		1.200	Continuing	Continuing	Continuing
Software Development			58.980	3.797	Dec 2009	3.869	Dec 2010	0.000		3.869	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
	Various/ Various	L3 Communications New York, NY											
Development Support	Various/ Various	NRL Washington, DC	0.250	0.260	Nov 2009	0.270	Nov 2010	0.000		0.270	0.000	0.780	Continuing
Development Support	Various/ Various	Classified Classified	0.795	3.649	Nov 2009	4.455	Nov 2010	0.000		4.455	0.000	8.899	Continuing
Software Development	Various/ Various	ARL University Park, PA	1.000	1.000	Nov 2009	1.100	Nov 2010	0.000		1.100	0.000	3.100	Continuing
Software Development	Various/ Various	ARGON Fairfax, VA	1.765	5.324	Nov 2009	7.869	Nov 2010	0.000		7.869	0.000	14.958	Continuing
Software Development	Various/ Various	NRL Washington, DC	0.620	0.650	Oct 2009	0.675	Oct 2010	0.000		0.675	0.000	1.945	Continuing
Software Development	Various/ Various	Classified Classified	5.570	7.864	Oct 2009	7.831	Oct 2010	0.000		7.831	0.000	21.265	Continuing
		Subtotal	77.733	23.619		27.269		0.000		27.269			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC China Lake, CA	4.311	0.514	Sep 2010	0.477	Sep 2011	0.000		0.477	Continuing	Continuing	Continuing
		Subtotal	4.311	0.514		0.477		0.000		0.477			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Research, Studies and Vulnerability Analysis	WR	NRL Washington, DC	7.157	3.079	Sep 2010	2.978	Sep 2011	0.000		2.978	Continuing	Continuing	Continuing
Contractor Engineering and Program Management Support	Various/ Various	Classified Classified	0.900	2.956	Sep 2010	3.124	Sep 2011	0.000		3.124	Continuing	Continuing	Continuing
Acquistion Workforce Fund 2009	Various/ Various	Various Various	0.117	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	8.174	6.035		6.102		0.000		6.102			

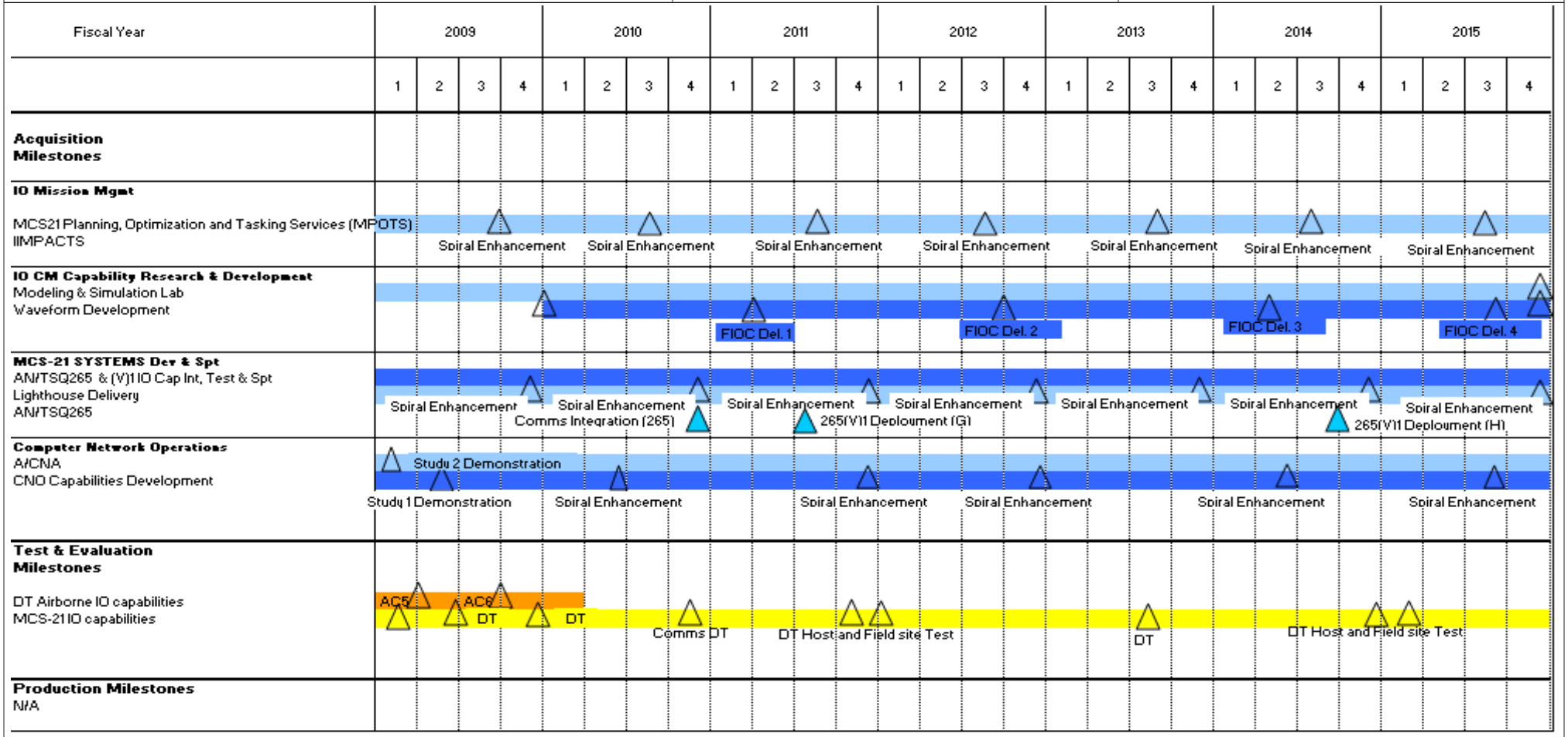
Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,535.541	37.368		39.398		0.000		39.398			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204575N: *Elect Warfare Readiness Supt*	**PROJECT** 2263: *Information Warfare System*



Note: EA Software deliveries will be integrated into existing programs of record on surface, subsurface and airborne platforms to include SSEE-Inc E/F, Classic Troll and Banshee.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204575N: *Elect Warfare Readiness Supt*	**PROJECT** 2263: *Information Warfare System*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
MCS21 Planning,Optimization,and Tasking Services (MPOTS)	1	2009	4	2015
IMPACTS (Sprial Enhancement) #1	3	2009	3	2009
IMPACTS (Sprial Enhancement) #2	3	2010	3	2010
IMPACTS (Sprial Enhancement) #3	3	2011	3	2011
IMPACTS (Sprial Enhancement) #4	3	2012	3	2012
IMPACTS (Sprial Enhancement) #5	3	2013	3	2013
IMPACTS (Sprial Enhancement) #6	3	2014	3	2014
IMPACTS (Sprial Enhancement) #7	3	2015	3	2015
Modeling and Simulation Lab	1	2009	4	2015
Waveform Development	1	2010	4	2015
FIOC Delivery #1	2	2011	2	2011
FIOC Delivery #2	3	2012	3	2012
FIOC Delivery #3	2	2014	2	2014
FIOC Delivery #4	3	2015	3	2015
AN/TSQ265 & (V) 1 IO Cap Int, Test and Spt	1	2009	4	2015
Lighthouse Delivery #1	4	2009	4	2009
Lighthouse Delivery #2	4	2010	4	2010
Lighthouse Delivery #3	4	2011	4	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*

	Start		End	
Event	Quarter	Year	Quarter	Year
Lighthouse Delivery #4	4	2012	4	2012
Lighthouse Delivery #5	4	2013	4	2013
Lighthouse Delivery #6	4	2014	4	2014
Lighthouse Delivery #7	4	2015	4	2015
AN/TSQ265 #1	4	2010	4	2010
AN/TSQ265 #2	3	2011	3	2011
AN/TSQ265 #3	3	2014	3	2014
A/CNA	1	2009	4	2015
CNO Capabilities Development Studies	1	2009	2	2009
CNO Spiral Enhancements #1	2	2010	2	2010
CNO Spiral Enhancements #2	4	2011	4	2011
CNO Spiral Enhancements #3	4	2012	4	2012
CNO Spiral Enhancements #4	2	2014	2	2014
CNO Spiral Enhancements #5	3	2015	3	2015
DT Airborne IO Capabilities	1	2009	4	2009
MCS21 IO Capabilities (Test) #1	1	2009	4	2009
MCS21 IO Capabilities (Test) #2	4	2010	4	2010
MCS21 IO Capabilities (Test) #3	4	2011	4	2011
MCS21 IO Capabilities (Test) #4	1	2012	1	2012
MCS21 IO Capabilities (Test) #5	3	2013	3	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204575N: *Elect Warfare Readiness Supt*	PROJECT 2263: *Information Warfare System*

	Start		End	
Event	Quarter	Year	Quarter	Year
MCS21 IO Capabilities (Test) #6	4	2014	4	2014
MCS21 IO Capabilities (Test) #7	1	2015	1	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	39.261	29.920	14.207	0.000	14.207	8.869	9.259	9.946	8.074	Continuing	Continuing
1780: *HARM Improvement*	1.833	1.911	1.555	0.000	1.555	1.572	1.597	1.634	1.686	Continuing	Continuing
2185: *AARGM*	22.647	9.197	7.793	0.000	7.793	7.297	7.662	8.312	6.388	Continuing	Continuing
3056: *Advanced Precision Kill Weapons System*	12.288	4.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	47.297
3212: *MEDUSA JCTD*	0.000	13.833	4.859	0.000	4.859	0.000	0.000	0.000	0.000	0.000	18.692
9999: *Congressional Adds*	2.493	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.697

A. Mission Description and Budget Item Justification

Research, Development, Test and Evaluation (RDT&E) funding for the Joint Service P3I program which will include near and far term performance improvements, cost reduction, and studies that establish future development requirements. Specific initial efforts include lower cost seeker component development and seeker aided fuzing to enhance warhead performance in low angle impacts and against certain ship targets. Excludes civilian and military manpower and their related costs and military construction costs which will be included in appropriate management and support elements.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	33.668	30.045	0.000	0.000	0.000
Current President's Budget	39.261	29.920	14.207	0.000	14.207
Total Adjustments	5.593	-0.125	14.207	0.000	14.207
• Congressional General Reductions		-0.125			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	5.950	0.000			
• SBIR/STTR Transfer	-0.357	0.000			
• Program Adjustments	0.000	0.000	14.207	0.000	14.207

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205601N: *Harm Improvement*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Aircraft composite rocket launcher*	2.493	0.000
Congressional Add Subtotals for Project: 9999	2.493	0.000
Congressional Add Totals for all Projects	2.493	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule:

APKWS MS C has slid to 2Q FY10 due to unanticipated Wing Slot Seal issues which caused a delay in the completion of DT and OA testing. LRIP begins in 2Q FY 2010 after Milestone C.

AARGM changed to move PCA from 2Q FY10 to 1Q FY10, DT-B2 from 3Q FY09 to 4Q FY09, OT-C from 4Q FY09 to 2Q FY10, and LRIP2 from 1Q FY10 to 3Q FY10. Change in schedule is due to software correction to enter OPEVAL.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 1780: *HARM Improvement*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1780: *HARM Improvement*	1.833	1.911	1.555	0.000	1.555	1.572	1.597	1.634	1.686	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

HIGH-SPEED ANTI-RADIATION MISSILE (HARM) IMPROVEMENT: The High-speed Anti-Radiation Missile (HARM) is a joint service program with the Air Force (Navy lead). The program commenced production in FY 1983. Program element 0205601N was used until FY 1990 to develop and test one hardware and two software upgrades to the HARM (AGM-88B, Block III & AGM-88C, Block IV) as Engineering Change Proposals (ECPs). Another ECP software program (Block IIIA&V) was developed (FY 1996 through FY 1999) to modify HARM software in order to meet operational requirements. The Block V tactical software upgrade gives HARM improved geographic specificity and improved capability against advanced waveforms. HARM Block IIIA/V software was distributed to the Fleet in FY 2000.

HARM Improvement includes efforts to conduct Foreign Military Assessment (FMA) analysis and engineering to exploit vulnerabilities of foreign anit-radar threats. HARM Improvement includes funding for threat assessment, operational updates and integration efforts.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
HARM Foreign Military Assessment (FMA)	1.833	1.911	1.555	0.000	1.555
FY 2009 Accomplishments: Conducted Foreign Military Assessment (FMA) analysis and engineering to exploit vulnerabilities of foreign anti-radar threats. HARM Improvement includes funding for threat assessment, operational updates and integration efforts.					
FY 2010 Plans: Conduct Foreign Military Assessment (FMA) analysis and engineering to exploit vulnerabilities of foreign anti-radar threats. HARM Improvement includes funding for threat assessment, operational updates and integration efforts.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 1780: *HARM Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue to conduct Foreign Military Assessment (FMA) analysis and engineering to exploit vulnerabilities of foreign anti-radar threats. HARM Improvement includes funding for threat assessment, operational updates and integration efforts.					
Accomplishments/Planned Programs Subtotals	1.833	1.911	1.555	0.000	1.555

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Program is out of production and in sustainment phase.

E. Performance Metrics

Successfully complete Developmental Test/Operational Test.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 1780: *HARM Improvement*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC-AD Patuxent River, MD	0.230	0.229	Feb 2010	0.216	Nov 2010	0.000		0.216	Continuing	Continuing	Continuing
		Subtotal	0.230	0.229		0.216		0.000		0.216			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies & Analyses	Various/ Various	Various Various	0.680	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	0.680	0.000		0.000		0.000		0.000			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 1780: *HARM Improvement*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Eval	WR	NAWC-WD China Lake, CA	15.494	1.672	Feb 2010	1.329	Nov 2010	0.000		1.329	Continuing	Continuing	Continuing
		Subtotal	15.494	1.672		1.329		0.000		1.329			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWC-AD Patuxent River, MD	0.311	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Travel	WR	Various Various	0.393	0.010	Jan 2010	0.010	Nov 2010	0.000		0.010	Continuing	Continuing	Continuing
		Subtotal	0.704	0.010		0.010		0.000		0.010			

Remarks

Contrat Type for Travel is TO

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 1780: *HARM Improvement*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	17.108	1.911		1.555		0.000		1.555			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 1780: *HARM Improvement*	

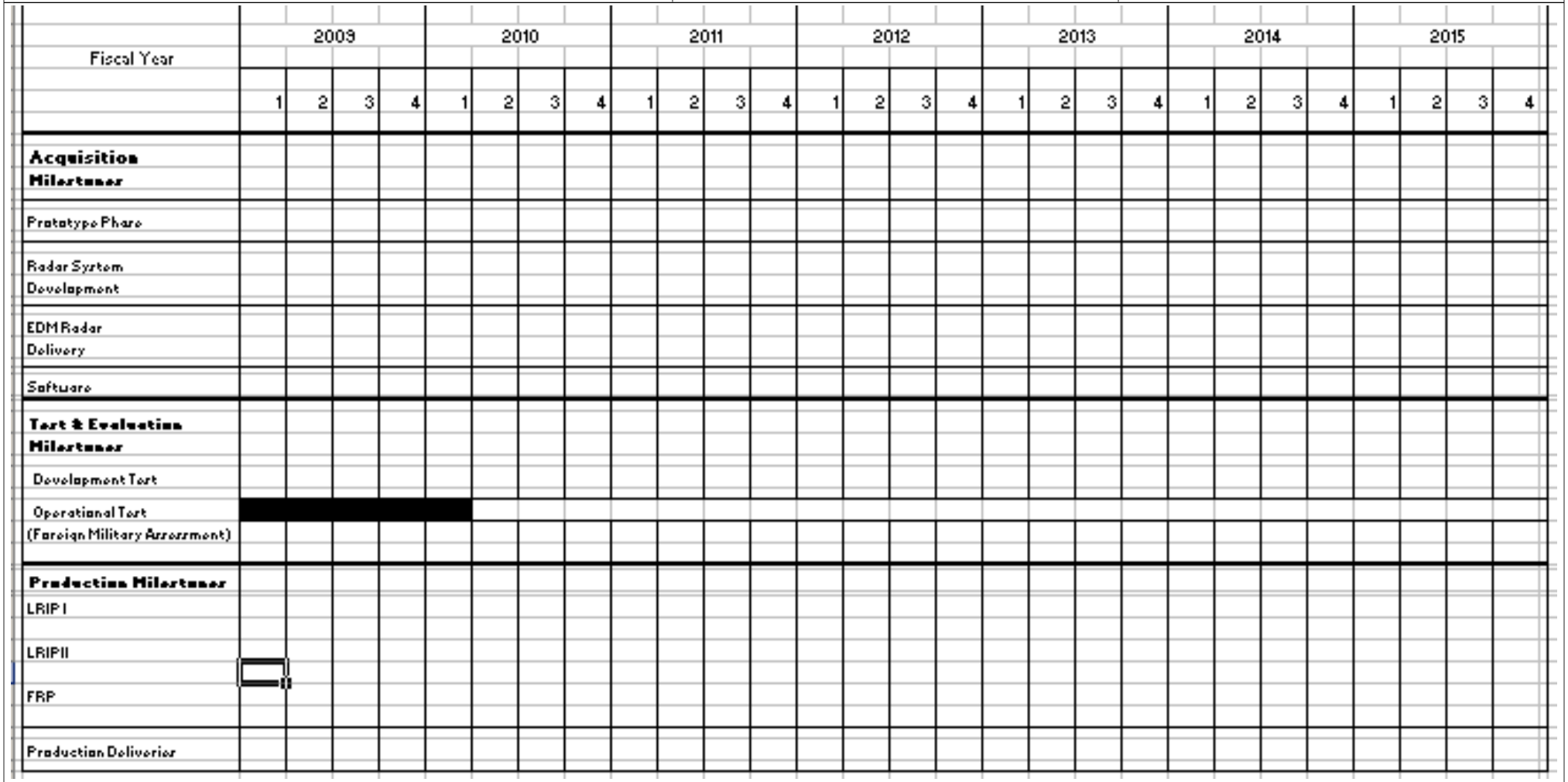


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205601N: *Harm Improvement*	**PROJECT** 1780: *HARM Improvement*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Operational Test - Foreign Military Assessment (FMA)	1	2009	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 2185: *AARGM*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2185: *AARGM*	22.647	9.197	7.793	0.000	7.793	7.297	7.662	8.312	6.388	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The AGM-88E Advanced Anti-Radiation Guided Missile (AARGM) Project transitioned a Phase III Small Business Innovative Research (SBIR) program to develop and demonstrate a multi-mode guidance section on a HARM airframe to System Development and Demonstration (SD&D) in FY 2003. The AARGM SD&D program is designed to integrate multi-mode guidance (passive Anti-Radiation Homing (ARH)/active Millimeter Wave (MMW) Radar/Global Positioning system/Inertial Navigation System (GPS/INS)) on the HARM AGM-88 missile. AARGM weapon system capabilities include: active Millimeter Wave terminal guidance, counter shutdown, expanded threat coverage, enhanced anti-radiation homing receiver, netted targeting real-time feed via Integrated Broadcast Service (IBS) prior to missile launch, weapon impact assessment transmitted prior to detonation, GPS/point-to-point weapon navigation, and weapon employment with impact avoidance zone/missile impact zones.

The AARGM program transitioned the Quick Bolt Advanced Concept Technology Demonstration (ACTD) to SD&D. Quick Bolt added the capabilities to receive threat data from national assets, enlarging the target set and increasing aircrew situational awareness, and to transmit a Weapon Impact Assessment (WIA) message to assist in the critical area of Battle Damage Assessment (BDA). The Quick Bolt ACTD was completed in FY 2003. Quick Bolt demonstration testing successfully used Impact Avoidance Zone (IAZ) logic to distinguish between the proscribed and original target, demonstrating the ability to greatly reduce friendly fire incidents and collateral damage.

In June 2003, a successful Milestone B transitioned AARGM to a System Development and Demonstration (SD&D) Acquisition Category 1C (ACAT 1C) program. ATK Missile Systems Company (AMSC) was awarded the AARGM SD&D NAVAIR Contract N00019-03-C-0353, valued at $222.6M. In May 2004, the contract baseline was increased to $231.9M to accelerate incorporation of an embedded IBS-Reciever, enabling the warfighter to directly receive National intelligence data, providing additional AARGM targeting data to increase overall pilot situational awareness. Recent modifications have increased the current baseline to $232.3. The AARGM program includes 31 test articles and 1,871 production modification kits.

DT-B1 began in FY 2004 and continued through 4Q FY 2008. Captive carry testing of Engineering Manufacturing Development hardware began in FY 2007. DT-B1 overlapped with DT-B2 which began in 3Q FY 2007. Operational Assessment was completed 4Q FY 2008. All live fire tests have been completed for DT-B2, and the program is ready for Operational Evaluation. Milestone C was achieved 4Q FY 2008, followed by a combined Low Rate Initial Production (LRIP) contract award in 1Q FY 2009. LRIP 1 deliveries are scheduled to commence 2Q FY 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205601N: *Harm Improvement*	**PROJECT** 2185: *AARGM*

In FY 2010-FY 2015, the AGM-88E AARGM program plans to develop and demonstrate the capability to engage and destroy non-traditional Suppression of Enemy Air Defenses (SEAD)/Destruction of Enemy Air Defenses (DEAD) and Overseas Contigency Operations targets. These developments continue Future Naval Capability (FNC) Science and Technology (S&T) investments by the Office of Naval Research (ONR) initiated in FY 2006.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
AARGM SD&D	22.647	3.642	0.000	0.000	0.000
FY 2009 Accomplishments: Completion of DT-B2 with integration, captive carry, and live fire of AARGM on F/A-18 C/D. *FY 2010 Plans:* OPEVAL will commence 2nd quarter of FY 2010. Beginning of Follow-on Test and Evaluation (FOT&E).					
AARGM Derivative Program (ADP)	0.000	0.250	4.340	0.000	4.340
FY 2010 Plans: Development of capability to attack non-traditional SEAD/DEAD and OCO targets will continue through the FYDP. *FY 2011 Base Plans:* Continue to develop the capability to attack non-traditional SEAD/DEAD and OCO targets.					
Threat Data Library	0.000	2.715	3.453	0.000	3.453
FY 2010 Plans: Update Electronic Intelligence (ELINT) files and Millimeter Wave (MMW) signatures to ID track and engage new and/or improved threat radars. Testing and assessment of threat systems. Update AARGM threat data library.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 2185: *AARGM*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue to update Electronic Intelligence (ELINT) files and Millimeter Wave (MMW) signatures to ID track and engage new and/or improved threat radars. Testing and assessment of threat systems. Update AARGM threat data library.					
ARM JMPS UPC S/W	0.000	2.590	0.000	0.000	0.000
FY 2010 Plans: Updates to UPC software leading to testing to maintain ARM Joint Mission Planning System (JMPS) UPC compatibility with future JMPS architecture.					
Accomplishments/Planned Programs Subtotals	22.647	9.197	7.793	0.000	7.793

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• WPN 2327: *HARM Mods*	22.334	47.825	53.543	0.000	53.543	84.547	113.436	132.620	136.775	0.000	632.103
• RDTE 3063: *EA-18G Development*	2.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.200

D. Acquisition Strategy

The AARGM program started as a Phase I Small Business Innovative Research (SBIR), Advanced Technology Program (ATD), evolved into a Phase III SBIR program, and transitioned into a System Development and Demonstration (SD&D) ACAT 1C program in June 2003. The AARGM SD&D fulfills U.S. Navy operational requirements and incorporates AARGM ATD and Quick Bolt ACTD-demonstrated system requirements. Government responsibilities for SD&D have included monitoring, technical assessment, and validation of contractor technology development and testing. Milestone C was achieved 4Q FY 2008, followed by a combined Low Rate Initial Production (LRIP) contract award in 1Q FY 2009. LRIP 1 deliveries are scheduled to commence 2Q FY 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205601N: *Harm Improvement*	**PROJECT** 2185: *AARGM*

E. Performance Metrics

Achieved Milestone C in 2008. Completed Developmental Testing in 2009. Successfully complete Operational Test Readiness Review (OTRR) in 2010. Successfully complete Operational Test in 2010.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 2185: *AARGM*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development1	SS/CPIF	ATK Woodland Hills, CA	276.699	0.000		0.000		0.000		0.000	0.000	276.699	270.876
Primary Hardware Development	MIPR	SAF-FMB DC	0.088	0.000		0.000		0.000		0.000	0.000	0.088	Continuing
Primary Hardware Development2	SS/FPI	ATK Woodland Hills, CA	0.000	2.003	Feb 2010	0.000		0.000		0.000	0.000	2.003	2.003
Primary Hardware Development	WR	NSMA Arlington, VA	1.084	0.250	Feb 2010	1.576	Nov 2010	0.000		1.576	9.416	12.326	Continuing
Aircraft Integration	WR	NAWC-WD China Lake, CA	8.836	0.000		0.000		0.000		0.000	0.000	8.836	Continuing
Aircraft Integration	WR	NAWC-AD Patuxent River, MD	0.050	0.000		0.000		0.000		0.000	0.000	0.050	Continuing
Systems Engineering	MIPR	SAF-FMB DC	0.150	0.000		0.000		0.000		0.000	0.000	0.150	Continuing
Systems Engineering	WR	NAWC-WD China Lake, CA	55.999	2.604	Feb 2010	5.162	Nov 2010	0.000		5.162	16.633	80.398	Continuing
PY Product Development	Various/ Various	Various Various	176.785	0.000		0.000		0.000		0.000	0.000	176.785	Continuing
		Subtotal	519.691	4.857		6.738		0.000		6.738	26.049	557.335	272.879

Remarks

Difference between Total cost and Target Value of Contract represents contract variance to date.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 2185: *AARGM*	

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NAWC-WD China Lake, CA	5.404	0.000		0.000		0.000		0.000	0.000	5.404	Continuing
Integrated Logistics Support	Various/ Various	Various Various	1.468	0.000		0.000		0.000		0.000	0.000	1.468	Continuing
Studies and Analyses	Various/ Various	Various Various	0.711	0.050	Feb 2010	0.050	Nov 2010	0.000		0.050	0.010	0.821	Continuing
Prior Years Support	Various/ Various	Various Various	0.012	0.000		0.000		0.000		0.000	0.000	0.012	Continuing
		Subtotal	7.595	0.050		0.050		0.000		0.050	0.010	7.705	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	NAWC-WD China Lake, CA	20.130	0.468	Feb 2010	0.335	Nov 2010	0.000		0.335	1.286	22.219	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR Norfolk, VA	1.714	3.642	Feb 2010	0.440	Nov 2010	0.000		0.440	2.213	8.009	Continuing
Test Assets	WR	NAWC-WD China Lake, CA	6.390	0.000		0.000		0.000		0.000	0.000	6.390	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 2185: *AARGM*	

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	28.234	4.110		0.775		0.000		0.775	3.499	36.618	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	Various Various	6.759	0.000		0.000		0.000		0.000	0.000	6.759	Continuing
Engineering & Technical Services	Various/ Various	Various Various	3.461	0.020	Feb 2010	0.020	Feb 2011	0.000		0.020	0.020	3.521	Continuing
Program Management Support	Various/ Various	Various Various	6.354	0.150	Feb 2010	0.200	Feb 2011	0.000		0.200	0.200	6.904	Continuing
Travel	WR	NAVAIR HQ Patuxent River, MD	1.518	0.010	Jan 2010	0.010	Nov 2010	0.000		0.010	0.040	1.578	Continuing
		Subtotal	18.092	0.180		0.230		0.000		0.230	0.260	18.762	

Remarks

Contract Type for Travel is TO

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 2185: *AARGM*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	573.612	9.197		7.793		0.000		7.793	29.818	620.420	272.879

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 2185: *AARGM*

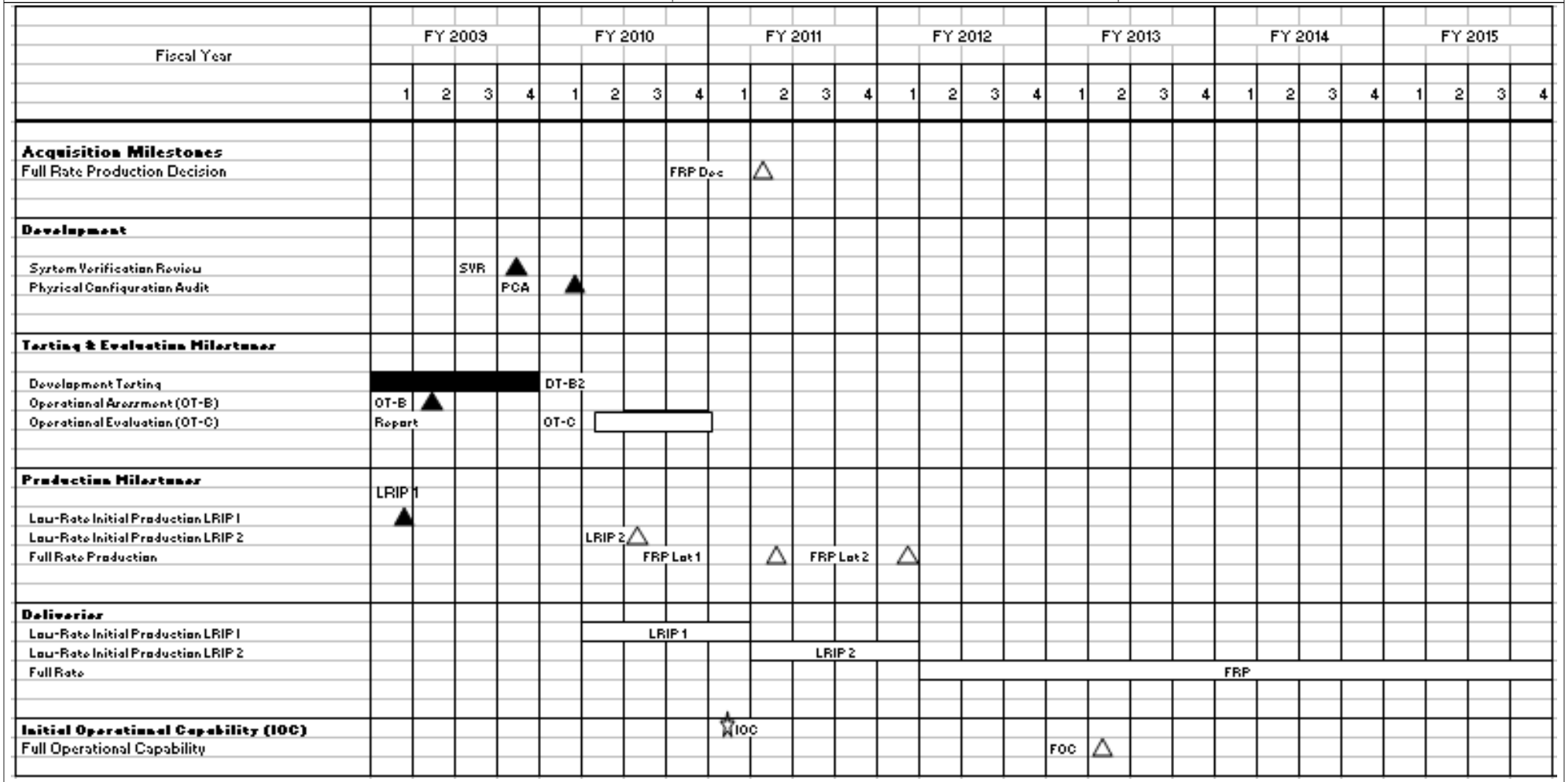


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205601N: *Harm Improvement*	**PROJECT** 2185: *AARGM*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Developmental Testing (DT-B2)	1	2009	4	2009
Low Rate Initial Production 1 (LRIP-1)	1	2009	1	2009
Operational Assessment (OT-B)	1	2009	2	2009
System Verification Review	4	2009	4	2009
Operational Evaluation (OT-C)	2	2010	4	2010
Low Rate Initial Production 2 (LRIP-2)	3	2010	3	2010
Low Rate Initial Production 1 Delivery	2	2010	1	2011
Physical Configuration Audit (PCA)	1	2010	1	2010
Full Rate Production Lot 1	2	2011	2	2011
Initial Operational Capability	1	2011	1	2011
Low-Rate Initial Production 2 Delivery	2	2011	1	2012
Full Rate Production Lot 2	1	2012	1	2012
Full Rate Production Deliveries	2	2012	4	2015
Full Rate Production Decision	2	2011	2	2011
Full Operational Capability	2	2013	2	2013

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 3056: *Advanced Precision Kill Weapons System*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3056: *Advanced Precision Kill Weapons System*	12.288	4.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	47.297
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Formerly known as the Advanced Precision Kill Weapons System (APKWS), APKWS II was an Army System Development & Demonstration (SD&D) program to develop a low cost Semi Active Laser (SAL) precision guidance section for existing 2.75-inch unguided rockets. APKWS II will provide an inexpensive, small, lightweight precision-kill weapon that is effective against soft and lightly armored targets, and which enhances crew survivability with increased standoff range. APKWS offers precision, maximum stored kills per aircraft sortie, minimum collateral damage potential, and increased effectiveness over legacy unguided rockets. The guidance package can be assembled with existing unguided rocket components (warhead and rockets motor) and can be fired from LAU-61/LAU-68. SD&D program will complete 2Q 2010, and is on track to achieve Milestone C 2Q FY 2010.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Advanced Precision Kill Weapons System (APKWS) SD&D	12.288	4.979	0.000	0.000	0.000
APKWS System Development and Demonstration (SD&D) program to develop a low cost Semi Active Laser (SAL) precision guidance section for existing 2.75 inch unguided rockets. *FY 2009 Accomplishments:* Funds used for the completion of the United States Marine Corps (USMC) led APKWS program. This included prime contractor hardware development, engineering support, testing and evaluation, and logistic support. *FY 2010 Plans:* Continuation of FY09 effort.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 3056: *Advanced Precision Kill Weapons System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	12.288	4.979	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PANMC/015100: *Airborne Rockets*	57.054	75.034	38.721	76.043	114.764	43.053	42.709	46.559	47.564	Continuing	Continuing

D. Acquisition Strategy

The Navy assumed the APKWS program from the Army. The previously competed SD&D Army contract to prime contractor was transferred to the Navy for continued management. The program was through milestone B and meeting cost schedule and technical performance requirements. The Navy funded the remainder of the program to complete SD&D. The Navy intend to award Sole Source LRIP 1 & 2 contract to SD&D prime contractor.

E. Performance Metrics

Milestone C is scheduled for February 2010

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 3056: *Advanced Precision Kill Weapons System*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	BAE SYS New Hampshire	21.924	0.000		0.000		0.000		0.000	0.000	21.924	21.924
Systems Engineering	WR	NAWC-WD China Lake, CA	2.849	0.000		0.000		0.000		0.000	0.000	2.849	Continuing
Systems Engineering	WR	NAWC-AD Patuxent River, MD	0.997	0.300	Nov 2009	0.000		0.000		0.000	0.000	1.297	Continuing
		Subtotal	25.770	0.300		0.000		0.000		0.000	0.000	26.070	21.924

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	Various Various	0.624	0.000		0.000		0.000		0.000	0.000	0.624	Continuing
		Subtotal	0.624	0.000		0.000		0.000		0.000	0.000	0.624	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 3056: *Advanced Precision Kill Weapons System*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC-WD China Lake, CA	2.522	0.000		0.000		0.000		0.000	0.000	2.522	Continuing
Developmental Test & Evaluation	Various/ Various	Various Various	1.300	0.000		0.000		0.000		0.000	0.000	1.300	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR Norfolk, VA	0.800	1.800	Nov 2009	0.000		0.000		0.000	0.000	2.600	Continuing
		Subtotal	4.622	1.800		0.000		0.000		0.000	0.000	6.422	

Remarks

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWC-WD China Lake, CA	1.627	2.779	Nov 2009	0.000		0.000		0.000	0.000	4.406	Continuing
Program Management Support	Various/ Various	Various Various	1.706	0.000		0.000		0.000		0.000	0.000	1.706	Continuing
Travel	WR	NAVAIR HQ Patuxent River, MD	0.200	0.100	Nov 2009	0.000		0.000		0.000	0.000	0.300	Continuing
		Subtotal	3.533	2.879		0.000		0.000		0.000	0.000	6.412	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 3056: *Advanced Precision Kill Weapons System*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks													
Contract Type for Travel is TO													

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	34.549	4.979		0.000		0.000		0.000	0.000	39.528	21.924

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 3056: *Advanced Precision Kill Weapons System*

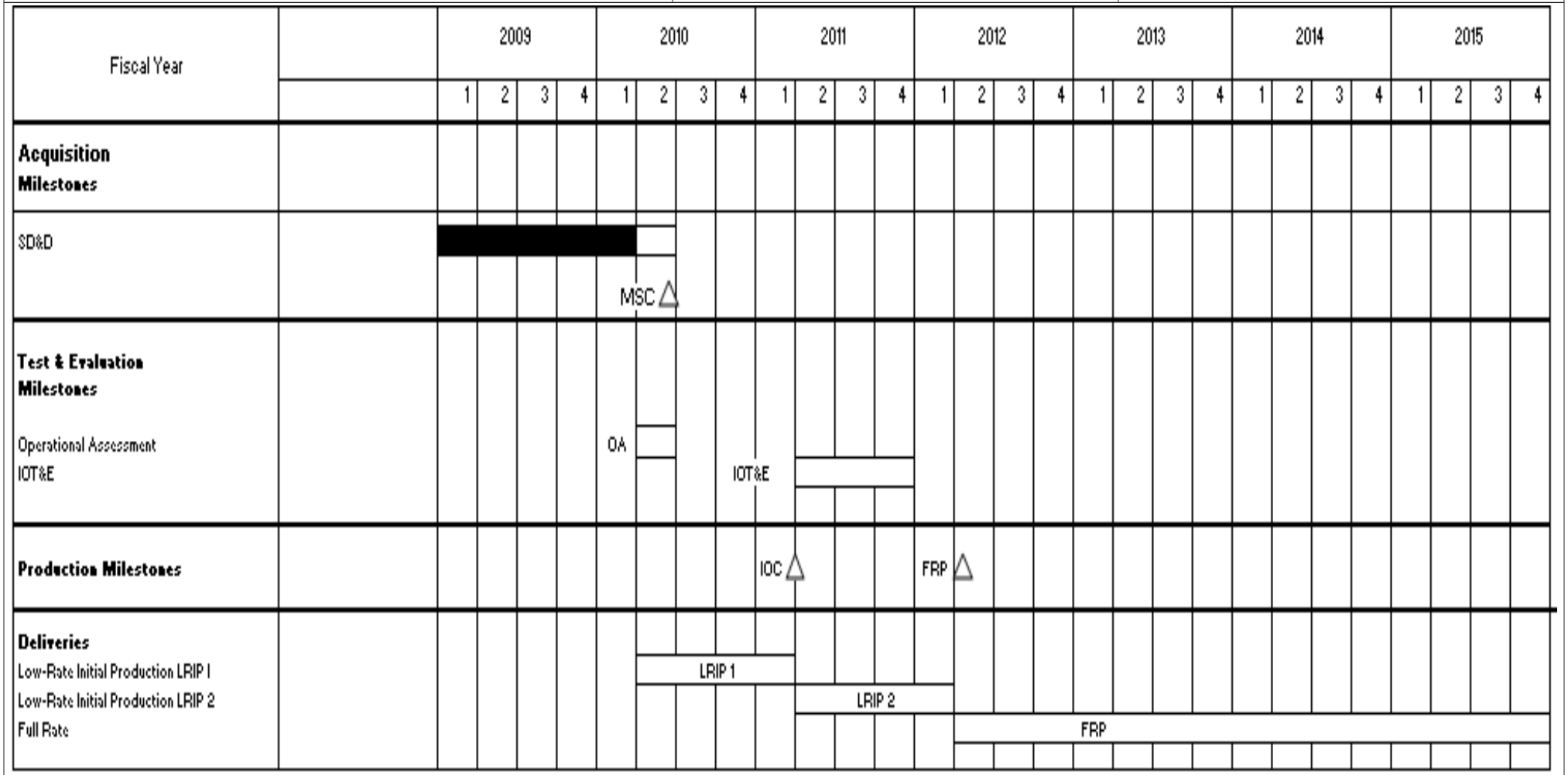


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205601N: *Harm Improvement*	**PROJECT** 3056: *Advanced Precision Kill Weapons System*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
APKWS SDD	1	2009	2	2010
APKWS OA	2	2010	2	2010
APKWS Milestone C	2	2010	2	2010
APKWS LRIP 1	2	2010	1	2011
IOC	2	2011	2	2011
APKWS IOT&E	2	2011	4	2011
APKWS LRIP 2	2	2011	1	2012
FRP	2	2012	2	2012
FRP Deliveries	2	2012	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 3212: *MEDUSA JCTD*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3212: *MEDUSA JCTD*	0.000	13.833	4.859	0.000	4.859	0.000	0.000	0.000	0.000	0.000	18.692
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Medusa FY 2010 new start Joint Capability Technology Demonstration (JCTD) will demonstrate the Low Cost Guided Imaging Rockets (LOGIR) technology currently being developed at the Naval Air Warfare Center Weapons Division (NAWCWD) China Lake on the MH-60R. LOGIR provides "fire and forget" capability to 2.75-inch rockets in support of Sea Shield Pillar. LOGIR increases platform lethality against Fast Attack Craft/Fast Inshore Attack Craft (FAC/FIAC) threat. LOGIR provides a low-cost Imaging InfraRed (I2R) precision guidance section for the existing 2.75-inch unguided rockets. LOGIR provides maximum precision kills per sortie, low cost, minimum collateral damage, increased efficiency, and increased standoff. Medusa was approved by OSD for a rolling start. OSD is also providing funding for this effort. Initial Program documentation (i.e. Performance Spec, CDD) will be developed within the scope of the JCTD.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MEDUSA JCTD	0.000	13.833	4.859	0.000	4.859
FY 2010 Plans: Demonstration of the Low Cost Guided Imaging Rockets (LOGIR) technology currently being developed. *FY 2011 Base Plans:* Continue demonstration of the Low Cost Guided Imaging Rockets (LOGIR) technology currently being developed.					
Accomplishments/Planned Programs Subtotals	0.000	13.833	4.859	0.000	4.859

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 3212: *MEDUSA JCTD*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDTE 0603648D8Z: *Project#648, DUSD (AS&C)*	0.000	4.000	4.000	0.000	4.000	0.000	0.000	0.000	0.000	0.000	8.000
• RDTEN 0603790N: *NATO Research and Development*	0.000	0.500	0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.000	1.000
• Project# K0-1: *Republic of Korea*	0.000	1.000	1.408	0.000	1.408	0.000	0.000	0.000	0.000	0.000	2.408

D. Acquisition Strategy

The MEDUSA JCTD is a technology demonstation by DoD government activities.

E. Performance Metrics

Military Utility Assessment (MUA) is scheduled for August 2011

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 3212: *MEDUSA JCTD*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC-WD China Lake, CA	0.000	13.081	Nov 2009	4.749	Nov 2010	0.000		4.749	0.000	17.830	Continuing
		Subtotal	0.000	13.081		4.749		0.000		4.749	0.000	17.830	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWC-AD Patuxent River, MD	0.000	0.702	Nov 2009	0.100	Nov 2010	0.000		0.100	0.000	0.802	Continuing
Travel	WR	NAVAIR HQ Patuxent River, MD	0.000	0.050	Nov 2009	0.010	Nov 2010	0.000		0.010	0.000	0.060	Continuing
		Subtotal	0.000	0.752		0.110		0.000		0.110	0.000	0.862	

Remarks

Contract Type for Travel is TO

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 3212: *MEDUSA JCTD*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	13.833		4.859		0.000		4.859	0.000	18.692	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 3212: *MEDUSA JCTD*	

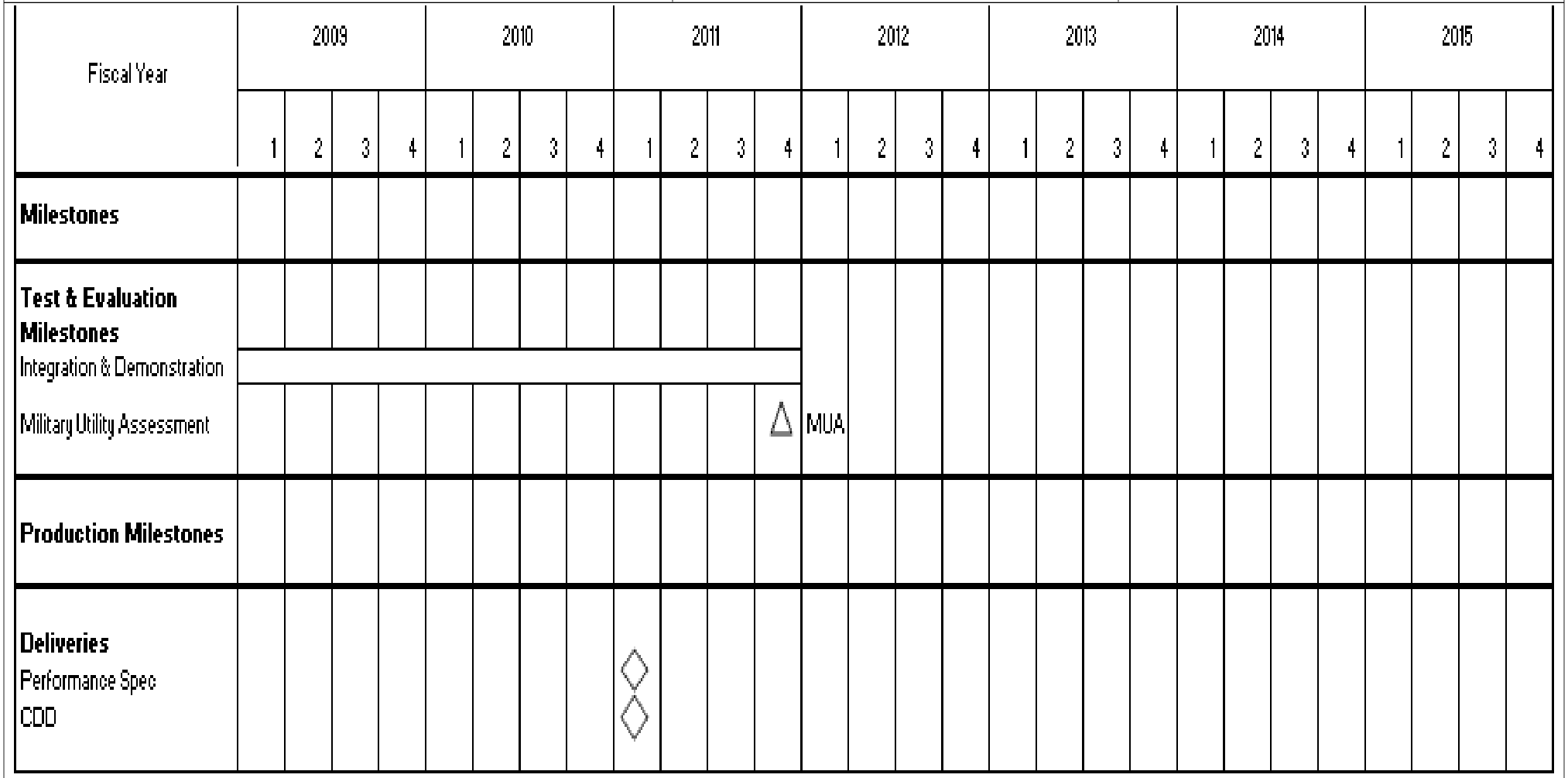


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205601N: *Harm Improvement*	**PROJECT** 3212: *MEDUSA JCTD*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Integration and Demonstration	1	2009	4	2011
Performance Spec	1	2011	1	2011
CDD	1	2011	1	2011
Military Utility Assessment (MUA)	4	2011	4	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205601N: *Harm Improvement*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	2.493	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.697
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Adds.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Aircraft composite rocket launcher *FY 2009 Accomplishments:* Aircraft Composite Rocket Launcher	2.493	0.000
Congressional Adds Subtotals	2.493	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

E. Performance Metrics

Not required for Congressional Adds.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0205604N: *Tactical Data Links*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	4.053	14.948	28.854	0.000	28.854	65.152	70.751	19.942	16.141	Continuing	Continuing
2126: *ATDLS Integration*	4.053	14.948	28.854	0.000	28.854	65.152	70.751	19.942	16.141	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element develops and improves the Navy's Tactical Data Link systems. It includes the Advanced Tactical Data Link Systems (ATDLS) Integration Programs.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	4.226	25.003	0.000	0.000	0.000
Current President's Budget	4.053	14.948	28.854	0.000	28.854
Total Adjustments	-0.173	-10.055	28.854	0.000	28.854
• Congressional General Reductions		-0.045			
• Congressional Directed Reductions		-10.000			
• Congressional Rescissions	0.000	-0.010			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.138	0.000			
• SBIR/STTR Transfer	-0.035	0.000			
• Program Adjustments	0.000	0.000	28.854	0.000	28.854

Change Summary Explanation

Schedule: Link 16 Network Increment II now includes CM and FR as well as Dynamic Network Management (DNM). DNM as part of the combined increment is a software only delivery. CM/FR, as part of the combined increment, is considered a product improvement effort post Milestone C, with significant integration and testing requirements. Link 16 Network Increment II schedule has been updated to reflect the development, integration, and testing as one managed increment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205604N: *Tactical Data Links*

Technical: Link 16 Network Enhanced Throughput development has been removed from this budget.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205604N: *Tactical Data Links*	PROJECT 2126: *ATDLS Integration*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2126: *ATDLS Integration*	4.053	14.948	28.854	0.000	28.854	65.152	70.751	19.942	16.141	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 and improves the Navy's Tactical Data Link systems. It includes the Advanced Tactical Data Link Systems (ATDLS) Integration Programs.

ATDLS Integration Program develops new and improved capabilities for Navy Link 16 users. The Link 16 Network Increment I is in sustainment. The Navy Link 16 Network Increment II consists of Dynamic Network Management (DNM), Cryptographic Modernization (CM) and Frequency Remapping (FR).

Increment II funds the DNM capability and the implementation of Link 16 Network DNM on Navy ships, shore sites and airborne Link 16 terminals. DNM will provide automatic reconfiguration of Link 16 networks that respond instantly to emergent warfighter requirements. DNM consists of new terminal protocols that include Time Slot Reallocation (TSR) and Combined Network Participation Groups (CNPG). The DNM capabilities will be incorporated into Next Generation Command and Control Processor (NGC2P). Increment II also funds the following activities previously found in Increment III: (1) development and implementation of CM and FR mandates as a product improvement into Link 16 terminals and integration into shore sites, ship (NGC2P), and current Navy Joint Tactical Information Distribution System airborne platforms; (2) development, integration, testing, and fielding of additional stacked networks and studies; (3) Developmental Test / Operational Test (DT/OT) of Navy platform modifications; and (4) implementation of new Link 16 information / data into the shipboard Command and Control Processor to support Link 16 Network new and improved capabilities.

Justification of FY11 Requirements:

Increment II - Funding will provide for the platform integration efforts of DNM (TSR and CNPG), and Link 16 Network DT/OT

Increment II - In support of National Security Agency (NSA Policy 3-9) and Joint Chiefs of Staff mandates (Chairman of the Joint Chiefs of Staff Instruction Notice 6510.02), funding will provide for modernization of the cryptographic algorithm used in Link 16 terminals by initiating development of programmable cryptographic capability to load and store multiple cryptographic algorithms. Non-compliance will result in loss of Link 16, as cryptographic keys for non-compliant systems will no longer be available. Additionally, Frequency Remapping (FR) is required by Department of Transportation to be able to continue to operate and exercise within the Unites States and Possessions. All Link 16 terminals are required to have this capability to support Link 16 interoperability.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205604N: *Tactical Data Links*	PROJECT 2126: *ATDLS Integration*

Funding will provide for platform integration studies and Technology Demonstration and prototyping for additional stacked networks, Crypotgraphic Modernization (CM) and FR, as well as shore sites, shipboard, and current Navy Joint Tactical Information Distribution System airborne (E-2C and EP-3) platform integrations studies and analysis, and development of Link 16 Network integrated logistics support products.

Funding will provide for implementation of new Link 16 information / data into the shipboard Command and Control Processor to support Link 16 Network new and improved capabilities.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ATDLS INTEGRATION	4.033	14.948	28.854	0.000	28.854
FY 2009 Accomplishments: Continued development of Dynamic Network Management (DNM) capabilities. Completed DNM integrated logistics support products. Tested and evaluated DNM capabilities in the Next Generation Command & Control Processor, Multifunctional Information Distribution System on Ship, Joint Tactical Information Distribution System (JTIDS), and associated ship and air platforms. Developed Link 16 Network integrated logistics support products.					
FY 2010 Plans: Conduct Link 16 Network Increment II DNM Critical Design Review. Conduct DNM Time Slot Reallocation (TSR) / Combined Network Participation Groups (CNPG) Developmental Test (DT). Conduct DT. Conduct platform integration efforts for DNM (TSR and CNPG). Begin Increment II (formerly Increment III) platform integration studies including shore, shipboard, and current Navy JTIDS airborne (E-2C and EP-3) platform integration studies and analysis. Conduct development for additional stacked networks, CM and FR. Conduct technology demonstrations for FR and additional stacked networks. Conduct analysis and efforts related to Federal Aviation Administration (FAA) spectrum certification requirements for Tactical Data Links. Develop Link 16 Network integrated logistics support products.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205604N: *Tactical Data Links*	PROJECT 2126: *ATDLS Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Conduct Dynamic Network Management (DNM) Developmental Test / Operational Test. Achieve DNM Milestone C, Initial Operating Capability, & Full Deployment Decision Review. Conduct platform integration studies and Technology Demonstration for additional stacked networks, Cryptographic Modernization (CM) and Frequency Remapping (FR). Continue shore site, shipboard, and current Navy Joint Tactical Information Distribution System airborne (E-2C and EP-3) platform integrations studies and analysis. Conduct System Requirements Review for CM/FR. Develop Link 16 Network integrated logistics support products.					
ACQUISITION WORKFORCE FUND *FY 2009 Accomplishments:* Funded acquisition workforce fund.	0.020	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	4.053	14.948	28.854	0.000	28.854

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/2614: *ATDLS*	13.164	4.301	2.273	0.000	2.273	0.983	0.018	33.070	37.747	Continuing	Continuing

D. Acquisition Strategy

The DNM Time Slot Reallocation / Combined Network Participation Groups will be incorporated into Next Generation Command and Control Processor (NGC2P) and will utilize the contract for NGC2P. Remaining DNM development efforts will utilize an existing development contract with BAE Systems, Data Link Solutions LLC and Warner Robins Consolidated Software Support Activity.

E. Performance Metrics

Link 16 Network Dynamic Network Management (DNM): Successfully achieve Milestone C. Successfully achieve Initial Operational Capability. Successfully conduct Full Deployment Decision Review. Successfully complete Operation Test Readiness Review. Successfully complete Developmental Test / Operational Test.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205604N: *Tactical Data Links*	**PROJECT** 2126: *ATDLS Integration*

Link 16 Network Cryptographic Modernization: Successful implementation of updated cryptographic algorithm as specified by National Security Agency (NSA Policy 3-9) Certification in Joint Tactical Information Distribution System (JTIDS) and Multifunctional Information Distribution System (MIDS) on Ship (MOS) Link 16 terminals.

Link 16 Network Frequency Remapping: Successful implementation of a Frequency Remapping capability as specified in Department of Defense/Department of Transportation Memorandum of Agreement regarding the 960-1215 MHz Frequency Band of 31 Dec 02 in JTIDS and MOS Link 16 Terminals.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205604N: *Tactical Data Links*	PROJECT 2126: *ATDLS Integration*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ATDLS Product Development and Integration	Various/ Various	Various Various	363.158	0.000		0.000		0.000		0.000	0.000	363.158	363.158
Link 16 Network Development	Various/ Various	DLS (BAE/ Rockwell) Wayne, NJ	9.361	3.888	Jun 2010	13.311	Oct 2010	0.000		13.311	Continuing	Continuing	Continuing
Link 16 Network Systems Engineering	Various/ Various	SPAWARSYSCEN PAC San Diego, CA	24.627	4.445	Oct 2009	6.919	Oct 2010	0.000		6.919	Continuing	Continuing	Continuing
		Subtotal	397.146	8.333		20.230		0.000		20.230			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Link 16 Network Software Development	Various/ Various	Various Various	0.000	1.042	Oct 2009	1.454	Oct 2010	0.000		1.454	Continuing	Continuing	Continuing
Link 16 Network Integrated Logistics Support	Various/ Various	Various San Diego, CA	0.000	0.500	Oct 2009	0.600	Oct 2010	0.000		0.600	Continuing	Continuing	Continuing
			0.000	0.126	Oct 2009	0.325	Oct 2010	0.000		0.325	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205604N: *Tactical Data Links*	PROJECT 2126: *ATDLS Integration*	

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Link 16 Netowrk Configuration Management	Various/ Various	SPAWARSYSCEN PAC San Diego, CA											
		Subtotal	0.000	1.668		2.379		0.000		2.379			

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ATDLS Test and Evaluation	Various/ Various	Various Various	65.171	0.000		0.000		0.000		0.000	0.000	65.171	65.171
Link 16 Network Developmental T&E	Various/ Various	SPAWARSYSCEN PAC San Diego, CA	0.000	1.365	Oct 2009	1.673	Oct 2010	0.000		1.673	Continuing	Continuing	Continuing
Link 16 Network Operational T&E	Various/ Various	SPAWARSYSCEN PAC San Diego, CA	0.000	1.027	Oct 2009	1.137	Oct 2010	0.000		1.137	Continuing	Continuing	Continuing
		Subtotal	65.171	2.392		2.810		0.000		2.810			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205604N: *Tactical Data Links*	PROJECT 2126: *ATDLS Integration*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ATDLS System Engineering Support	Various/ Various	Various Various	20.177	0.000		0.000		0.000		0.000	0.000	20.177	20.177
Link 16 Network Contractor Engineering Support	Various/ Various	SAIC San Diego, CA	0.000	1.688	Oct 2009	1.972	Oct 2010	0.000		1.972	Continuing	Continuing	Continuing
Link 16 Network Government Engineering Support	Various/ Various	SPAWARSYSCEN PAC San Diego, CA	0.000	0.500	Oct 2009	1.113	Oct 2010	0.000		1.113	Continuing	Continuing	Continuing
Link 16 Network Program Management Support	Various/ Various	Various Various	0.000	0.217	Oct 2009	0.200	Oct 2010	0.000		0.200	Continuing	Continuing	Continuing
Link 16 Network Travel	Various/ Various	Various Various	0.000	0.150	Oct 2009	0.150	Oct 2010	0.000		0.150	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various/ Various	Various Various	0.020	0.000		0.000		0.000		0.000	0.000	0.020	0.020
		Subtotal	20.197	2.555		3.435		0.000		3.435			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	482.514	14.948		28.854		0.000		28.854			

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205604N: *Tactical Data Links*	**PROJECT** 2126: *ATDLS Integration*

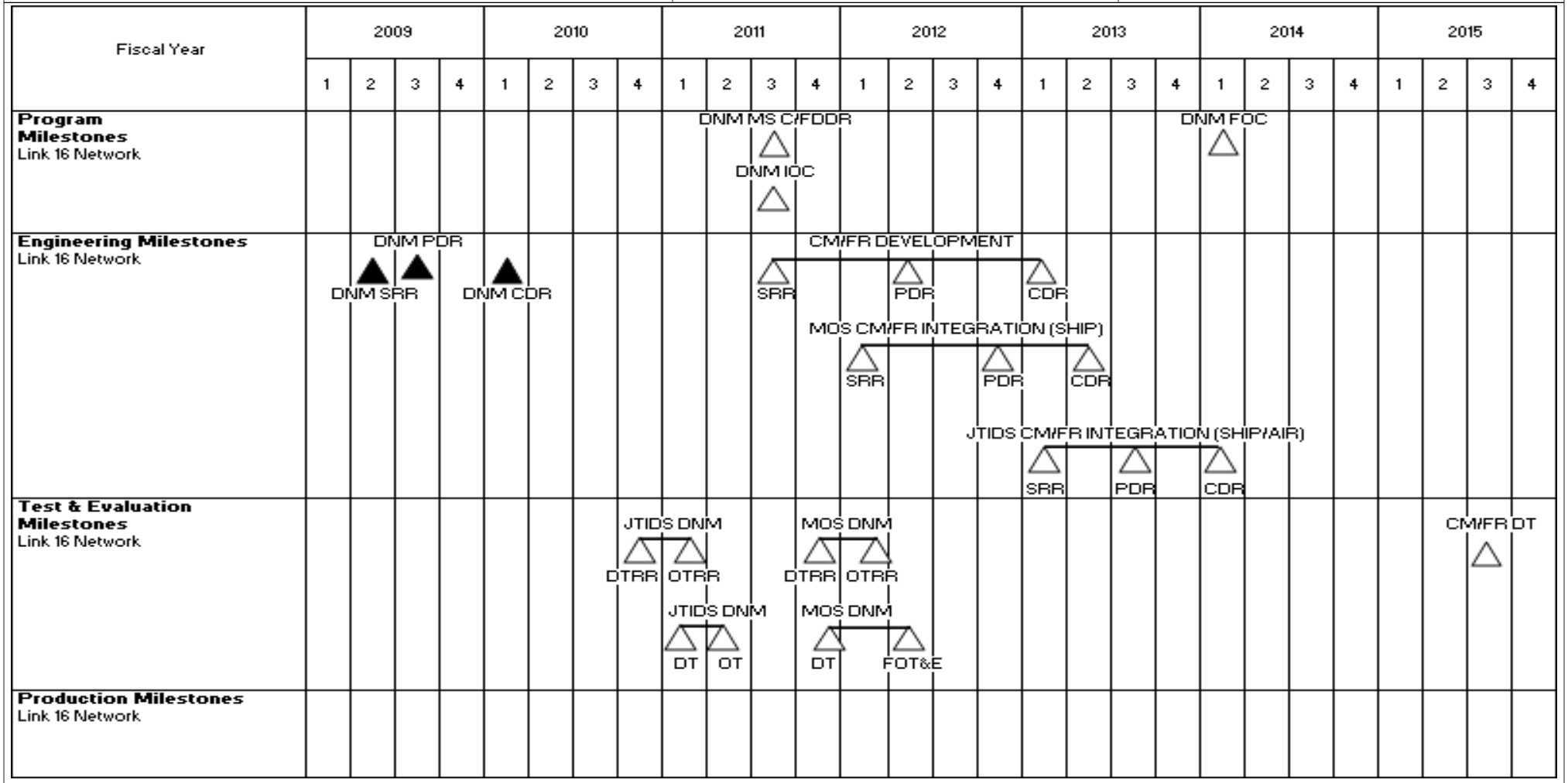

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205604N: *Tactical Data Links*	PROJECT 2126: *ATDLS Integration*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Link 16 Network DNM System Requirements Review	2	2009	2	2009
Link 16 Network DNM Preliminary Design Review	3	2009	3	2009
Link 16 Network DNM Critical Design Review	1	2010	1	2010
Link 16 Network JTIDS DNM Developmental Test Readiness Review	4	2010	4	2010
Link 16 Network JTIDS DNM Operational Test Readiness Review	1	2011	1	2011
Link 16 Network JTIDS DNM Developmental Test	1	2011	1	2011
Link 16 Network JTIDS DNM Operational Test	2	2011	2	2011
Link 16 Network DNM Milestone C/Full Development Decision Review	3	2011	3	2011
Link 16 Network DNM Initial Operating Capability	3	2011	3	2011
Link 16 Network CM/FR Development System Requirements Review	3	2011	3	2011
Link 16 Network MOS DNM Developmental Test Readiness Review	4	2011	4	2011
Link 16 Network MOS DNM Developmental Test	4	2011	4	2011
Link 16 Network MOS CM/FR Integration (Ship) System Requirements Review	1	2012	1	2012
Link 16 Network MOS DNM Operational Test Readiness Review	1	2012	1	2012
Link 16 Network CM/FR Development Preliminary Design Review	2	2012	2	2012
Link 16 Network MOS DNM Follow On Operational Test & Evaluation	2	2012	2	2012
Link 16 Network MOS CM/FR Integration (Ship) Preliminary Design Review	4	2012	4	2012
Link 16 Network CM/FR Development Critical Design Review	1	2013	1	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205604N: *Tactical Data Links*	PROJECT 2126: *ATDLS Integration*

	Start		End	
Event	Quarter	Year	Quarter	Year
Link 16 Network JTIDS CM/FR Integration (Ship/Air) System Requirements Review	1	2013	1	2013
Link 16 Network MOS CM/FR Integration (Ship) Critical Design Review	2	2013	2	2013
Link 16 Network JTIDS CM/FR Integration (Ship/Air) Preliminary Design Review	3	2013	3	2013
Link 16 Network DNM Full Operating Capability	1	2014	1	2014
Link 16 Network JTIDS CM/FR Integration (Ship/Air) Critical Design Review	1	2014	1	2014
Link 16 Network CM/FR Developmental Test	3	2015	3	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	21.807	41.630	32.877	0.000	32.877	26.992	33.083	42.475	34.347	Continuing	Continuing
1916: *Surface ASW System Improvement*	21.009	41.630	32.877	0.000	32.877	26.992	33.083	42.475	34.347	Continuing	Continuing
9999: *Congressional Adds*	0.798	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.669

A. Mission Description and Budget Item Justification

The 'Vision for Anti-Submarine Warfare (ASW) Superiority' provides a foundation on which to base the operational principles and force attributes needed to prevail against future adversary submarines. Fully aligned with 'A Cooperative Strategy for 21st Century Seapower', it is intended to establish a consistent sense of urgency, and guide the development of a comprehensive long-term strategy and attendant execution plans to achieve and sustain a strategic and operational advantage, and maximize the potential for tactical advantage in future operationally-relevant environments. Our nation and maritime forces face an evolving submarine threat of increasing lethality. Evolving submarine technologies offer enhanced stealth, speed, endurance, weapons and operational proficiency, trends foretelling that the adversary submarine of the future will have a significantly larger sphere of influence, while presenting less vulnerability to ASW forces. Furthermore, the effective offensive engagement range of the adversary submarine of the future will continue to match or outrange individual U.S. and multinational platform sensors and weapons in many tactical environments. ASW forces must be effective in all operating environments, ranging from the deep open ocean to the shallow coastal waters and littorals. The noisy undersea environment, coupled with stealthier submarines, challenges the ability of our sensors to detect, localize, and track threat submarines.

The objective of this Program Element (PE) is to significantly improve existing Surface Ship Undersea Warfare (USW) sonar system capabilities through quick and affordable development/integration of emergent, transformational technologies in support of Littoral ASW, Theater ASW, Mine Reconnaissance, and overall Sea Shield efforts required to pace the threat. Detection and classification play uniquely vital roles in the success of any ASW campaign. To be effective against increasingly stealthy threats in an often ambiguous undersea environment, future sensors must be environmentally adaptive, have very low false alarm rates, and exploit the full range of current and future submarine detection vulnerabilities.

Project 1916's primary mission is to improve AN/SQQ-89(V) Measures Of Performance (MOP) by enhancing detection, tracking, classification, active, and sonobuoy data processing and display capabilities, and increasing acoustic sensor frequency bandwidth (Operational Requirements Document #667-76-05 titled 'AN/SQQ-89 Improvement Program' dated 31-Jan-05, Test and Evaluation Master Plan 801 and 802-2 (TEMP 801 & TEMP 802-2)). This project takes advantage of the AN/SQQ-89(V) Open System Architecture (OSA) and Acoustic Rapid Commercial-Off-The-Shelf (COTS) Insertion (ARCI) initiatives to integrate a Multi-Function Towed Array (MFTA) with active sonar bistatics (Echo Tracker Classifier - ETC), an ARCI passive ASW processor, and torpedo defense capabilities (Forward and Aft sector coverage with Wake Homer protection). This COTS-based Surface Ship ASW combat system, the AN/SQQ-89A(V)15, is currently planned as a backfit program

for both CG47 (CG59-73 Baseline 3 and 4) and DDG51 (All FLT I/II/IIA) class ships. The Open Architecture (OA) (level 3 compliant) of the AN/SQQ-89A(V)15 system drives the Advanced Capability Build (ACB) spiral development process and provides budget flexibility to make COTS/OA technology solutions and ARCI-type initiatives affordable. This will be accomplished via the incorporation of select Pre-Planned Product Improvements (P3I) and emergent, transformational ASW technologies delivered to the AN/SQQ-89(V) prime integrator every two years. ASW technology implementation will take advantage of improvements developed under the submarine Advanced Processing Build (APB) program and will in turn share unique improvements developed under this program with the submarine and surveillance ASW communities.

Project 1916 also includes funding for the Surface Ship Enhanced Measurement Program (SSEMP), which will measure the performance of existing and new Surface Ship ASW combat systems and enables data based assessment of the capabilities and shortfalls in the performance of these systems in realistic scenarios.

Project 1916 also includes funding, starting in FY 2009, for the Surface ASW Synthetic Training (SAST) program (under the Surface Ship ASW Synthetic Signatures Generation and Training Acceleration Initiative), including the development of a high fidelity acoustic simulation of a surface ship sonar. This effort will accelerate the implementation and
integration of the Submarine Multi-Mission Team Trainer (SMMTT) Navy Continuous Training Environment (NCTE) solution/baseline to the surface ship paradigm. The training, skills, and proficiency of all personnel supporting ASW operations must be approached in a coordinated, concentrated, and properly-resourced manner to overcome past deficiencies. The full spectrum of training must be addressed, from synthetic to the experience gained from actual and exercise operations. Technology must be exploited fully to provide assistance to operators, tacticians, and commanders, in order to improve and maintain their capability against the evolving threat.

FY 2009 Congressional Add - Project 9C61A included FY 2009 Congressional Add funding for 'Long Range Synthetic Aperture Sonar for ASW'. Funding will be used to initiate processor prototype system architecture, requirements modeling, and performance predictions for an ASW Synthetic Aperture Sonar system utilizing the current Navy sonar assets of an
AN/SQS-53 hull mounted sonar and the MFTA.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205620N: *Surface ASW Cmbt Sys Integr*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	22.441	41.803	0.000	0.000	0.000
Current President's Budget	21.807	41.630	32.877	0.000	32.877
Total Adjustments	-0.634	-0.173	32.877	0.000	32.877
• Congressional General Reductions		-0.173			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.027	0.000			
• SBIR/STTR Transfer	-0.607	0.000			
• Program Adjustments	0.000	0.000	32.877	0.000	32.877

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *LONG RANGE SYNTHETIC APERATURE SONAR (SAS) FOR ASW*	0.798	0.000
Congressional Add Subtotals for Project: 9999	0.798	0.000
Congressional Add Totals for all Projects	0.798	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1916: *Surface ASW System Improvement*	21.009	41.630	32.877	0.000	32.877	26.992	33.083	42.475	34.347	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Surface ASW Systems Improvements Project will support essential performance enhancements to AN/SQQ-89(V) and Surface Ship Sonar Systems. This project will improve AN/SQQ-89(V) MOP by enhancing detection, tracking, classification, active and sonobuoy data processing and display capabilities, and increasing acoustic sensor frequency
bandwidth (Operational Requirements Document #667-76-05 titled 'AN/SQQ-89 Improvement Program' dated 31-Jan-05), Test and Evaluation Master Plan 801 and 802-2 (TEMP 801 & TEMP 802-2).

This project will take advantage of the AN/SQQ-89(V) OSA and ARCI initiatives to integrate an MFTA with active sonar bistatics (ETC), an ARCI passive ASW processor, and torpedo defense capabilities (Forward and Aft sector coverage with Wake Homer protection). This COTS-based Surface Ship ASW combat system, the AN/SQQ-89A(V)15, is currently planned as a backfit program for both CG47 (CG59-73 Baseline 3 and 4) and DDG51 (All FLT I/II/IIA) class ships. This project has delivered the AN/SQQ-89A(V)15 Build 0 Pre-Production Prototype, performed installation on board CG73, and conducted subsequent Developmental Test & Evaluation (DT&E) and Initial Operational Test & Evaluation (IOT&E) where the system was found 'Operationally Effective' by Command Operational Test and Evaluation Force (COMOPTEVFOR).

The OSA and high performance COTS processing hardware on ships fielded with the AN/SQQ-89A(V)15 combat system provides an opportunity to integrate select P3I as well as emergent, transformational ASW technological improvements that were previously unachievable. The Undersea Warfare (USW) suites on these ships will require periodic upgrades to remain effective well into the 21st century and to pace the threat. Software upgrades target capability increases in high interest areas as prescribed by the Fleet and captured in campaign analysis. To achieve this, this project will package and deliver incremental upgrades every two years to the AN/SQQ-89A(V)15 production program via an ACB spiral development process (ACB-09, ACB-11, ACB-13, etc.) by inserting maturing USW technologies, such as enhancements to improve USW performance in the littoral, reduced manning on AN/SQQ-89(V) equipped ships (operator efficiency upgrades via the implementation of robust embedded data record and replay capability and active/passive sonar
simulation/stimulation), Detection/Classification/Localization active/passive processing upgrades (passive sonar automated detection and classification processing bell-ringers from the ASW Community-of-Interest, detect and track through maneuvers, integration of MH-60R mission systems with the AN/SQQ-89A(V)15 combat system, integration of

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*

Mid-Frequency active detection improvements, false-alarm rate reduction, clutter reduction, and integration of ASW Community-of-Interest improved acoustic intercept and small-object avoidance), ASW Multi-Sensor integration (acoustic similar-source fusion and implementation of integrated shipboard system data, and ASW combat display architecture and reduced watch-team operational concept implementation), distributed engagement management (Network Centric Enterprise Services implementation, new displays and decision aids, ASW Community-of-Interest model capabilities implementation), marine mammal detection and mitigation, Multi-Static Active ASW, Multi-Frequency Acoustic Communications (MF ACOMMS) between Surface Combatants and Submarines, new RAPTOR radar processing, and upgraded technologies such as algorithm improvements, increased Passive Narrow Band (PNB) frequency, improved Extended Echo Ranging (EER), and beamformer improvements. A rigorous testing program is also required to ensure that these performance enhancements are operationally effective and suitable.

Project 1916 also includes funding for the Surface Ship Enhanced Measurement Program (SSEMP), which will measure the performance of existing and new Surface Ship ASW combat systems and enables data based assessment of the capabilities and shortfalls in the performance of these systems in realistic scenarios.

Project 1916 also includes funding, starting in FY 2009, for the Surface ASW Synthetic Training (SAST) program (under the Surface Ship ASW Synthetic Signatures Generation and Training Acceleration Initiative), including the development of a high fidelity acoustic simulation of a surface ship sonar based on the Improved Performance Sonar (IPS) baseline. This effort will accelerate the implementation and integration of the Submarine Multi-Mission Team Trainer (SMMTT) Navy Continuous Training Environment (NCTE) solution/baseline to the surface ship paradigm for high fidelity active and passive simulation for the improvement of operator proficiency, development of a rapid acoustic reconstruction capability, and to ensure SAST interoperability via the AEGIS Combat Training System (ACTS) and Battle Force Tactical Trainer (BFTT). SAST capability will be fielded throughout the force, via ACB updates to the AN/SQQ-89A(V)15 system, while spiraling in additional ASW sensors, as well as full High Level Architecture (HLA)/NCTE interoperability.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SQQ-89A(V)15 Surface Ship ASW Advanced Capability Build (ACB) Development	9.704	27.630	23.177	0.000	23.177
Develop enhancements to the AN/SQQ-89A(V)15 Open System Architecture (OSA) via the integration of transformational technologies through an ACB spiral development process. Items include hull-mounted Acoustic Intercept (ACI) sensor, ACI performance predictions and signal injection capabilities, Marine Mammal Detection and Mitigation (MMDM) capability, hull array adaptive beamformer and towed array shape compensated beamformer improvements via the Beamformer Functional Segment (BFFS), Mid-Frequency Active (MFA) Cooperative Organic Mine Defense (COMID) mine avoidance upgrades, MFA rapid replay and multi-waveform tracker, Hull Passive Processing Functional Segment					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(HPPFS) improvements, Sensor Performance Prediction Functional Segment (SPPFS) improvements, Low Frequency Multi-Static Functional Segment (LFMFS) improvements, Undersea Warfare Control Functional Segment (UCFS) improvements, Supportability Functional Segment (SupFS) improvements, Recording Functional Segment (RecFS) improvements, Common System Services/Mission Package Services (CSS/MPS) improvements, full bandwidth towed array passive ASW and automated Torpedo Detection, Classification, and Localization (TDCL) algorithm improvements (active/passive) within the Torpedo Recognition and Alertment Functional Segment (TRAFS) necessary to extend detection ranges and reduce false alert/alarm rates, new Data Fusion Functional Segment (DFFS) sensor to reduce the number of displays required for system operation, Multi-Frequency Acoustic Communications (MF ACOMMS) development, integration of MH-60R mission systems with the AN/SQQ-89A(V)15 combat system, Extended Echo Ranging (EER) "Distant Thunder" integration into the AN/SQQ-89A(V)15 Surface Common Airborne Undersea Sensor System (CAUSS) Functional Segment airframe sensor processing suite, explosive source integration with AN/SQQ-89A(V)15 processes, simplification of displays and active processing, incorporation of all Improved Performance Sonar (IPS) and Scaled Improved Performance Sonar (SIPS) features, and a Sonar Logger capability to significantly reduce operator data logging requirements. These items will be integrated and delivered to the CG47 and DDG51 class AN/SQQ-89A(V)15 backfit production programs via ACB updates. Import advanced development capabilities from the submarine Advanced Processing Build (APB) and Acoustic Rapid Commercial-off-the-Shelf (COTS) Insertion (ARCI) projects. Resolve/troubleshoot issues/deficiencies that arise from the AN/SQQ-89(V) Surface Ship ASW Test & Evaluation program. Rapidly address and correct problems/deficiencies in processing, capability or operations within the following areas within the AN/SQQ-89(V) USW combat system architecture; sensor processing, acoustics, MMDM, fire control, contact management, performance prediction, operator productivity and on-board training, MFTA, Digital Fire Control Interface (DFCI), Remote Mine-Hunting System (RMS), MFA processing, and adaptive beamforming.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Developed enhancements to the AN/SQQ-89A(V)15 OSA via the integration of transformational technologies through an ACB spiral development process (ACB-11). *FY 2010 Plans:* Continue the devlopment of enhancements to the AN/SQQ-89A(V)15 OSA via the integration of transformational technologies through an ACB spiral development process. These enhancements will be integrated and delivered to the CG47 and DDG51 class AN/SQQ-89A(V)15 backfit production programs via ACB updates (ACB-11). Import advanced development capabilities from the submarine Advanced Processing Build (APB) and Acoustic Rapid Commercial-off-the-Shelf (COTS) Insertion (ARCI) projects. *FY 2011 Base Plans:* Continue the development of enhancements to the AN/SQQ-89A(V)15 OSA via the integration of transformational technologies through an ACB spiral development process (ACB-13). Import advanced development capabilities from the submarine Advanced Processing Build (APB) and Acoustic Rapid Commercial-off-the-Shelf (COTS) Insertion (ARCI) projects.					
AN/SQQ-89(V) Surface Ship ASW Test & Evaluation Program *FY 2009 Accomplishments:* In support of ACB-11, provided AN/SQQ-89(V) Surface Ship ASW test and evaluation planning support, System Assessment Team (SAT) analysis, updated Test & Evaluation Master Plan (TEMP) to reflect the AN/SQQ-89A(V)15 ACB spiral development program, determined test ship, test location, target requirements, personnel requirements and materials required, developed a test plan based on system configuration, at-sea data requirements, and ship, target, and range availabilities.	0.700	0.700	0.700	0.000	0.700

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: In support of ACB-11, provide AN/SQQ-89(V) Surface Ship ASW test and evaluation planning support, SAT analysis, determine test ship, test location, target requirements, personnel requirements and materials required, develop a test plan based on system configuration, at-sea data requirements, and ship, target, and range availabilities, coordinate and conduct at-sea tests/trial demonstrations of AN/SQQ-89(V) systems and associated ACB/Technology Insertion (TI) capabilities, provided performance data and environmental analysis, Independent Verification & Validation (IV&V), and modeling and simulation using Measures of Performance (MOP) and Measures Of Effectiveness (MOE) methods. *FY 2011 Base Plans:* In support of ACB-13, provide AN/SQQ-89(V) Surface Ship ASW test and evaluation planning support, SAT analysis, determine test ship, test location, target requirements, personnel requirements and materials required, develop a test plan based on system configuration, at-sea data requirements, and ship, target, and range availabilities.					
Surface Ship Enhanced Measurement Program (SSEMP)	3.000	3.000	3.000	0.000	3.000
FY 2009 Accomplishments: Measured the performance of existing and new Surface Ship ASW combat systems and data based assessment of the capabilities and shortfalls in the performance of these systems in realistic scenarios. Evaluated the effectiveness of the transition of processing improvements in the surface ship sonar system. Evaluated system operational performance and identify performance deficits that need to be addressed by system processing improvements, employment modifications, and/or training improvements. Established baseline performance and compare operational performance to the predicted sensor performance to establish performance deficit/gain metrics. *FY 2010 Plans:* Analyze the sonar employment in the operational setting and report results for improvement of training/employment guidance. Perform Fleet exercise data reconstruction and post-test analysis each year.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Conduct selected at-sea data collection activities by providing planning support, ship riders, and analyst support. Evaluate prototype sonar employment tactics, sonar processing and automation algorithms, and communication protocols for the detection, classification, tracking, and intra-Fleet hand-off to Fleet ASW assets, and provide summary reports to document results. *FY 2011 Base Plans:* Analyze the sonar employment in the operational setting and report results for improvement of training/ employment guidance. Perform Fleet exercise data reconstruction and post-test analysis each year. Conduct selected at-sea data collection activities by providing planning support, ship riders, and analyst support. Evaluate prototype sonar employment tactics, sonar processing and automation algorithms, and communication protocols for the detection, classification, tracking, and intra-Fleet hand-off to Fleet ASW assets, and provide summary reports to document results.					
Surface ASW Synthetic Training (SAST) Development Program *FY 2009 Accomplishments:* Began development of a high fidelity acoustic simulation of a surface ship sonar based on the Improved Performance Sonar baseline under the Surface Ship ASW Synthetic Signatures Generation and Training Acceleration Initiative. Accelerate the implementation and integration of the Submarine Multi-Mission Team Trainer (SMMTT) Navy Continuous Training Environment (NCTE) solution/ baseline to the surface ship paradigm for high fidelity active and passive simulation for the improvement of operator efficiency, development of a rapid acoustic reconstruction capability, and to ensure SAST interoperability via the AEGIS Combat Training System (ACTS) and Battle Force Tactical Trainer (BFTT). *FY 2010 Plans:* Continue development of a high fidelity acoustic simulation of a surface ship sonar based on the Improved Performance Sonar baseline under the Surface Ship ASW Synthetic Signatures Generation and Training Acceleration Initiative. Accelerate the implementation and integration of the SMMTT	7.500	10.300	6.000	0.000	6.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NCTE solution/baseline to the surface ship paradigm for high fidelity active and passive simulation for the improvement of operator efficiency, development of a rapid acoustic reconstruction capability, and to ensure SAST interoperability via the ACTS and BFTT. *FY 2011 Base Plans:* Finalize development/integration and complete qualification testing of a high fidelity acoustic simulation of a surface ship sonar based on the Improved Performance Sonar baseline under the Surface Ship ASW Synthetic Signatures Generation and Training Acceleration Initiative. Accelerate the implementation and integration of the SMMTT NCTE solution/baseline to the surface ship paradigm for high fidelity active and passive simulation for the improvement of operator efficiency, development of a rapid acoustic reconstruction capability, and to ensure SAST interoperability via the ACTS and BFTT. SAST capability will be fielded throughout the force, via ACB updates to the AN/SQQ-89A(V)15 system, while spiraling in additional ASW sensors, as well as full HLA/NCTE interoperability.					
DAWDF *FY 2009 Accomplishments:* Defense Acquisition Workforce Development Fund	0.105	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	21.009	41.630	32.877	0.000	32.877

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/2136: *AN/SQQ-89 Surface ASW Combat System*	104.547	77.124	87.219	0.000	87.219	91.252	98.819	103.938	107.123	Continuing	Continuing
• OPN/0900: *DDG Modernization*	167.048	144.300	296.691	0.000	296.691	293.847	463.051	476.493	410.169	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/0960: *CG Modernization*	165.165	313.149	356.958	0.000	356.958	448.737	575.985	632.640	253.809	Continuing	Continuing

D. Acquisition Strategy

- Completed AN/SQQ-89A(V)15 Surface Ship ASW Combat System Build 0 Pre-Production Prototype, performed installation, conducted DT&E, and Initial IOT&E 4Q FY 2005. Via an ACB spiral development process, incorporate evolutionary and transformational technologies into AN/SQQ-89A(V)15 production systems (planned for Baseline 3 and 4 CG47 Class and FLT I/II/IIA DDG51 Class hulls) at scheduled intervals to pace the threat.
- Awarded new, competitive contract for AN/SQQ-89(V) prime system integrator in FY 2007.

E. Performance Metrics

- Deliver incremental capability increases in high interest areas, as prescribed by the Fleet and captured in campaign analysis, every two years to the AN/SQQ-89A(V)15 production program via an ACB spiral development process (ACB-09, ACB-11, ACB-13, etc.) by inserting maturing USW technologies.
- Continue ACB-11 development reflecting active capability for Continuous Active Sonar (CAS) including clutter reduction, passive processing from submarine APB-09, SAST, and improvements in contact and data management. Plan for and execute ACB-11 Sea Test in 4Q10.
- Continue SAST system development, integration and testing including supporting ACB-11 sea testing in FY10.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SQQ-89 S/W Development/Integration	C/CPFF	AAC NY	2.908	0.200	Dec 2009	0.300	Nov 2010	0.000		0.300	Continuing	Continuing	Continuing
SQQ-89 S/W Development/Integration	WR	NAVSEA/ DAHLGREN DAHLGREN, VA	0.702	0.520	Nov 2009	0.940	Nov 2010	0.000		0.940	Continuing	Continuing	Continuing
SQQ-89 S/W Development/Integration	C/CPFF	AM VA	6.722	3.400	Dec 2009	2.000	Nov 2010	0.000		2.000	Continuing	Continuing	Continuing
SQQ-89 S/W Development/Integration	C/CPFF	GD-AIS VA	9.422	2.200	Dec 2009	1.300	Nov 2010	0.000		1.300	Continuing	Continuing	Continuing
SQQ-89 S/W Development/Integration	C/CPFF	JHU/APL MD	1.565	2.760	Dec 2009	1.770	Dec 2010	0.000		1.770	Continuing	Continuing	Continuing
SQQ-89 S/W Development/Integration	C/CPFF	LOCKHEED MARTIN NY	2.355	4.500	Dec 2009	3.250	Nov 2010	0.000		3.250	Continuing	Continuing	Continuing
SQQ-89 S/W Development/Integration	WR	NAVSEA/ CARDEROCK MD	0.200	1.520	Nov 2009	0.920	Nov 2010	0.000		0.920	Continuing	Continuing	Continuing
SQQ-89 S/W TDA Support	WR	NAVSEA/ NEWPORT RI	2.348	2.050	Nov 2009	1.075	Nov 2010	0.000		1.075	Continuing	Continuing	Continuing
SQQ-89 S/W Development/Integration	SS/CPFF	UT/ARL TX	1.696	2.558	Dec 2009	2.680	Dec 2010	0.000		2.680	Continuing	Continuing	Continuing
SQQ-89 S/W Development/Integration	WR	VAR, VAR WR	2.491	2.898	Dec 2009	1.336	Nov 2010	0.000		1.336	Continuing	Continuing	Continuing
SAST Development/ Integration	C/CPFF	JHU/APL MD	0.802	3.750	Dec 2009	3.750	Dec 2010	0.000		3.750	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SAST Development/ Integration	WR	NAVSEA/ CARDEROCK MD	5.391	3.750	Oct 2009	3.750	Nov 2010	0.000		3.750	Continuing	Continuing	Continuing
SAST Development/ Integration	WR	NAVSEA/ NEWPORT RI	0.450	2.250	Oct 2009	2.250	Nov 2010	0.000		2.250	Continuing	Continuing	Continuing
SAST Development/ Integration	C/CPFF	SEDNA VA	0.000	4.327	Jan 2010	2.595	Nov 2010	0.000		2.595	Continuing	Continuing	Continuing
SAST Development/ Integration	C/CPFF	UT/ARL TX	0.857	0.750	Dec 2009	0.750	Dec 2010	0.000		0.750	Continuing	Continuing	Continuing
		Subtotal	37.909	37.433		28.666		0.000		28.666			

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SSEMP ConductTest/ Data Evaluation	C/TBD	JHU/APL, MD C/CPFF	1.905	1.905	Dec 2009	1.905	Dec 2010	0.000		1.905	Continuing	Continuing	Continuing
SSEMP Conduct/Test/ Data Evaluation	WR	NAVSEA/ NEWPORT, RI WR	0.456	0.456	Nov 2009	0.456	Nov 2010	0.000		0.456	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SSEMP Conduct/Test/ Data Evaluation	C/TBD	UT/ARL, TX C/CPFF	0.639	0.639	Dec 2009	0.639	Dec 2010	0.000		0.639	Continuing	Continuing	Continuing
SQQ-89 IV&V/SAT/ TEMP Assess./Update	WR	NAVSEA/ NEWPORT, RI WR	0.576	0.350	Nov 2009	0.350	Nov 2010	0.000		0.350	Continuing	Continuing	Continuing
SQQ-89 DT/OT/ Miscellaneous T&E	WR	VAR WR	0.775	0.350	Nov 2009	0.350	Nov 2010	0.000		0.350	Continuing	Continuing	Continuing
		Subtotal	4.351	3.700		3.700		0.000		3.700			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAE Systems MD	1.088	0.397	Jan 2010	0.411	Nov 2010	0.000		0.411	0.000	1.896	Continuing
Program Office Travel	Allot	NAVSEA PEO IWS5 DC	0.329	0.100	Oct 2009	0.100	Oct 2010	0.000		0.100	0.000	0.529	Continuing
		Subtotal	1.417	0.497		0.511		0.000		0.511	0.000	2.425	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.677	41.630		32.877		0.000		32.877			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205620N: *Surface ASW Cmbt Sys Integr*	**PROJECT** 1916: *Surface ASW System Improvement*

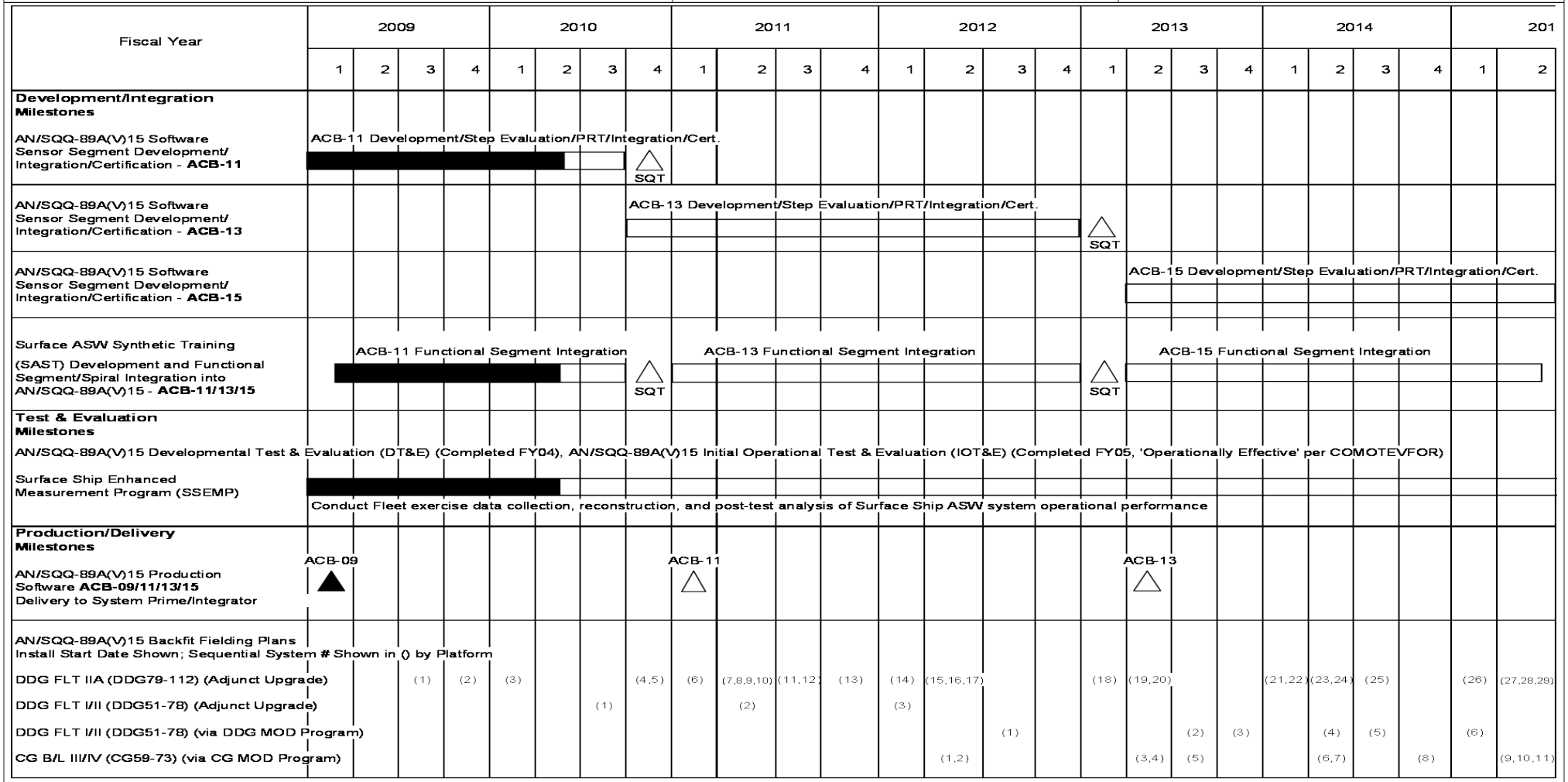

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
SQQ-89A(V)15 ACB-11 Dev./Step Eval./PRT/Integ./Cert.	1	2009	3	2010
SQQ-89A(V)15 ACB-11 SQT	4	2010	4	2010
SQQ-89A(V)15 ACB-13 Dev./Step Eval./PRT/Integ./Cert.	4	2010	4	2012
SQQ-89A(V)15 ACB-13 SQT	1	2013	1	2013
SQQ-89A(V)15 ACB-15 Dev./Step Eval./PRT/Integ./Cert.	2	2013	2	2015
SQQ-89A(V)15 ACB-15 SQT	3	2015	3	2015
SAST ACB-11 Functional Segment Integration	1	2009	3	2010
SAST ACB-11 SQT	4	2010	4	2010
SAST ACB-13 Functional Segment Integration	1	2011	4	2012
SAST ACB-13 SQT	1	2013	1	2013
SAST ACB-15 Functional Segment Integration	2	2013	2	2015
SAST ACB-15 SQT	3	2015	3	2015
Surface Ship Enhanced Measurement Program (SSEMP)	1	2009	4	2015
SQQ-89A(V)15 ACB-09 Prdtn. S/W Delivery to Integrator	1	2009	1	2009
SQQ-89A(V)15 ACB-11 Prdtn. S/W Delivery to Integrator	1	2011	1	2011
SQQ-89A(V)15 ACB-13 Prdtn. S/W Delivery to Integrator	2	2013	2	2013
SQQ-89A(V)15 ACB-15 Prdtn. S/W Delivery to Integrator	4	2015	4	2015
SQQ-89A(V)15 DDG51 Class FLT IIA Backfit Install (Adjunct Upgrade)	3	2009	2	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 1916: *Surface ASW System Improvement*

	Start		End	
Event	Quarter	Year	Quarter	Year
SQQ-89A(V)15 DDG51 Class FLT I/II Backfit Install (Adjunct Upgrade)	3	2010	2	2012
SQQ-89A(V)15 DDG51 Class FLT I/II Backfit Install (via DDG MOD Program)	3	2012	3	2015
SQQ-89A(V)15 CG47 Class B/L III/IV Backfit Install (via CG MOD Program)	2	2012	2	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.798	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.669
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Add.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: LONG RANGE SYNTHETIC APERATURE SONAR (SAS) FOR ASW *FY 2009 Accomplishments:* FY 2009 Congressional Add: Initiate processor prototype system architecture, requirements modeling, and performance predictions for an ASW Synthetic Aperture Sonar system utilizing the current Navy sonar assets of an AN/SQS-53 hull mounted sonar and the MFTA. A Synthetic Aperture Sonar has the potential to significantly reduce false alarms and eliminate clutter from current US Navy ASW sonar systems. The creation of a synthetic longer array will provide acoustically derived images of contacts at extended ranges supporting the initial detection and rapid classification of ASW threats most notably irrespective of Doppler and in environments of high clutter. It does this through the synthetic formation of an aperture that provides narrow beams and constant resolution with range. This allows the formation of an image of the physical shape and aspect of the contact allowing the rejection of non ASW threat shapes as clutter while identifying high probability ASW threats.	0.798	0.000
Congressional Adds Subtotals	0.798	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205620N: *Surface ASW Cmbt Sys Integr*	PROJECT 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0205632N: *MK-48 ADCAP*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	25.994	34.235	26.234	0.000	26.234	26.746	27.161	27.780	28.365	Continuing	Continuing
0366: *MK 48 ADCAP*	15.622	28.260	26.234	0.000	26.234	26.746	27.161	27.780	28.365	Continuing	Continuing
9999: *Congressional Adds*	10.372	5.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.661

A. Mission Description and Budget Item Justification

A. (U) Mission Description and Budget Item Justification:
MK-48 ADCAP (Advanced Capability) Research, Development, Test and Evaluation (RDT&E) program executes incremental evelopment of weapon performance improvements in three development product areas: (1) Common Broadband Advanced Sonar System (CBASS), (2) Advanced Processor Builds (APBs), and (3) Torpedo Technology Insertion. The budget enables Acquisition Category (ACAT) III development to address Chief of Naval Operations (CNO) defined capability-based equirements and mission needs. This Program Element (0205632N/0366) is tied to development programs that leverage a joint United States/Australia Armaments Cooperative Project (ACP) to develop MK-48 ADCAP CBASS; and Future Naval Capability (FNC) technologies developed by the Office of Naval Research (ONR).

(U) Countermeasure (CM) sophistication and availability on the open market directly affects ADCAP kill proficiency and its ability to counter rapidly evolving threats. The focus of the MK-48 ADCAP torpedo Research and Development (R&D) program for FY01 and out shifted from being primarily concentrated on Software Block Upgrade (BUG) efforts towards coordinated hardware upgrades, rapid Commercial-Off-the-Shelf (COTS) insertion, and APBs to rapidly upgrade the ADCAP to counter evolving threats and maintain robust performance. The CBASS program developed and fielded a broadband sonar capable of identifying CMs and discriminating them from the target. CBASS developed 22 test articles (2 test vehicles and 20 Engineering Development Models {EDMs}). CBASS met Milestone II requirements on 6 March 1998 and received milestone Decision Authority (MDA) approval to proceed into the Engineering and Manufacturing Development (EMD) phase. CBASS Phase I received Full Rate Production (FRP) decision in June 2006. Initial Operational Capability (IOC) occurred during FY06. The Commonwealth of Australia, Royal Australian Navy (RAN) is participating to jointly develop CBASS torpedo and signed an ACP Agreement March 2003. The intent of the CBASS program was to achieve improvements in shallow water torpedo performance.

(U) The MK-48 ADCAP torpedo R&D program focuses on two specific areas near term: Torpedo APBs and broadband sonar capability. The CNO continues to stress shallow water (less than 600 feet) as a critical operating area to counter third world diesel electric submarines. Torpedo testing in shallow water has demonstrated that in-service ADCAP has less than full capability in this difficult environment. However, this testing, in conjunction with laboratory simulation efforts, has shown that significant performance improvements can be made by implementing changes to weapon tactics and software algorithms. Development, implementation, and testing of

these changes is being accomplished under the Torpedo APB program. This program also leverages the RAN joint torpedo program and FNC technologies developed by the ONR in the areas of torpedo broadband signal processing, tactics processing, and alertment. The Torpedo APB program also will incorporate MK-54 Lightweight torpedo algorithms and tactics software to create a Common Torpedo Development program. Future APB software builds will utilize the common torpedo software to deliver software and tactics to both the MK-48 ADCAP and MK-54 Lightweight torpedoes.

(U) The Torpedo Technology Insertion program will provide for evolutionary torpedo improvements and upgrades (including the transition and testing of advanced technologies from the R&D community (6.2/6.3 and contractors). This approach will incorporate developmental testing of the FNC transitioning technologies for ADCAP upgrades in the areas of torpedo
sensors, weapon/platform connectivity, warhead lethality, speed and depth. These efforts will continue torpedo development investment at a lower cost and shorter term than traditional torpedo programs.

(U) Both FNC technologies and MK-54 Lightweight torpedo developments will be transitioned into ADCAP through Technology Insertion packages. Priorities for Technology Insertion are a new array to improve torpedo effectiveness, advanced processing, and advanced counter-countermeasure capability.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	26.123	28.438	0.000	0.000	0.000
Current President's Budget	25.994	34.235	26.234	0.000	26.234
Total Adjustments	-0.129	5.797	26.234	0.000	26.234
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.060			
• Congressional Adds		6.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.129	0.000			
• Program Adjustments	0.000	0.000	26.234	0.000	26.234
• Rate/Misc Adjustments	0.000	-0.143	0.000	0.000	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205632N: *MK-48 ADCAP*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Small Business Technology Insertion*	0.000	5.975
Congressional Add: *MK-48 TORPEDO POST-LAUNCH COMMUNICATION SYSTEM*	0.798	0.000
Congressional Add: *Undersea Weapons Enterprise Common Automated Test*	3.191	0.000
Congressional Add: *ASW Enhancements*	6.383	0.000
Congressional Add Subtotals for Project: 9999	10.372	5.975
Congressional Add Totals for all Projects	10.372	5.975

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205632N: *MK-48 ADCAP*	PROJECT 0366: *MK 48 ADCAP*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0366: *MK 48 ADCAP*	15.622	28.260	26.234	0.000	26.234	26.746	27.161	27.780	28.365	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Notes: Articles reflect: FY09: delivery of final report and completion of software build for APB Spiral 1; FY11: delivery of final report and completion for APB Spiral 4.

A. (U) Mission Description and Budget Item Justification:
MK-48 ADCAP RDT&E program executes incremental development of weapon performance improvements in two development product areas: (1) APBs, and (2) Torpedo Technology Insertion. The budget enables ACAT III development to address CNO defined capability-based requirements and mission needs. This Program Element (0205632N/0366) is tied to development programs that leverage a joint United States/Australia ACP to develop MK-48 ADCAP; and FNC technologies being developed by the ONR.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
TORPEDO APB	15.122	24.063	25.234	0.000	25.234
FY 2009 Accomplishments: Completed OT and Software Build for Spiral 1 Torpedo APB ($100K). Continued development of APB Spiral 4 in preparation for software release in FY11 ($15,022K). The APB technologies improve shallow water performance and increase the probability of kill.					
FY 2010 Plans: Continue development of APB Spiral 4 in preparation for software release ($17,963K). Initiate development of APB Spiral 5 ($100K). Small Business Tech Insertion Congressional add funds Torpedo Guidance & Control Open Architecture initiatives and the development of architecture commonality between both heavyweight and lightweight torpedoes ($6,000K).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205632N: *MK-48 ADCAP*	PROJECT 0366: *MK 48 ADCAP*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Completion of OT and Software Build for Spiral 4 Torpedo APB ($10,617K). Continue development of Spiral 5 ($14,617K).					
OPERATIONAL TEST SUPPORT *FY 2009 Accomplishments:* Completed APB Spiral 1 OT and analysis and delivered final report ($200K). Provided for accreditation requirements and conducted analysis relating to APB Spiral 4 Software release ($300K). The APB technologies improve shallow water performance and increase probability of kill. *FY 2010 Plans:* Provide for accreditation requirements and conduct analysis relating to APB Spiral 4 Software release planned in FY11. *FY 2011 Base Plans:* Complete APB Spiral 4 OT and analysis. Delivery of final report for APB Spiral 4.	0.500	4.197	1.000	0.000	1.000
Accomplishments/Planned Programs Subtotals	15.622	28.260	26.234	0.000	26.234

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205632N: *MK-48 ADCAP*	PROJECT 0366: *MK 48 ADCAP*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• WPN/3225: *MK-48 Torpedo ADCAP Mods*	52.734	56.134	43.559	0.000	43.559	65.909	68.613	66.165	66.654	Continuing	Continuing

D. Acquisition Strategy

Sole Source Production Contract awarded in FY04 for MK-48 ADCAP MODS, Lightweight MK-54, and Common Broadband Advanced Sonar System (CBASS) kits, including Royal Australian Navy (RAN) units.

E. Performance Metrics

Milestone Reviews.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205632N: *MK-48 ADCAP*	PROJECT 0366: *MK 48 ADCAP*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NUWC Newporrt (NPT) Newport RI	11.615	0.900	Apr 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPFF	Progeny Manassas VA	5.777	5.075	Jun 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	17.392	5.975		0.000		0.000		0.000			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	NUWC NPT Newport RI	11.372	0.627	Oct 2009	3.097	Oct 2009	0.000		3.097	Continuing	Continuing	Continuing
Software Development	C/Various	Various Not Specified	21.020	2.100	Dec 2009	13.197	Dec 2010	0.000		13.197	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NUWC NPT Newport RI	1.563	0.680	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC NPT Newport RI	16.586	0.577	Oct 2009	0.587	Oct 2010	0.000		0.587	Continuing	Continuing	Continuing
Systems Engineering	C/Various	Various Not Specified	0.110	0.000		0.000		0.000		0.000	0.000	0.110	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205632N: *MK-48 ADCAP*	PROJECT 0366: *MK 48 ADCAP*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	50.651	3.984		16.881		0.000		16.881			

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	NUWC NPT Newport RI	6.703	2.585	Oct 2009	1.298	Oct 2010	0.000		1.298	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	Operational Test Force Norfolk VA	1.750	4.340	Nov 2009	0.943	Nov 2010	0.000		0.943	Continuing	Continuing	Continuing
Modeling & Simulation	WR	NUWC NPT Newport RI	5.630	2.939	Oct 2009	1.176	Oct 2010	0.000		1.176	Continuing	Continuing	Continuing
Modeling & Simulation	C/CPFF	ARL / PSU State College PA	3.700	1.000	Dec 2009	1.000	Dec 2010	0.000		1.000	Continuing	Continuing	Continuing
Test & Evaluation	WR	NUWC Keyport (KPT) Keyport WA	10.570	6.810	Oct 2009	4.316	Oct 2010	0.000		4.316	0.000	21.696	Continuing
		Subtotal	28.353	17.674		8.733		0.000		8.733			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205632N: *MK-48 ADCAP*	PROJECT 0366: *MK 48 ADCAP*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/Various	Alion Science Mclean VA	1.804	0.451	Oct 2009	0.425	Oct 2010	0.000		0.425	Continuing	Continuing	Continuing
Travel	WR	NAVSEA Washington DC	0.359	0.176	Oct 2009	0.195	Oct 2010	0.000		0.195	Continuing	Continuing	Continuing
		Subtotal	2.163	0.627		0.620		0.000		0.620			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	98.559	28.260		26.234		0.000		26.234			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205632N: *MK-48 ADCAP*	**PROJECT** 0366: *MK 48 ADCAP*

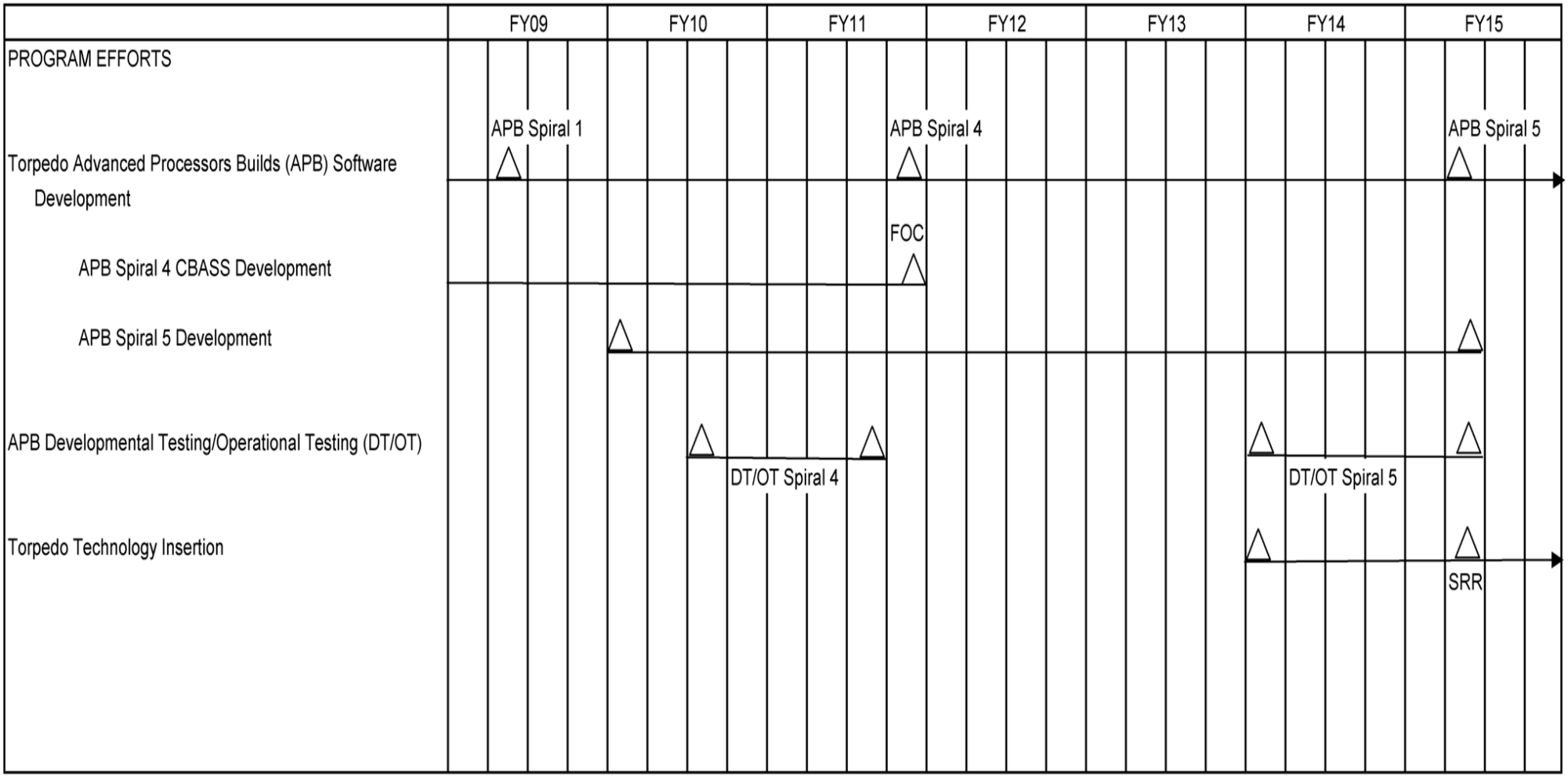

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205632N: *MK-48 ADCAP*	**PROJECT** 0366: *MK 48 ADCAP*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Torpedo Advanced Processor Build (APB) Software Development	1	2009	4	2015
APB Spiral 1 Delivery	2	2009	2	2009
APB Spiral 4 CBASS Development	1	2009	4	2011
Spiral 4 CBASS Developmental Testing/Operational Testing (DT/OT)	3	2010	3	2011
CBASS APB Spiral 4 Delivery	4	2011	4	2011
APB Spiral 5 Development	1	2010	2	2015
Spiral 5 Developmental Testing/Operational Testing (DT/OT)	1	2014	2	2015
Spiral 5 Delivery	2	2015	2	2015
Torpedo Technology Insertion	1	2014	4	2015
System Requirements Review (SRR)	2	2015	2	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205632N: *MK-48 ADCAP*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	10.372	5.975	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.661
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional adds for FY09 MK-48 Torpedo post-launch communication system, Undersea Enterprise Common Automated Test, and ASW Enhancements.
Congressional add for FY10 for Small Business Technology Insertion.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Small Business Technology Insertion *FY 2010 Plans:* Small Business Technology Insertion for Torpedo Gudiance and Control Open Architecture initiatives and the development of architectual commonality between both heavyweight and the lightweigth torpedos.	0.000	5.975
Congressional Add: MK-48 TORPEDO POST-LAUNCH COMMUNICATION SYSTEM *FY 2009 Accomplishments:* Evaluation of innovative flex-hose/guidance wire concepts using hydrodynamic computational simulation models, as well as fabrication, test and evaluation of prototype hardware to demonstrate compliance with Fleet requirements.	0.798	0.000
Congressional Add: Undersea Weapons Enterprise Common Automated Test	3.191	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205632N: *MK-48 ADCAP*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: Evaluate the application of common automated test sets at the Heavyweight Torpedo depot and Intermediate Maintenance Activities (IMAs).		
Congressional Add: ASW Enhancements *FY 2009 Accomplishments:* Funding applied to development and design of the new MK-48 ADCAP torpedo sub-assemblies required due to the depletion and obsolescence of many existing torpedo components.	6.383	0.000
Congressional Adds Subtotals	10.372	5.975

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Congressional Adds

E. Performance Metrics

Congressional Adds

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	95.112	134.612	133.611	0.000	133.611	135.621	112.325	115.038	114.051	Continuing	Continuing
0601: *Acft Handling & Service Equip*	3.115	3.255	1.849	0.000	1.849	1.983	2.993	3.068	3.136	Continuing	Continuing
0852: *Consolidated Auto Support System*	8.653	27.581	31.926	0.000	31.926	23.630	7.033	7.190	7.337	Continuing	Continuing
1041: *Acft Equip Repl/Maint Prog*	3.630	4.088	4.230	0.000	4.230	3.500	3.567	3.653	3.737	Continuing	Continuing
1355: *Acft Engines Comp Imp Prog*	57.878	65.568	75.583	0.000	75.583	80.654	81.781	83.123	84.300	Continuing	Continuing
3190: *Multi-Purpose Bomb Racks*	9.510	22.329	20.023	0.000	20.023	25.854	16.951	18.004	15.541	Continuing	Continuing
9999: *Congressional Adds*	12.326	11.791	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	73.430

A. Mission Description and Budget Item Justification

Project 0601 - Common Ground Equipment is a Naval Aviation Project to apply new technology to common support equipment necessary to support multiple aircraft. Project 0852 - Consolidated Automated Support System (CASS) is a standardized Automated Test Equipment (ATE) with computer assisted, multi-function capabilities to support the maintenance of aircraft subsystems and missiles. Project 1041 - Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP) is the only Navy program that provides engineering support for in-service out-of-production aircraft equipment, and provides increased readiness at reduced operational and support cost. Project 1355 - Aircraft Engine Component Improvement Program (CIP) develops reliability and maintainability (R&M) and safety enhancements for in-service Navy aircraft engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, fuel systems, fuels, and lubricants. Project 3190 - is the Multi-Purpose Bomb Rack (MPBR). The MPBR will replace the BRU-41/42/33/55 and provide use for both tactical and training stores on one common rack. The MPBR will be integrated on the F/A-18E/F as part of this project.
Project 9999 is Congressional Adds.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205633N: *Aviation Improvements*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	99.416	135.840	0.000	0.000	0.000
Current President's Budget	95.112	134.612	133.611	0.000	133.611
Total Adjustments	-4.304	-1.228	133.611	0.000	133.611
• Congressional General Reductions		-0.561			
• Congressional Directed Reductions		-12.491			
• Congressional Rescissions	0.000	-0.016			
• Congressional Adds		11.840			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-1.975	0.000			
• SBIR/STTR Transfer	-2.328	0.000			
• Program Adjustments	0.000	0.000	133.611	0.000	133.611
• Rate/Misc Adjustments	-0.001	0.000	0.000	0.000	0.000

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Highly Conductive Lightweight Aircraft Sealant*	0.000	0.956
Congressional Add: *Laser Peening for P-3 Life Extension*	0.000	1.275
Congressional Add: *ARC FAULT CIRCUIT BREAKER WITH ARC LOCATION SYSTEM*	0.997	0.797
Congressional Add: *F/A 18 AVIONICS GROUND SUPPORT SYSTEM*	2.393	0.000
Congressional Add: *ROTOR BLADE PROTECTION*	0.798	0.000
Congressional Add: *Sacrificial Film Laminates For Navy Helicopter Win*	0.957	0.000
Congressional Add: *WIRELESS SENSORS FOR NAVY AIRCRAFT*	2.394	2.390
Congressional Add: *LIGHTWEIGHT COMPOSITE STRUCTURE DEV FOR AEROSPACE*	0.798	2.390
Congressional Add: *RAPID REPAIR UV CURABLE STRUCTURAL ADHESIVES*	2.393	0.000
Congressional Add: *Vet-Biz Initiative for National Sustainment (VINS-*	1.596	3.983

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205633N: *Aviation Improvements*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add Subtotals for Project: 9999	12.326	11.791
Congressional Add Totals for all Projects	12.326	11.791

Change Summary Explanation

Schedule:

Project 0601 - Operational test has been removed from all accomplishments/planned programs (Next Generation Munitions Handler (NGMH), Tuboprop Engine Test Instrumention (TETI), Shipboard Firefighting Vehicle (SFV), Aircraft Spotting Dolly (ASD), and Hydraulic Test Stand (HTS)) since it is not required for non-ACAT designated programs. The Government phase of Development Testing will provide the required evaluation. The P-25 Shipboard Firefighting Vehicle (SFV) Team conducted a technology assessment of SFV requirements, new technology and component obsolescence. It was determined that the SFV still meets all shipboard firefighting requirements. However, key components must be replaced due to obsolescence to extend the life of the SFV. Therefore, the decision was made to replace key components (like the engine and water pumps) via the Engineering Change Proposal (ECP) process and to install the new components via a Conversion In Lieu Of Procurement (CILOP) process. Aircraft Spotting Dolly (ASD) has been delayed one year.

Project 0852 - The eCASS schedule slipped due to a delay in finalizing the product specifications. As the acquisition plan was approved, the test strategy was modified.

Project 1041 - Systems Engineering Revitalization: includes additional dollars for Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN(RDA)) for a Navy-wide systems engineering initiative. Several projects starting in FY10 were results of investigations to be high value on return on investment.

Project 3190 - The MPBR Contract Award for Engineering and Manufacturing Development (EMD) was delayed approximately 6 months. Subsequently, Developmental Test and Evaluation (DT&E) and Integrated Test and Evaluation (IT&E) were also delayed.

Project 9999 - Congressional Adds.

Technical:

Not Applicable

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0601: *Acft Handling & Service Equip*	3.115	3.255	1.849	0.000	1.849	1.983	2.993	3.068	3.136	Continuing	Continuing
Quantity of RDT&E Articles	2	3	2	0	2	0	0	0	0		

A. Mission Description and Budget Item Justification

Common Ground Equipment is a Naval Aviation project to apply new technology to common support equipment necessary to support multiple systems/aircraft within the Navy. The common support equipment items developed with this budget are briefed to the Air Force, Army and Coast Guard for possible use in joint procurement in the production phase.

New Programs are Hydraulic Test Stand in FY11 and Aircraft Spotting Dolly in FY12. The Hydraulic Test Stand is an R&D program to develop next generation Hydraulic Test Stand for testing Aircraft Hydraulic system components at the intermediate level of maintenance, both ship and shore based. Aircraft Spotting Dolly is an R&D program to develop next generation Aircraft Spotting Dolly. New Aircraft Spotting Dolly requires low profile and alternative power to allow safe spotting of all aircraft aboard CV/L class ships.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Next Generation Munitions Handler (NGMH)	0.838	1.700	0.000	0.000	0.000
R&D program to develop robotic weapons loader for both ship and shore with primary focus on targeting future weapons and aircraft. Plan is to support CVNX initiatives and to back-fit current CVs and amphibious ships. Utilize technology features developed under NGMH program. One lab prototype will upload/download munitions in support of sea-based aviation, specifically the CVN-21 environment. It will be a self-powered diesel/electric unit with human amplification technology. Newly developed high-torque electric actuator/motors will provide the robotics. Variable geometry Ionator wheels will provide the mobility for the vehicle. Self diagnostics for maintenance analysis will be included for the design.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: R&D program to develop robotic weapons loader for both ship and shore with primary focus on targeting future weapons and aircraft. Plan is to support CVNX initiatives and to back-fit current CVs and amphibious ships. Utilize technology features developed under NGMH program. One lab prototype will upload/download munitions in support of sea-based aviation, specifically the CVN-21 environment. It will be a self-powered diesel/electric unit with human amplification technology. Newly developed high-torque electric actuator/motors will provide the robotics. Variable geometry Ionator wheels will provide the mobility for the vehicle. Self diagnostics for maintenance analysis will be included for the design. *FY 2010 Plans:* R&D program to develop robotic weapons loader for both ship and shore with primary focus on targeting future weapons and aircraft. Plan is to support CVNX initiatives and to back-fit current CVs and amphibious ships. Utilize technology features developed under NGMH program. One lab prototype will upload/download munitions in support of sea-based aviation, specifically the CVN-21 environment. It will be a self-powered diesel/electric unit with human amplification technology. Newly developed high-torque electric actuator/motors will provide the robotics. Variable geometry Ionator wheels will provide the mobility for the vehicle. Self diagnostics for maintenance analysis will be included for the design.					
Turboprop Engine Test Instrumention (TETI) The Turboprop Engine Test Instrumentation (TETI) program objective is to provide an integrated computer based measurement and automation system for Intermediate Maintenance level testing of Navy/Marine Turboprop engines. The acquisition approach is to develop, acquire, validate, deploy and support production configurations of TETI and Test Program Sets (TPS), utilizing the existing Shaft Engine Test Initiative (SETI) technology, and integrate this capability into existing land based engine	1.932	0.628	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
test systems. This enhanced capability will allow for full performance engine testing of the T56 Series Turboprop engines. An ECP will be developed to upgrade the existing engine test systems. *FY 2009 Accomplishments:* The Turboprop Engine Test Instrumentation (TETI) program objective is to provide an integrated computer based measurement and automation system for Intermediate Maintenance level testing of Navy/Marine Turboprop engines. The acquisition approach is to develop, acquire, validate, deploy and support production configurations of TETI and Test Program Sets (TPS), utilizing the existing Shaft Engine Test Initiative (SETI) technology, and integrate this capability into existing land based engine test systems. This enhanced capability will allow for full performance engine testing of the T56 Series Turboprop engines. An ECP will be developed to upgrade the existing engine test systems. *FY 2010 Plans:* The Turboprop Engine Test Instrumentation (TETI) program objective is to provide an integrated computer based measurement and automation system for Intermediate Maintenance level testing of Navy/Marine Turboprop engines. The acquisition approach is to develop, acquire, validate, deploy and support production configurations of TETI and Test Program Sets (TPS), utilizing the existing Shaft Engine Test Initiative (SETI) technology, and integrate this capability into existing land based engine test systems. This enhanced capability will allow for full performance engine testing of the T56 Series Turboprop engines. An ECP will be developed to upgrade the existing engine test systems.					
Shipboard Firefighting Vehicle (SFV) The Shipboard Firefighting Vehicle (SFV) program objective is to provide a safe reliable and maintainable way to support air capable ships with flight deck fire suppression during flight operations. The acquisition approach is to develop, acquire, validate, deploy and support production utilizing the lessons learned from the current firefighting vehicle and new emerging technology. This will enable integration of this capability into a new firefighting vehicle, which will be fully capable to support the current and future flight deck fire suppression missions.	0.345	0.927	0.910	0.000	0.910

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: The Shipboard Firefighting Vehicle (SFV) program objective is to provide a safe reliable and maintainable way to support air capable ships with flight deck fire suppression during flight operations. The acquisition approach is to develop, acquire, validate, deploy and support production utilizing the lessons learned from the current firefighting vehicle and new emerging technology. This will enable integration of this capability into a new firefighting vehicle, which will be fully capable to support the current and future flight deck fire suppression missions. *FY 2010 Plans:* The Shipboard Firefighting Vehicle (SFV) program objective is to provide a safe reliable and maintainable way to support air capable ships with flight deck fire suppression during flight operations. The acquisition approach is to develop, acquire, validate, deploy and support production utilizing the lessons learned from the current firefighting vehicle and new emerging technology. This will enable integration of this capability into a new firefighting vehicle, which will be fully capable to support the current and future flight deck fire suppression missions. *FY 2011 Base Plans:* The Shipboard Firefighting Vehicle (SFV) program objective is to provide a safe reliable and maintainable way to support air capable ships with flight deck fire suppression during flight operations. The acquisition approach is to develop, acquire, validate, deploy and support production utilizing the lessons learned from the current firefighting vehicle and new emerging technology. This will enable integration of this capability into a new firefighting vehicle, which will be fully capable to support the current and future flight deck fire suppression missions.					
Hydraulic Test Stand (HTS) The Hydraulic Test Stand Program is to provide a single test stand to replace all of the existing hydraulic test units; HCTS, HCT-10, and Pump & Motor test stand. This will simplify supply support, reduce the stock system footprint, reduce training requirements, introduce new technology, consolidate	0.000	0.000	0.939	0.000	0.939

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
space requirements in the hydraulic shops and eliminate the part obsolescence issues that are now beginning to emerge and grow. The requirements that cannot be met by COTS items are Shock, Vibration, EMI, MILVAN compatible, and hardened electrical components. These areas will all require R & D. *FY 2011 Base Plans:* The Hydraulic Test Stand Program is to provide a single test stand to replace all of the existing hydraulic test units; HCTS, HCT-10, and Pump & Motor test stand. This will simplify supply support, reduce the stock system footprint, reduce training requirements, introduce new technology, consolidate space requirements in the hydraulic shops and eliminate the part obsolescence issues that are now beginning to emerge and grow. The requirements that cannot be met by COTS items are Shock, Vibration, EMI, MILVAN compatible, and hardened electrical components. These areas will all require R & D.					
Accomplishments/Planned Programs Subtotals	3.115	3.255	1.849	0.000	1.849

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/0705: *Ground Support Equipment*	161.892	143.310	142.148	0.000	142.148	135.848	136.929	139.235	141.597	0.000	1,000.959

D. Acquisition Strategy

This is a non ACAT program. Field activities propose tentative projects. Internal panel merits and selects projects. Field activities develop projects and submit results. Operational Advisory Group (OAG) process selects projects to transition to procurement.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PRIMARY HARDWARE DEV-NGMH	SS/CPFF	NDI THOROFARE, NJ	7.255	1.000	Mar 2010	0.000		0.000		0.000	7.295	15.550	15.550
PRIMARY HARDWARE DEV-SFV	SS/CPFF	ENTWISTLE HUDSON, MA	0.345	0.597	Mar 2010	0.512	Mar 2011	0.000		0.512	5.922	7.376	7.376
PRIMARY HARDWARE DEV-HTS	C/CPFF	TBD TBD	0.000	0.000		0.586	Mar 2011	0.000		0.586	0.000	0.586	0.586
SYSTEMS ENGINEERING-SFV	WR	NAWCAD LAKEHURST, NJ	0.000	0.330	Nov 2009	0.398	Nov 2010	0.000		0.398	0.761	1.489	Continuing
SYSTEMS ENGINEERING-TETI	WR	NAWCAD LAKEHURST, NJ	2.617	0.328	Nov 2009	0.000		0.000		0.000	0.685	3.630	Continuing
SYSTEMS ENGINEERING-HTS	WR	NAWCAD LAKEHURST, NJ	0.000	0.000		0.353	Nov 2010	0.000		0.353	0.000	0.353	Continuing
PRIMARY HARDWARE DEV-TETI	C/CPFF	VARIOUS VARIOUS	2.202	0.300	Mar 2010	0.000		0.000		0.000	2.202	4.704	4.704
		Subtotal	12.419	2.555		1.849		0.000		1.849	16.865	33.688	28.216

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DEVELOPMENT SUPPORT EQUIP-NGMH	WR	NAWCAD LAKEHURST, NJ	0.747	0.350	Nov 2009	0.000		0.000		0.000	0.000	1.097	Continuing
DEVELOPMENT SUPPORT EQUIP-NGMH	C/CPFF	VARIOUS VARIOUS	7.702	0.350	Mar 2010	0.000		0.000		0.000	0.000	8.052	8.052
		Subtotal	8.449	0.700		0.000		0.000		0.000	0.000	9.149	8.052

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TEST & EVALUATION-EA	Various/ Various	VARIOUS VARIOUS	0.500	0.000		0.000		0.000		0.000	0.000	0.500	Continuing
		Subtotal	0.500	0.000		0.000		0.000		0.000	0.000	0.500	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.368	3.255		1.849		0.000		1.849	16.865	43.337	36.268

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*

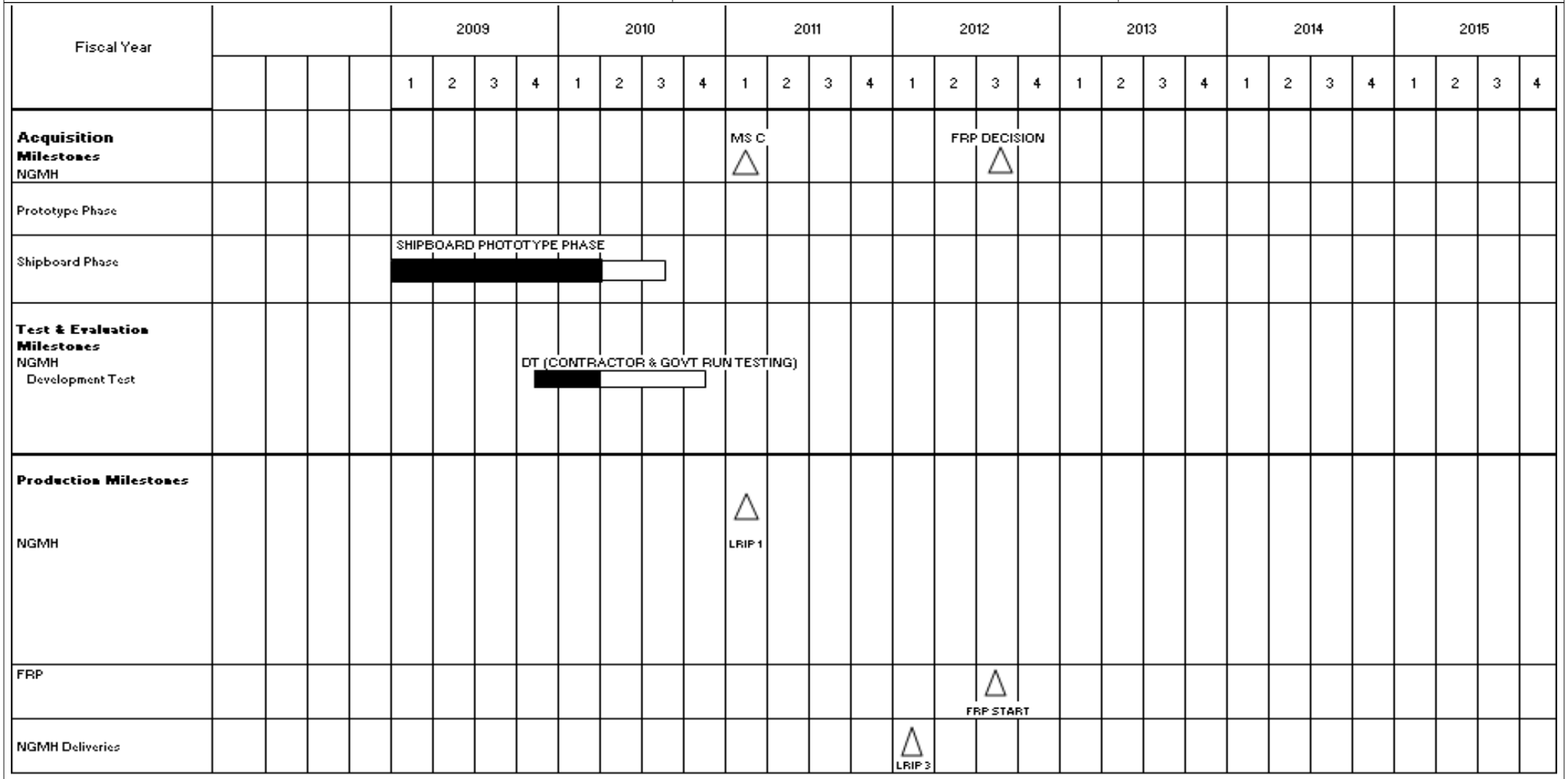

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*	

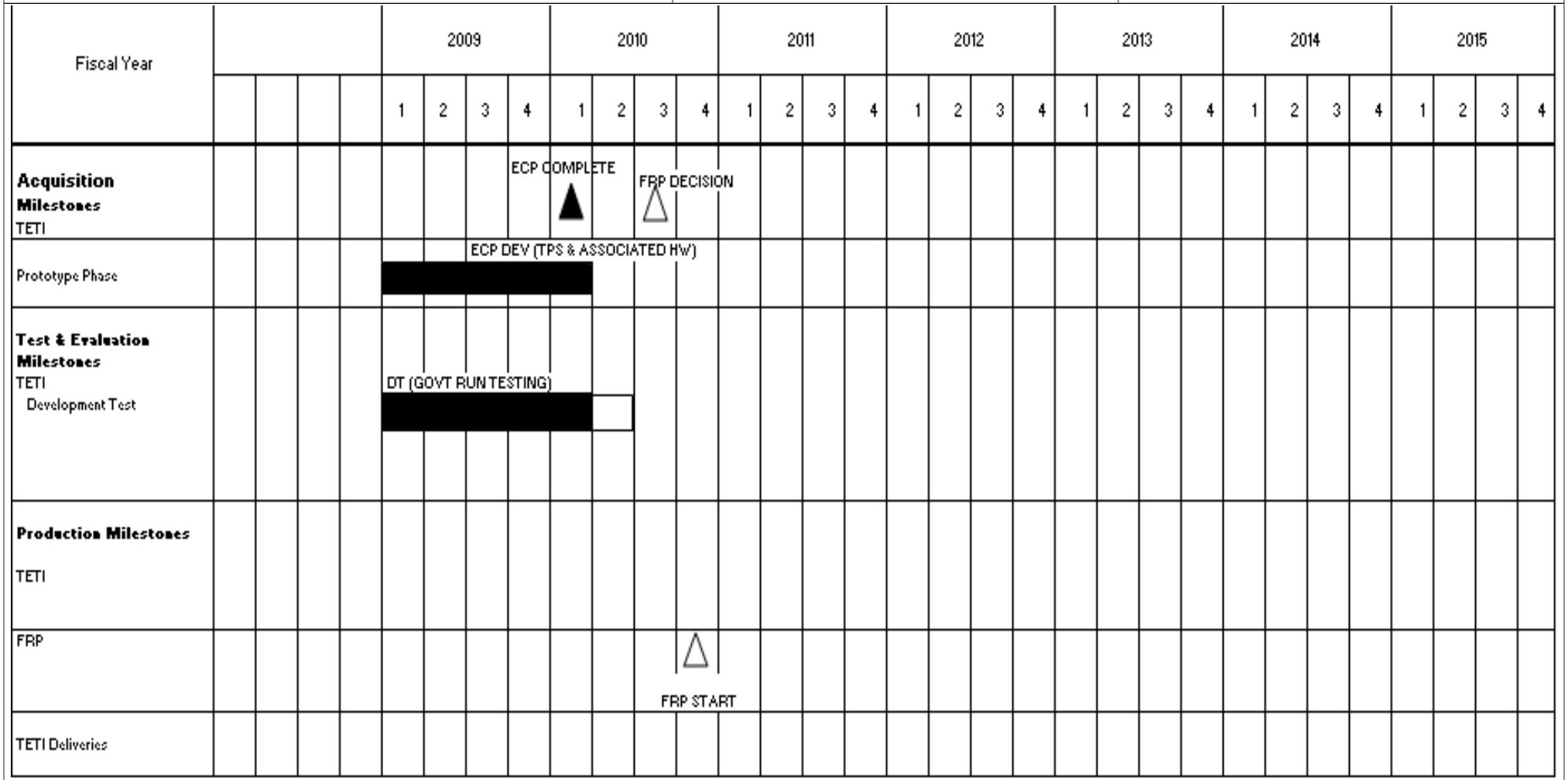

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*

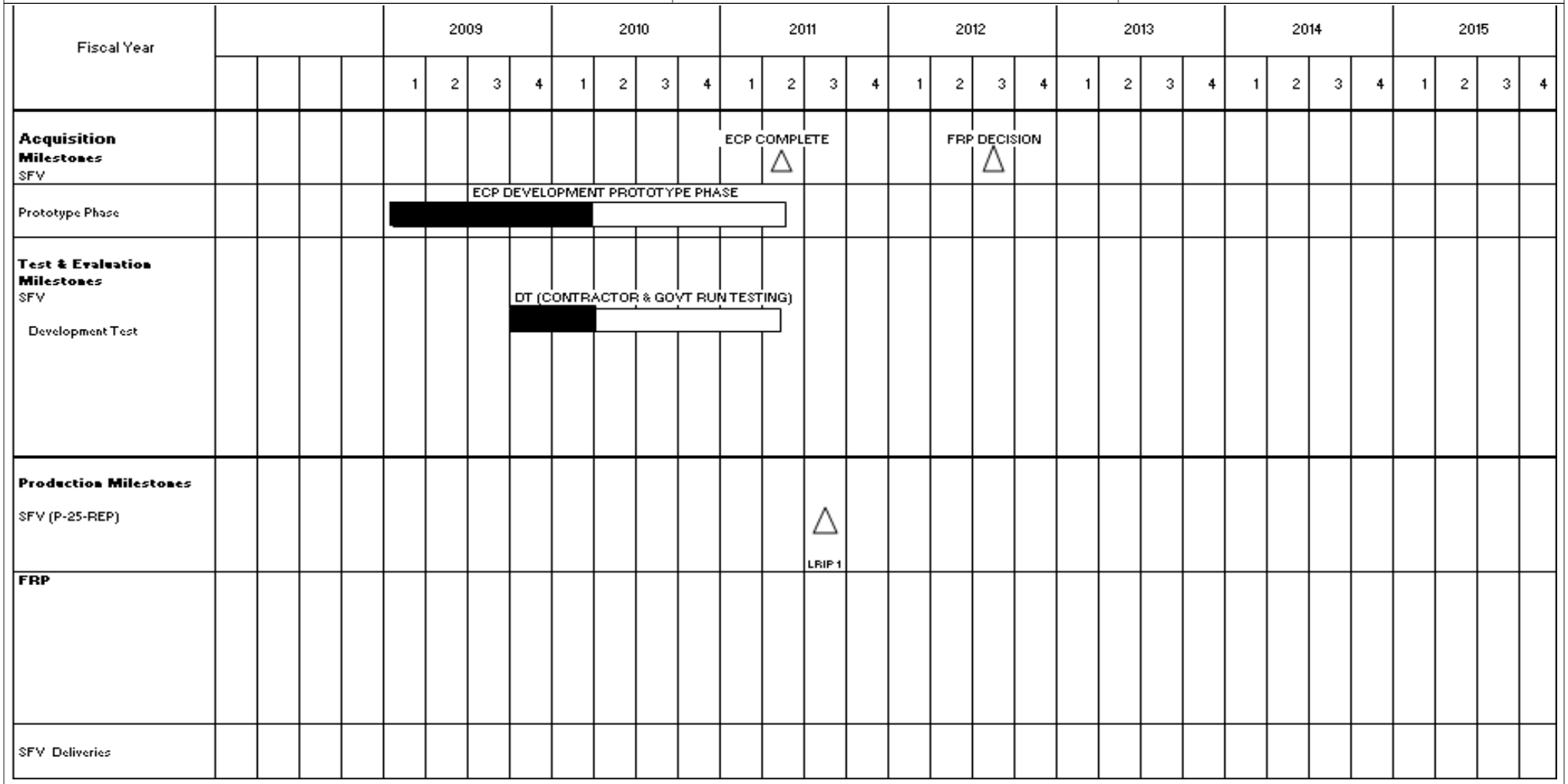

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*

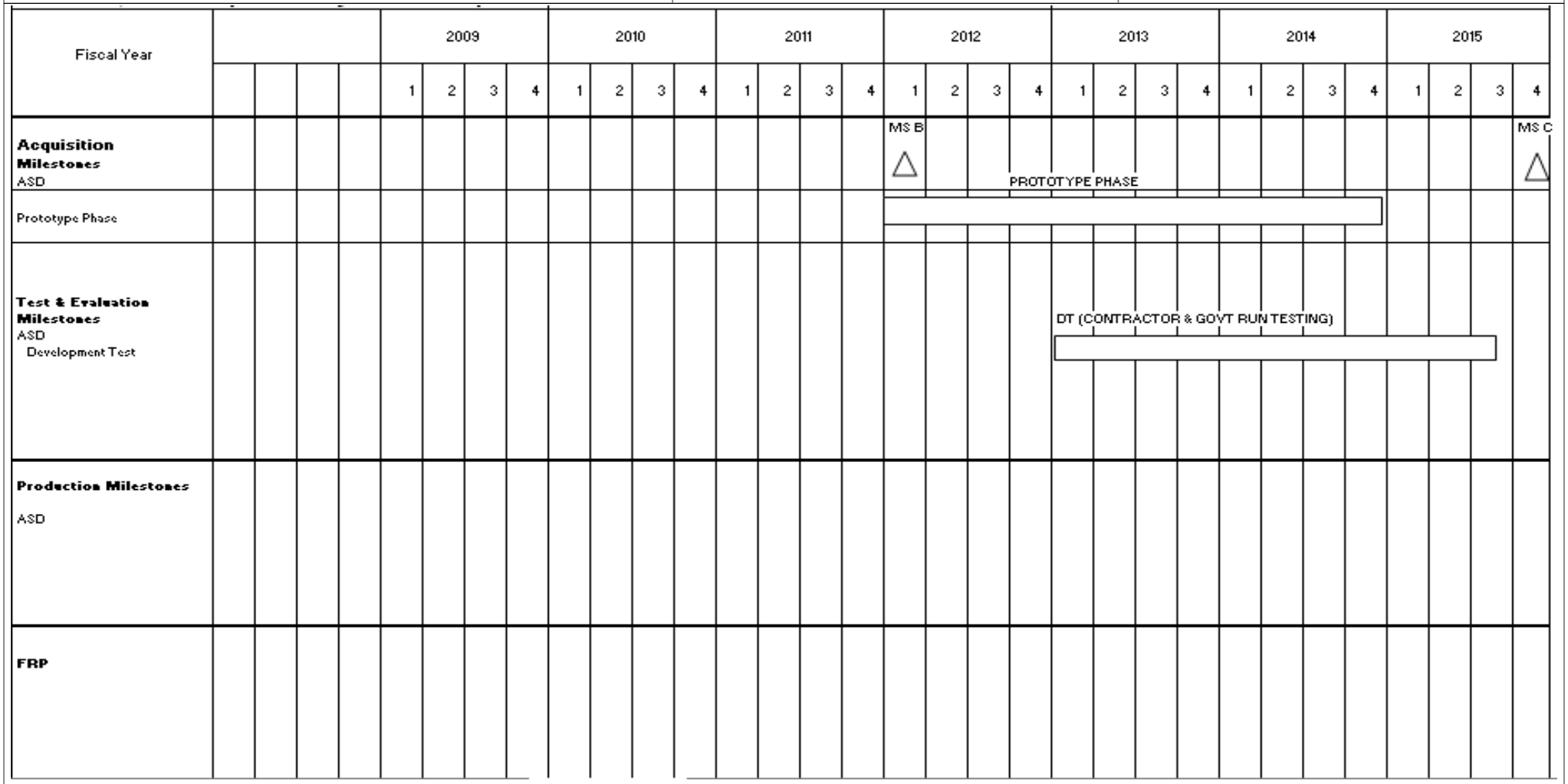

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0601: *Acft Handling & Service Equip*

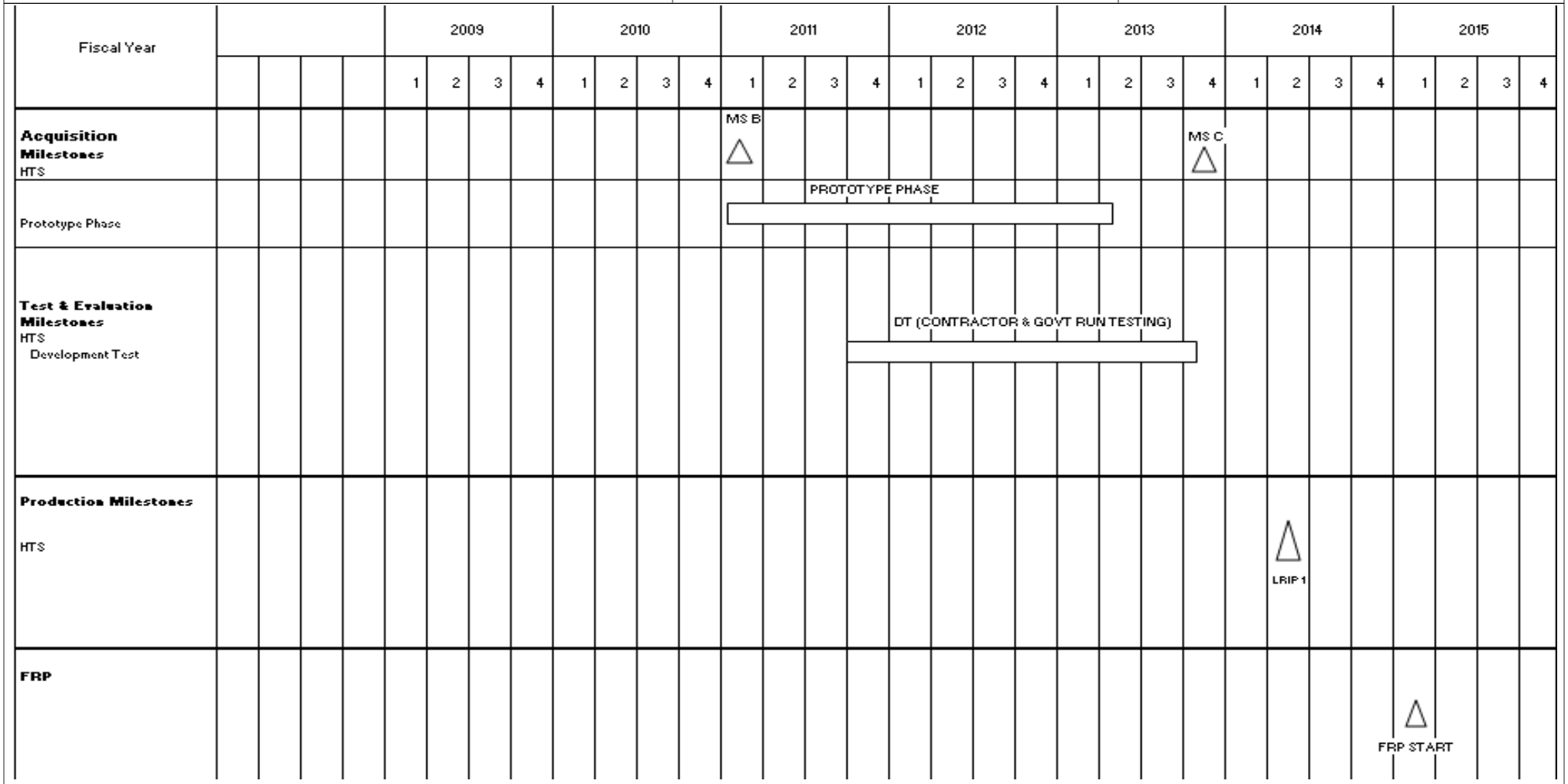

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205633N: *Aviation Improvements*	**PROJECT** 0601: *Acft Handling & Service Equip*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
NGMH-SHIPBOARD PROTOTYPE PHASE	1	2009	3	2010
NGMH-DEVELOPMENTAL TEST	4	2009	4	2010
NGMH-MILESTONE C (MS C)	1	2011	1	2011
NGMH-START LOW RATE INITIAL PRODUCTION (LRIP) 1	1	2011	1	2011
NGMH-LOW RATE INITIAL PRODUCTION (LRIP) 3 DELIVERY	1	2012	1	2012
NGMH-FULL RATE PRODUCTION (FRP) DECISION	3	2012	3	2012
NGMH-FULL RATE PRODUCTION (FRP) START	3	2012	3	2012
TETI-ECP COMPLETE	1	2010	1	2010
TETI-ECP (TPS & ASSOCIATED HARDWARE)	1	2009	1	2010
TETI-DEVELOPMENTAL TEST	1	2009	2	2010
TETI-FULL RATE PRODUCTION (FRP) DECISION	3	2010	3	2010
TETI-FULL RATE PRODUCTION (FRP) START	4	2010	4	2010
SFV-ECP DEVELOPMENT PROTOTYPE PHASE	1	2009	2	2011
SFV-DEVELOPMENTAL TEST	4	2009	2	2011
SFV-ECP COMPLETE	2	2011	2	2011
SFV-START LOW RATE INITIAL PRODUCTION (LRIP) 1	3	2011	3	2011
SFV-FULL RATE PRODUCTION (FRP) DECISION	3	2012	3	2012
ASD-PROTOTYPE PHASE	1	2012	4	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205633N: *Aviation Improvements*	**PROJECT** 0601: *Acft Handling & Service Equip*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
ASD-MILESTONE B	1	2012	1	2012
ASD-DEVELOPMENTAL TEST	1	2013	3	2015
ASD-MILESTONE C	4	2015	4	2015
HTS-PROTOTYPE PHASE	1	2011	2	2013
HTS-MILESTONE B	1	2011	1	2011
HTS-DEVELOPMENTAL TEST	4	2011	4	2013
HTS-MILESTONE C	4	2013	4	2013
HTS-START LOW RATE INITIAL PRODUCTION (LRIP) 1	2	2014	2	2014
HTS-FULL RATE PRODUCTION (FRP) START	1	2015	1	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0852: *Consolidated Auto Support System*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0852: *Consolidated Auto Support System*	8.653	27.581	31.926	0.000	31.926	23.630	7.033	7.190	7.337	Continuing	Continuing
Quantity of RDT&E Articles	2	2	7	0	7	0	0	0	0		

A. Mission Description and Budget Item Justification

The Consolidated Automated Support System (CASS) project designs and develops modular automated test equipment with computer-assisted, multi-function test capability, standardized hardware, and standard software elements. CASS responds to Fleet Commanders' expressed requirements to correct serious deficiencies in existing automatic test equipment. Program objectives are: (1) increase material readiness; (2) reduce life cycle costs; (3) improve tester sustainability at depot and intermediate maintenance levels; (4) reduce proliferation of unique test equipment, and (5) provide test capability for existing and emerging avionics/electronics aircraft weapon systems.

The CASS (Consolidated Automated Support System) Modernization project objectives are to modernize legacy CASS systems via technology insertion to overcome obsolescence issues and to mature technologies in preparation of the emerging eCASS (electronic Consolidated Automated Support System) project.

The eCASS (electronic Consolidated Automated Support System) project is the system design and development of the latest generation of the US Navy's CASS family of automatic test systems. The legacy CASS system was designed and developed in the 1980's and commenced fielding in 1992. As such, it is reaching the end of its useful life due to obsolescence issues. eCASS is the replacement system for legacy CASS systems, which provides Naval aircraft avionics component maintenance and repair support at Intermediate and Depot maintenance facilities both shore-based and afloat. As a CASS replacement program, the eCASS program objectives remain the same as that of CASS. Specifically: (1) increase material readiness; (2) reduce life cycle costs; (3) improve tester sustainability at depot and intermediate maintenance levels; (4) reduce proliferation of unique test equipment, and (5) provide test capability for existing and emerging avionics/electronics aircraft weapon systems.

The Test Technology Development project involves analysis, application, maturation, integration and testing of emerging electronic, mechanical and optical test technologies for potential military utility in support of Naval avionics testing and repair. Specific technologies being developed include synthetic instruments, new Advanced Targeting Forward Looking Infrared (ATFLIR) electro-optics capabilities, multi-analog test capability to enable functional testing, and modernization elements for the CASS family of automatic test systems.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0852: *Consolidated Auto Support System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
CASS Station Upgrades	0.200	0.000	0.000	0.000	0.000
Provides technologies for upgrading CASS stations to test emerging weapon system requirements. Includes development of new test capability and extending existing range accuracies in the time and frequency domains to support low-frequency analog/digital, electro-optic, and radio frequency (RF) systems.					
FY 2009 Accomplishments: Provides technologies for upgrading CASS stations to test emerging weapon system requirements. Includes development of new test capability and extending existing range accuracies in the time and frequency domains to support low-frequency analog/digital, electro-optic, and radio frequency (RF) systems.					
CASS Modernization Development	8.453	0.000	0.000	0.000	0.000
Develops and integrates the technologies that will comprise the Modernization Program for CASS stations, which will be modernized and updated to current testing technologies while maintaining full compatibility with the legacy test program sets. Technologies include: downsized and scalable packaging techniques, multi-lingal runtime capability, interoperability framework and architectures, diagnostics data handling, virtual/synthetic/next-generation instrument concepts and the Agile Rapid Global Combat Support (ARGCS) Advanced Concept Technologies (ACTD).					
FY 2009 Accomplishments: Develops and integrates the technologies that will comprise the Modernization Program for CASS stations, which will be modernized and updated to current testing technologies while maintaining full compatibility with the legacy test program sets. Technologies include: downsized and scalable packaging techniques, multi-lingal runtime capability, interoperability framework and architectures, diagnostics data handling, virtual/synthetic/next-generation instrument concepts and the Agile Rapid Global Combat Support (ARGCS) Advanced Concept Technologies (ACTD).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0852: *Consolidated Auto Support System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
eCASS Development	0.000	26.868	31.107	0.000	31.107
Develop, integrate and test an Automatic Test System (ATS) to replace legacy CASS systems. The new ATS will be compatible with and capable of hosting the hundreds of existing Test Programs that are currently utilized on legacy CASS at the Intermediate and Depot levels of maintenance, as well as any emerging Test Programs that may require greater test capability than provided by legacy CASS. *FY 2010 Plans:* Develop, integrate and test an Automatic Test System (ATS) to replace legacy CASS systems. The new ATS will be compatible with and capable of hosting the hundreds of existing Test Programs that are currently utilized on legacy CASS at the Intermediate and Depot levels of maintenance, as well as any emerging Test Programs that may require greater test capability than provided by legacy CASS. *FY 2011 Base Plans:* Develop, integrate and test an Automatic Test System (ATS) to replace legacy CASS systems. The new ATS will be compatible with and capable of hosting the hundreds of existing Test Programs that are currently utilized on legacy CASS at the Intermediate and Depot levels of maintenance, as well as any emerging Test Programs that may require greater test capability than provided by legacy CASS.					
Test Technology Development	0.000	0.713	0.819	0.000	0.819
Develops, integrates, and evolves enhanced test capabilities and technologies for insertion into the CASS family of test systems. As weapon system electronics evolve, new test capabilities are required to support advanced systems. Existing test capabilities must be extended in range, accuracy, time and frequency domains in order to sustain the required test accuracy ratios for weapon systems support (the automatic test system must be four times as accurate as the asset being tested). *FY 2010 Plans:* Develops, integrates, and evolves enhanced test capabilities and technologies for insertion into the CASS family of test systems. As weapon system electronics evolve, new test capabilities are required					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0852: *Consolidated Auto Support System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
to support advanced systems. Existing test capabilities must be extended in range, accuracy, time and frequency domains in order to sustain the required test accuracy ratios for weapon systems support (the automatic test system must be four times as accurate as the asset being tested). *FY 2011 Base Plans:* Develops, integrates, and evolves enhanced test capabilities and technologies for insertion into the CASS family of test systems. As weapon system electronics evolve, new test capabilities are required to support advanced systems. Existing test capabilities must be extended in range, accuracy, time and frequency domains in order to sustain the required test accuracy ratios for weapon systems support (the automatic test system must be four times as accurate as the asset being tested).					
Accomplishments/Planned Programs Subtotals	8.653	27.581	31.926	0.000	31.926

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/0705: *P-1# 58 Common Ground Equip APN-7*	81.537	59.491	52.909	0.000	52.909	76.499	97.561	99.248	100.966	0.000	568.211

D. Acquisition Strategy

Formal test technology reviews with industry are conducted annually (cooperative Joint Services initiative) to define maturity of needed technologies. Further studies are conducted as needed. Procurement strategy is determined by market survey and cooperative opportunities.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0852: *Consolidated Auto Support System*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Dev CASS EO	C/CPFF	VARIOUS VARIOUS	5.867	0.000		0.000		0.000		0.000	0.000	5.867	5.867
Primary Hdw Dev CASS Mod	C/CPFF	VARIOUS VARIOUS	20.595	0.000		0.000		0.000		0.000	0.000	20.595	20.595
Primary Hdw Dev CASS Upgrades	C/CPFF	VARIOUS VARIOUS	1.935	0.000		0.000		0.000		0.000	0.000	1.935	1.935
Primary Hdw Dev eCASS	C/CPFF	TBD TBD	0.000	23.550	Mar 2010	24.428	Dec 2010	0.000		24.428	95.270	143.248	143.248
Primary Hdw Dev Test Technology	C/CPFF	TBD TBD	0.000	0.413	Mar 2010	0.469	Mar 2011	0.000		0.469	51.420	52.302	52.302
		Subtotal	28.397	23.963		24.897		0.000		24.897	146.690	223.947	223.947

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Dev CASS Mod	WR	VARIOUS VARIOUS	12.403	0.000		0.000		0.000		0.000	0.000	12.403	Continuing
Primary Hdw Dev eCASS	WR	VARIOUS VARIOUS	0.000	3.100	Jan 2010	6.450	Jan 2011	0.000		6.450	11.000	20.550	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0852: *Consolidated Auto Support System*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Dev Test Technology	WR	VARIOUS VARIOUS	0.000	0.200	Jan 2010	0.250	Jan 2011	0.000		0.250	14.000	14.450	Continuing
		Subtotal	12.403	3.300		6.700		0.000		6.700	25.000	47.403	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Dev CASS Mod Travel	WR	VARIOUS VARIOUS	1.669	0.000		0.000		0.000		0.000	0.000	1.669	Continuing
Primary Hdw Dev eCASS Travel	WR	VARIOUS VARIOUS	0.000	0.218	May 2010	0.229	May 2011	0.000		0.229	4.000	4.447	Continuing
Primary Hdw Dev Test Tech Travel	WR	VARIOUS VARIOUS	0.000	0.100	May 2010	0.100	May 2011	0.000		0.100	3.125	3.325	Continuing
		Subtotal	1.669	0.318		0.329		0.000		0.329	7.125	9.441	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 0852: *Consolidated Auto Support System*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	42.469	27.581		31.926		0.000		31.926	178.815	280.791	223.947

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205633N: *Aviation Improvements*	**PROJECT** 0852: *Consolidated Auto Support System*

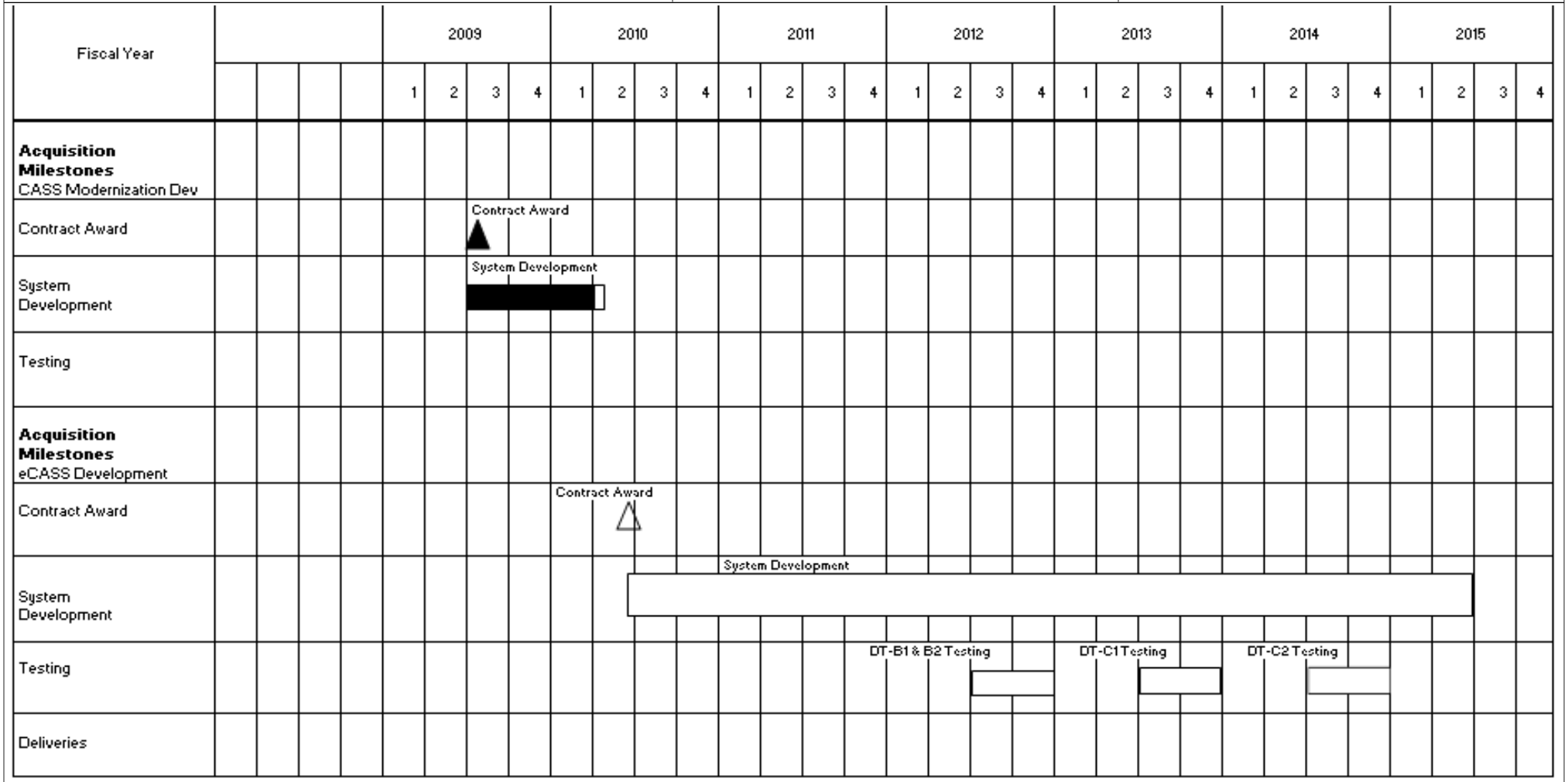

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205633N: *Aviation Improvements*	**PROJECT** 0852: *Consolidated Auto Support System*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
CASS Mod Development Contract Award	3	2009	3	2009
CASS Mod System Development	3	2009	2	2010
eCASS Development Contract Award	2	2010	2	2010
eCASS System Development	2	2010	2	2015
eCASS DT-B1 & B2 Testing	3	2012	4	2012
eCASS DT-C1 Testing	3	2013	4	2013
eCASS DT-C2 Testing	3	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 1041: *Acft Equip Repl/Maint Prog*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1041: *Acft Equip Repl/Maint Prog*	3.630	4.088	4.230	0.000	4.230	3.500	3.567	3.653	3.737	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP) is the only Navy program which provides Research, Development, Test & Evaluation (RDT&E) engineering support specifically for in-service, out-of-production aircraft equipment. AERMIP increases readiness through Reliability and Maintainability (R&M) and safety improvements to existing systems and equipment installed in Naval aircraft. It also provides a transition vehicle to deploy Total Ownership Cost (TOC) reduction initiatives through flight-test support and Fleet Test & Evaluation. It meets affordable readiness objectives by providing a cost-effective solution to obsolescence problems encountered when service lives are extended. AERMIP promotes commonality and standardization across aircraft platform lines and among the services through extension of application and use of non-developmental items. AERMIP also decreases life cycle costs through reduced operational and support costs. AERMIP facilitates the Operational, Safety and Improvement Program by applying proven low-risk solutions to current fleet problems. AERMIP also funds high-priority flight testing which is not associated with any acquisition or development program under the Flight Test General (FTG) task. AERMIP will demonstrate the feasibility of using cavitation peening for survivability improvement of ceramic armor and validate innovative coating techniques to enhance erosion resistance of engine blades and rotor blades in support of overseas operations.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Avionics and Wiring	1.125	1.088	0.997	0.000	0.997
FY 2009 Accomplishments: Completed Smart Wire assessment including safety-of-flight certification and initial flight testing. Performed function testing of arc fault in vibration laboratory. Performed additional testing on V-22 trainer including hard shorts and opens. Completed testing and evaluation of six adhesives to determine suitability as a replacement for MIL-PRF-8516 polysulfide sealants and approved two for aircraft use. These will make repair of connectors on aircraft more efficient and rapid.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 1041: *Acft Equip Repl/Maint Prog*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Demonstrate generator system diagnostics and health management system in aircraft on the ground. Demonstrate prototype generator system diagnostics and health management system in relevant environment. Demonstrate diagnostic and prognostic technologies for aircraft batteries and wiring systems in relevant environment. Demonstrate these technologies in aircraft on the ground. Qualify high-power smart switching technology to MIL-STD-704 and subject unit to full laboratory and aircraft qualification testing and flight test profiles. Evaluate automated triggering of avionics systems with higher than predicted failure rates, allowing the system to mitigate reliability issues in time to prevent availability problems. *FY 2011 Base Plans:* Qualify materials or pieces of equipment and the procedures/process required for their implementation. Pursue next-generation wiring, battery, and generator diagnosis and prognostics methods, and prove the applicability to Naval aviation. Address avionics-related reliability issues impacting multiple aircraft platforms.					
Air Vehicle	1.515	1.769	1.582	0.000	1.582
FY 2009 Accomplishments: Twenty-four month inspection of several aircraft at multiple locations validated effectiveness of new corrosion protection material. Output will be new material extending maintenance intervals, increasing availability and decreasing cost. Began evaluation of human factors related to aircraft corrosion root causes. Evaluated digital inflation tire reader to measure aircraft tire pressure. Began testing of out-of-autoclave technology for composite structure repairs. Developed new methods of structural repair. *FY 2010 Plans:* Validate measurement of flaws on bent titanium tubing for hydraulic systems. Test hydraulic fluid replacement with selected hydraulic components. Develop new methods of structural repair. Evaluate new methods of corrosion prevention control, including human factors approach. Improve sand					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
erosion resistance of coated impeller for auxiliary power unit systems. Evaluate non-chrome structural adhesive bonding primers. Design and integrate sand erosion test rig to simulate impeller operation on the aircraft in a sand/dust environment. Pursue subsystem improvements by increasing component reliability. *FY 2011 Base Plans:* Qualify materials or pieces of equipment and the procedures/process required for their implementation. Develop new methods of structural repair. Evaluate new methods of corrosion prevention control. Evaluate non-solvent plasma method to remove hydraulic contamination. Pursue subsystem improvements by increasing component reliability. Finalize titanium tubing crack detection methodology and tooling. Qualify and implement advanced non-chrome primers with corrosion protection properties.					
Systems Engineering (SE) Revitalization *FY 2009 Accomplishments:* Determined overall program strategy and work breakdown. Placed initial tasking on contracts to begin program. Began initial determinations of leading indicators, which are early predictors of program difficulty. Developed prioritized work plan for FY 10. *FY 2010 Plans:* Incorporate systems engineering process approach to achieve satisfactory levels of reliability and maintainability (R&M), successfully demonstrate R&M levels during test and evaluation, and sustain R&M levels throughout the system's life-cycle. Further refine program work content and execute second round of contract effort. Continue effort on correlations of indicators and validate findings. Expand into an aligned four-phase system engineering process and develop improvements to the Systems Engineering Technical Review (SETR) process. Develop communications strategy to maximize program effectiveness among teams. Develop web-based tool.	0.972	0.947	0.939	0.000	0.939

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue validation of leading indicators for effectiveness. Continue development of improved four-phase system and SETR process. Using communications strategy developed in previous year and web-based tool, deliver usable validated products to engineering and program teams.					
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded DoD Acquisition Workforce Fund	0.018	0.000	0.000	0.000	0.000
NAE Corrosion *FY 2010 Plans:* Investigate and validate corrosion and maintenance process improvements due to flight line canopy shelters. Integrate shelters into flight line facilities. Complete and issue demonstration and validation report for EA-6B and F/A-18s. Field test and implement tape and adhesive remover, which is designed to more effectively remove radome and leading edge boots and tapes and for which current maintenance practices cause component damage and take excessive time, reducing aircraft availability. Design, test, and implement Controlled Solidification Investment Cast aluminum gearboxes as alternatives to magnesium alloy gearboxes. Demonstrate and validate conducting paint and sealants with less noble galvanic potential. *FY 2011 Base Plans:* Continue to design, test, and implement Controlled Solidification Investment Cast aluminum gearboxes as alternatives to magnesium alloy gearboxes. Demonstrate and validate conducting paint and sealants with less noble galvanic potential and which provide acceptable electrical performance with much lower propensity to cause corrosion of airframe and components. Investigate products such as advanced performance topcoats designed to decrease cost of re-painting aircraft by extending service life of paint.	0.000	0.284	0.712	0.000	0.712

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	3.630	4.088	4.230	0.000	4.230

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

This is a non-ACAT program. Procurement strategy is determined by market survey and cooperative opportunities.

E. Performance Metrics

The AERMIP program will, at a minimum, fund 8 to 15 projects a year that investigate and evaluate R&M improvements to in-service, out-of-production aircraft equipment. AERMIP projects will have a greater than 75% success rate of insertion into DON warfighting systems or support infrastructure.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng - Avionics/ Wiring	WR	NAWCAD Patuxent River, MD	2.858	0.941	Nov 2009	0.805	Nov 2010	0.000		0.805	Continuing	Continuing	Continuing
Sys Eng - Avionics/ Wiring	SS/FFP	GE Niskayuna, NY	1.004	0.000		0.000		0.000		0.000	0.000	1.004	1.004
Sys Eng - Avionics/ Wiring	SS/FFP	Raytheon Indianapolis, IN	0.300	0.000		0.000		0.000		0.000	0.000	0.300	0.300
Sys Eng - Avionics/ Wiring	C/FFP	Various Various	0.275	0.039	Mar 2010	0.192	Mar 2011	0.000		0.192	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	NAWCAD Patuxent River, MD	4.130	1.063	Nov 2009	0.971	Nov 2010	0.000		0.971	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	FRC San Diego, CA	0.458	0.000		0.050	Dec 2010	0.000		0.050	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	FRC Cherry Point, NC	0.378	0.000		0.050	Dec 2010	0.000		0.050	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	FRC Jacksonville, FL	0.410	0.000		0.050	Dec 2010	0.000		0.050	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	C/FFP	Various Various	0.057	0.558	Apr 2010	0.100	Apr 2011	0.000		0.100	0.717	1.432	1.434
Sys Eng - Air Vehicle	C/FFP	EMA Lexington Park, MD	0.200	0.000		0.000		0.000		0.000	0.000	0.200	0.200
Sys Eng - SE Revitalization	WR	NAWCAD Patuxent River, MD	0.015	0.768	Dec 2009	0.022	Dec 2010	0.000		0.022	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng - SE Revitalization	C/FFP	Various Various	0.957	0.185	Apr 2010	0.917	Apr 2011	0.000		0.917	Continuing	Continuing	Continuing
Sys Eng - NAE Corrosion	WR	NAWCAD Patuxent River, MD	0.000	0.259	Dec 2009	0.357	Dec 2010	0.000		0.357	Continuing	Continuing	Continuing
Sys Eng - NAE Corrosion	WR	FRC San Diego, CA	0.000	0.000		0.100	Dec 2010	0.000		0.100	Continuing	Continuing	Continuing
Sys Eng - NAE Corrosion	WR	FRC Cherry Point, NC	0.000	0.000		0.125	Dec 2010	0.000		0.125	Continuing	Continuing	Continuing
Sys Eng - NAE Corrosion	WR	FRC Jacksonville, FL	0.000	0.000		0.130	Dec 2010	0.000		0.130	Continuing	Continuing	Continuing
		Subtotal	11.042	3.813		3.869		0.000		3.869			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies & Analyses	WR	NADEP San Diego, CA	0.193	0.000		0.000		0.000		0.000	0.000	0.193	0.193
Studies & Analyses	WR	NAWCAD	12.171	0.000		0.000		0.000		0.000	0.000	12.171	12.171

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Patuxent River, MD											
Studies & Analyses - NAE Corrosion	WR	NAWCAD Patuxent River, MD	0.000	0.025	Dec 2009	0.091	Dec 2010	0.000		0.091	Continuing	Continuing	Continuing
		Subtotal	12.364	0.025		0.091		0.000		0.091			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	SS/FFP	Various Various	1.859	0.000		0.000		0.000		0.000	0.000	1.859	1.859
Program Management Support	WR	NAWCAD Patuxent River, MD	0.710	0.245	Nov 2009	0.250	Nov 2010	0.000		0.250	Continuing	Continuing	Continuing
Travel	WR	NAWCAD Patuxent River, MD	0.069	0.005	Nov 2009	0.020	Nov 2010	0.000		0.020	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various/ Various	Various Various	0.018	0.000		0.000		0.000		0.000	0.000	0.018	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			2.656	0.250		0.270		0.000		0.270			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.062	4.088		4.230		0.000		4.230			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
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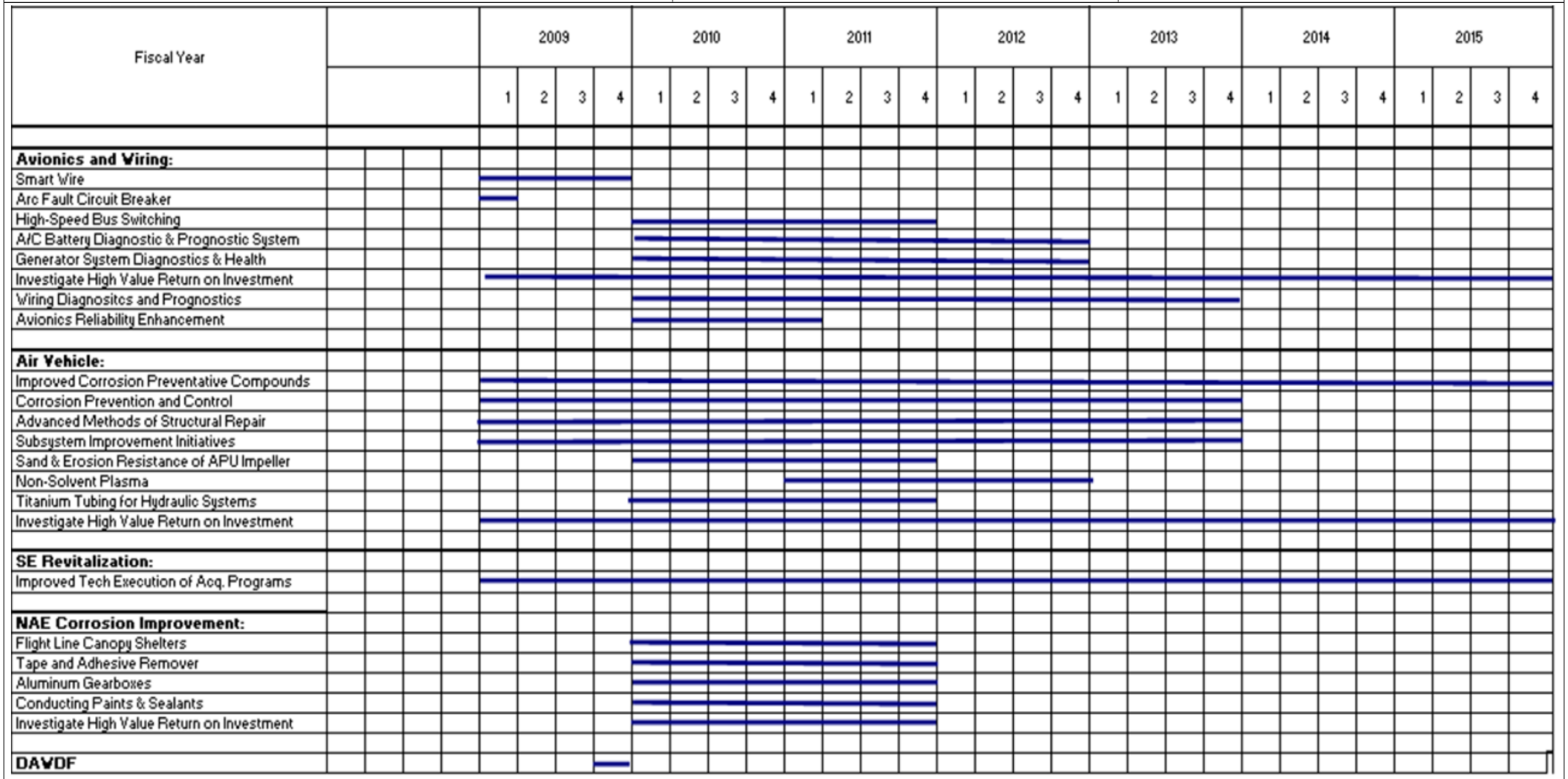

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 1041: *Acft Equip Repl/Maint Prog*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Avionics & Wiring: Smart Wire	1	2009	4	2009
Avionics & Wiring: Arc Fault Circuit Breaker	1	2009	1	2009
Avionics & Wiring: High-Speed Bus Switching	1	2010	4	2011
Avionics & Wiring: Aircraft Battery Diagnostic & Prognostic System	1	2010	4	2012
Avionics & Wiring: Generator System Diagnostics & Health	1	2010	4	2012
Avionics & Wiring: Investigate High Value Return on Investment	1	2009	4	2015
Avionics & Wiring: Wiring Diagnostics and Prognostics	1	2010	4	2013
Avionics & Wiring: Avionics Reliability Enhancements	1	2010	1	2011
Air Vehicle: Improved Corrosion Preventative Compounds	1	2009	4	2015
Air Vehicle: Corrosion Prevention and Control	1	2009	4	2013
Air Vehicle: Advanced Methods of Structural Repair	1	2009	4	2013
Air Vehicle: Subsystem Improvement Initiatives	1	2009	4	2013
Air Vehicle: Sand & Erosion Resistance of APU Impeller	1	2010	4	2011
Air Vehicle: Non-Solvent Plasma	1	2011	4	2012
Air Vehicle: Titanium Tubing for Hydraulic Systems	1	2010	4	2011
Air Vehicle: Investigate High Value Return on Investment	1	2009	4	2015
SE Revitalization: Improved Technical Excellence of Acquisition Programs	1	2009	4	2015
NAE Corrosion Improvement: Flight Line Canopy Shelters	1	2010	4	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	Quarter	Year	Quarter	Year
NAE Corrosion Improvement: Tape and Adhesive Remover	1	2010	4	2011
NAE Corrosion Improvement: Aluminum Gearboxes	1	2010	4	2011
NAE Corrosion Improvement: Conducting Paints & Sealants	1	2010	4	2011
NAE Corrosion Improvement: Investigate High Value Return on Investment	1	2010	4	2011
Acquisition Workforce Fund	4	2009	4	2009

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1355: *Acft Engines Comp Imp Prog*	57.878	65.568	75.583	0.000	75.583	80.654	81.781	83.123	84.300	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 Engine Component Improvement Program (CIP) provides the only source of critical design and development engineering support to resolve safety, reliability and maintainability deficiencies of in-service Navy aircraft propulsion systems. The highest priority issues CIP addresses concern safety-of-flight deficiencies which account for approximately 80% of CIP efforts. The program also corrects service-revealed deficiencies, improves Operational Readiness (OR) and Reliability and Maintainability (R&M), and reduces platform Life Cycle Cost (LCC). Budgets are allocated across platform-specific teams and multi-platform product support teams based upon long term strategies to achieve safety and affordable readiness goals; the R-3 exhibit details annual portions of those long-term plans. CIP tasks have reduced the rate of in-flight aborts, safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance work hours, and overall cost of ownership. This is accomplished through the maintenance and validation of specification performance, testing to qualify engineering changes, verifying life limits, and improving the inherent reliability of the propulsion system as an integral part of Reliability Centered Maintenance (RCM) initiatives. Historically, the missions, tactics, and environmental exposure of military aircraft systems change to meet new threats or operational demands, and often result in unforeseen problems, which if not corrected, can cause critical safety/readiness degradation, such as those experienced during OPERATIONS DESERT SHIELD/DESERT STORM, ENDURING FREEDOM, and IRAQI FREEDOM due to sand erosion. In addition, new problems arise through actual fleet deployment and usage of the aircraft. System Development programs, while geared to resolve as many problems as possible before deployment, cannot duplicate actual operations or account for the vast array of environmental and usage variables, particularly when aircraft missions vary from those that the aircraft was designed to perform. Therefore, it has been found that CIP can provide an immediate engineering response to these flight-critical problems and accelerated engine testing can avoid potential problems. CIP starts after development and Navy acceptance of the first production article and addresses usage and life problems not covered by warranties. CIP addresses engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, and fuel and lubricant systems. CIP efforts continue over the system's life, gradually decreasing to a minimum level sufficient to maintain the reliability, and decrease the operating costs, of older inventory. CIP is a highly leveraged and cooperative tri-service program with Foreign Military Sales participation.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
P3, E2, C2, C130 (T56)	4.010	5.880	4.873	0.000	4.873
FY 2009 Accomplishments: New propeller shaft qualified - life improvement. Engine turbine life analysis completed - maintains current life limits. Compressor spin pit testing complete - verifies current life limits. Competed accelerated mission testing and proactively identified future reliability degraders. *FY 2010 Plans:* Conduct analytical condition inspections of high time hardware in order to identify new reliability degraders. Initiate combustor liner durability improvement redesigns. Maintain life management analysis to ensure safe operation of high time parts. Continue to investigate all service revealed deficiencies. Initiate engineering change for a new prop shaft with no life limit - improves time on wing. Qualify new compressor blade coating - improves erosion resistance and increases time on wing. Initiate C-2 engine reliability improvement study. *FY 2011 Base Plans:* Conduct analytical condition inspections of high time hardware in order to identify new reliability degraders. Qualify redesigned combustor liner. Maintain life management analysis to ensure safe operation of high time parts. Continue to investigate all service revealed deficiencies. Engineering change for new compressor blade coating. Redesigns for C-2 engine reliability improvements.					
E2/C2/C130/P3 (Props)	1.732	1.500	1.451	0.000	1.451
FY 2009 Accomplishments: NP2000 propeller blade redesign - reliability improvement. P-3 propeller failure mode risk assessment completed - new maintenance plan improves safety. E-2 propeller active balance system development kicked off - redesign offers significant reliability improvement for mission system components.					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: NP2000 rear cone analysis - ensure safe operation within current maintenance plan. NP2000 analytical condition inspection to identify new reliability degraders. Continue E-2 proprller active balance development. Conduct P-3 propeller taper bore corrosion testing - improve corrosion resistance. Develop new oil level float switch for C-130 - improve propeller reliability. *FY 2011 Base Plans:* Complete NP2000 rear cone analysis and redesign. Test and qualify E-2 propeller active balance system. Continue NP2000 analytical condition inspection to identify new reliability degraders. Initiate redesign of NP2000 rear cone.					
EA-6B (J52) *FY 2009 Accomplishments:* 4.5 bearing cage redesign to address safety of flight issue was validated by engine test. 4.5 bearing tracer element was validated in an engine test. *FY 2010 Plans:* 4.5 bearing Engineering Change Proposals will be validated and approved allowing installations of the new bearing to begin in 2010. New serviceable limits will be submitted for both turbine shafts as well as the compressor rear hub allowing the reduction of scrapped hardware. Maintenance awareness will be presented at Operational & Intermediate levels. *FY 2011 Base Plans:* Continue FY2010 plan. Maintenance awareness will be presented at Operational & Intermediate levels.	3.450	3.400	2.639	0.000	2.639
Mature Aircraft (J85)	0.877	0.890	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Afterburner No-Light Study complete, Afterburner margin test effort procedure complete, and operational line check is in process. Controls and accessories improvements - Evaluated controls and accessories at depot, produced list of desired inspections, evaluated data from inspections and Analytical Condition Inspections, and provided recommendations for maintenance/redesign. The final Engineering Change Proposal, which addresses fuel leaks by replacing seals with a different material, is being submitted for approval for the Main Fuel Control. A draft of the Engineering Change Proposal has been submitted to the Navy for review. Both of these Engineering Change Proposals address fuel leakage which is one of the high Unscheduled Engine Removal drivers for this engine. *FY 2010 Plans:* Afterburner No-Light: Plan to collect fleet data on no-light point and to check the next Functional Check Flight to see if it passes. Life Management - Plan to begin inspecting time-expired parts as part of validating part-life models.					
SH-60B/F, HH-60H, MH-60R/S (T700) *FY 2009 Accomplishments:* Completed engine hot restart stall root cause and corrective actions. Completed main gearbox material replacement trade study, release tail gear box output bevel gear cracking field mitigation to the fleet. *FY 2010 Plans:* Complete the final tail gear box output bevel gear crack propagation testing and update fleet inspection requirements, if required. Begin incorporation of T700 hot restart stall mitigation through design changes. Identify cost and readiness degraders on the T700 and H-60 drive system.	2.763	3.900	3.782	0.000	3.782

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Complete T700 hot restart stall mitigation through design changes. Begin redesign work to reduce impact of cost and readiness drivers for the engine and drive system.					
UH1N (T400) *FY 2009 Accomplishments:* Provide Build Process Efficiencies for increased reliability and cost reduction. Provide an improved Magnetic Chip Detector to address fleet failures. *FY 2010 Plans:* Provide Build Process Efficiencies for increased reliability and cost reduction. Address T400 parts obsolescence. *FY 2011 Base Plans:* Provide Build Process Efficiencies for increased reliability and cost reduction. Address T400 parts obsolescence.	1.324	0.380	0.352	0.000	0.352
AV-8B (F402) *FY 2009 Accomplishments:* Detailed design of Low Plasticity Burnishing (LPB) solution for Low Pressure Compressor (LPC) 1 blade dovetail and Low Pressure Compressor 1 disk slot. Preliminary design requirements for Low Plasticity Burnishing solution for Low Pressure Compressor 1, Low Pressure Compressor 2, Low Pressure Compressor 3 blade airfoils and Low Pressure Compressor 1 vane. Updated life management plan, preliminary vibration analysis, and establishment of engine performance tool. Execution of flight test to evaluate design changes for Low Pressure Compressor 1 blade failures.	6.334	5.500	5.013	0.000	5.013

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: ECPs (engineering change proposals) submitted for Low Pressure Compressor 1 disk slot, Low Pressure Compressor 1 blade dovetail, and Low Pressure Ccompressor 1 vane. Detailed design for Low Pressure Compressor 1, Low Pressure Compressor 2, Low Pressure Compressor 3 blade airfoil Low Plasticity Burnishing. Preliminary design effort to extend critical rotating part lives. Engineering Change Proposal submitted for EVICS (enhanced variable inlet guide vane control system) fuel leak remedy. Fuel manifold pipe redesign Engineering Change Proposal submission. *FY 2011 Base Plans:* Engineering Change Proposal submission for EVICS torque motor roll cage redesign. Engineering Change Proposal submission for Low Pressure Compressor 1, Low Pressure Compressor 2, Low Pressure Compressor 3 blade airfoil Low Plasticity Burnishing. Detailed design effort to extend critical rotating part lives.					
H-53/H-46/H-3 (T58/T64)	8.557	8.500	5.640	0.000	5.640
FY 2009 Accomplishments: H-46/H-3 (T58) Understand the benefits and limitation of Titanium Nitride by conducting a Sand ingestion/Flutter Test. H-53 (T64) Base funded programs. Completed Variable Guide Vanes (VGV) and fuel nozzle redesigns. Engineering Change proposals in work. Gas Generator Turbine (GGT) nozzle doublets effort continues. Mid sump improvement effort started. Life management analysis and Reliability Centered Maintenance (RCM) are ongoing efforts that will span all of the FYs covered by this document. *FY 2010 Plans:* H-46/H-3 (T58) Investigate Pressure Relief Valve diaphragm failures and develop corrective action. Test and possibly qualify Next Generation Coating for 1st stage compressor blades.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
H-53 (T64) Base funded programs. Improved compressor blade retention will be completed. Gas Generator Turbine nozzle doublets and mid sump improvements continue. Modernized torque sensor effort initiated. Life management analysis and Reliability Centered Maintenance efforts continue. *FY 2011 Base Plans:* H-46/H-3 (T58) Continued qualification of Next Generation Coating for 1st stage compressor blades. H-53 (T64) Mid sump improvements and modernized torque sensor effort continue. Fuel control reliability improvement program initiated. Life management analysis and Reliability Centered Maintenance efforts continue.					
F-18 C/D/E/F (F414/F404) *FY 2009 Accomplishments:* Fan Blade Dovetail Coating Improvement. Afterburner durability improvements. Compressor stall mitigation. Generator Converter Unit durability root cause identification. Fuel manifold durability improvements. *FY 2010 Plans:* Fan and High Pressure Compressor Foreign Object Damage Limit Expansion. Combustor durability improvements. Fan blade dovetail durability improvements. Component analysis for service life extension. *FY 2011 Base Plans:* Oil system improvements to address pressure cautions. Component analysis for service life extension. Full Authority Digital Electronic Control software modifications for reduced removals for engine stalls.	13.721	16.149	10.629	0.000	10.629

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
T-45 (F405)	1.666	2.500	2.198	0.000	2.198
FY 2009 Accomplishments: High Pressure Compressor stator and Low Pressure Turbine blade flight safety hazard mitigated and the initial cold section reliability improvement engineering change proposal approved. *FY 2010 Plans:* Complete cold and hot section reliability improvement design change task. *FY 2011 Base Plans:* Address top safety issues reported from fleet. Analysis and redesign components based on service revealed deficiencies.					
V-22 Propulsion	1.928	5.200	0.000	0.000	0.000
FY 2009 Accomplishments: Constant Frequency Generator-Tilt Axis Gearbox overheat investigation; Auxillary Power Unit starter testing; Full Authority Digital Electronic Control Hardware-in-the-Loop test bench development; Lower nacelle (engine/eaps/nacelle blower/Infra Red suppressor) optimization study. *FY 2010 Plans:* Constant Frequency Generator design modifications to eliminate safety of flight issue; Nacelle blower modifications to eliminate safety of flight issues; Drive system and electrical power system lead-the-fleet testing; Proprotor gearbox fatique life improvement; Continue to address emergent safety of flight issued.					
Multi-Platform Product Support Teams	11.516	11.769	12.006	0.000	12.006
FY 2009 Accomplishments: Projects provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
simulation, diagnostics, engine reliability assessment, and structural integrity; improve products and processes for fuels, lubricants, and refueling equipment; and improve electrical system product support, wiring, and battery systems. Includes funding for Government Furnished Equipment fuel provided in support of engine developmental and qualification testing. *FY 2010 Plans:* Projects to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improve products and processes for fuels, lubricants, and refueling equipment; and improve electrical system product support, wiring, and battery systems. Includes funding for Government Furnished Equipment fuel provided in support of engine developmental and qualification testing. *FY 2011 Base Plans:* Continue FY2010 Plan.					
F-35 (JSF) (F135) *FY 2011 Base Plans:* Begin accelerated mission testing of the F135 engine as a lead-the-fleet test program. This program requires dedicated test assets be procured or refurbished as well as significant test cell run time to ensure flight safety and optimized readiness as the Marine Corps short take off/vertical landing (STOVL) aircraft enter service in 2012. Component level work will also begin in order to extend life limits of parts that are critical to extended time on wing and reduce cost of ownership.	0.000	0.000	27.000	0.000	27.000
Accomplishments/Planned Programs Subtotals	57.878	65.568	75.583	0.000	75.583

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

This is a NON-ACAT program. Procurement strategy is determined by market survey and cooperative opportunities.

E. Performance Metrics

The Component Improvement Program (CIP) will support engineering design and development efforts for 100% of the safety of flight issues on in-service propulsion & power systems covered under the program. In FY10, this equates to more than 200 individual Engineering Project Descriptions (EPDs). CIP will also address reliability and maintainability deficiencies equating to at least another 150 individual EPDs. Similar projects have increased the aggregate engine reliability across the USN/ USMC fleet, as measured by the mean flight hours between engine removals, by 40% over the past six years.

Program execution will be actively managed on 100% of the projects via contractor earned value data and overall obligation and expenditure rates as reflected in NAVY ERP. Data will be analyzed and measured against OSD/FMB benchmarks on a monthly basis.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng F110 Engine Program	SS/CPAF	GE OHIO	17.992	0.000		0.000		0.000		0.000	0.000	17.992	17.992
Sys Eng F402 Engine Program	WR	NAWCAD PAX RIVER, MD	6.741	1.705	Oct 2009	1.490	Oct 2010	0.000		1.490	Continuing	Continuing	Continuing
Sys Eng F402 Engine Program	SS/CPFF	ROLLS ROYCE UK	48.073	3.795	Dec 2009	3.318	Dec 2010	0.000		3.318	0.000	55.186	55.186
Sys Eng T58/T64 Engine Program	SS/CPFF	GE MASS	66.703	5.270	Oct 2009	2.508	Oct 2010	0.000		2.508	0.000	74.481	76.581
Sys Eng T58/T64 Engine Program	WR	NAWCAD PAX RIVER, MD	18.441	3.230	Oct 2009	2.824	Oct 2010	0.000		2.824	Continuing	Continuing	Continuing
Sys Eng J52 Engine Program	SS/CPFF	P&W FLORIDA	34.527	1.836	Oct 2009	1.605	Oct 2010	0.000		1.605	0.000	37.968	37.968
Sys Eng J52 Engine Program	WR	NAWCAD PAX RIVER, MD	8.381	1.564	Oct 2009	1.367	Oct 2010	0.000		1.367	Continuing	Continuing	Continuing
Sys Eng T56 Engine Program	SS/CPFF	ROLLS ROYCE IN	27.596	4.116	Feb 2010	3.599	Feb 2011	0.000		3.599	0.000	35.311	35.311
Sys Eng T56 Engine Program	WR	NAWCAD PAX RIVER, MD	21.054	1.764	Oct 2009	1.542	Oct 2010	0.000		1.542	Continuing	Continuing	Continuing
Sys Eng F405 Engine Program	SS/CPFF	ROLLS ROYCE UK	23.082	1.457	Dec 2009	1.274	Dec 2010	0.000		1.274	0.000	25.813	25.813
Sys Eng F405 Engine Program	WR	NAWCAD PAX RIVER, MD	0.767	1.043	Oct 2009	0.912	Oct 2010	0.000		0.912	Continuing	Continuing	Continuing
Sys Eng F414/F404 Engine Program	SS/CPFF	GE MASS	69.211	12.071	Dec 2009	8.476	Dec 2010	0.000		8.476	0.000	89.758	92.131
	WR	NAWCAD	6.324	4.078	Oct 2009	3.566	Oct 2010	0.000		3.566	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng F414/F404 Engine Program		PAX RIVER, MD											
Sys Eng T700 Engine Program	SS/CPFF	GE MASS	19.131	2.730	Jan 2010	2.388	Jan 2011	0.000		2.388	0.000	24.249	24.249
Sys Eng T700 Engine Program	WR	NAWCAD PAX RIVER, MD	8.248	1.170	Oct 2009	1.022	Oct 2010	0.000		1.022	Continuing	Continuing	Continuing
Sys Eng TF34 Engine Program	WR	NAWCAD PAX RIVER, MD	0.338	0.000		0.000		0.000		0.000	0.000	0.338	0.338
Sys Eng TF34 Engine Program	SS/CPFF	GE OHIO	7.845	0.000		0.000		0.000		0.000	0.000	7.845	7.845
Sys Eng V-22 Propulsion Program	SS/CPFF	BELL BOEING TX	3.528	3.400	Dec 2009	0.000		0.000		0.000	0.000	6.928	6.928
Sys Eng V-22 Propulsion Program	WR	NAWCAD PAX RIVER, MD	0.000	1.800	Oct 2009	0.000		0.000		0.000	0.000	1.800	1.800
Sys Eng T400 Engine Program	SS/CPFF	P&W FLORIDA	4.498	0.380	Dec 2009	0.332	Dec 2010	0.000		0.332	0.000	5.210	5.210
Sys Eng T400 Engine Program	WR	NAWCAD PAX RIVER, MD	0.737	0.000		0.000		0.000		0.000	0.000	0.737	0.737
Sys Eng J85 Engine Program	SS/CPFF	GE OHIO	4.494	0.401	Nov 2009	0.000		0.000		0.000	0.000	4.895	4.895
Sys Eng J85 Engine Program	WR	NAWCAD PAX RIVER, MD	0.478	0.489	Oct 2009	0.000		0.000		0.000	0.000	0.967	0.967
Sys Eng F100 Engine Program	WR	NAWCAD PAX RIVER, MD	0.200	0.000		0.000		0.000		0.000	0.000	0.200	0.200
Sys Eng Props Program	SS/CPFF		10.926	1.500	Dec 2009	1.313	Dec 2010	0.000		1.313	0.000	13.739	13.739

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		HAM SUNSTRAND CON											
Sys Eng Lab Fld Activity-1.0 or more	WR	NAWCAD PAX RIVER, MD	170.089	9.537	Oct 2009	9.046	Oct 2010	0.000		9.046	Continuing	Continuing	Continuing
Sys Eng F135 Engine Program	SS/CPFF	P&W CON	0.000	0.000	Oct 2009	27.000	Oct 2010	0.000		27.000	Continuing	Continuing	Continuing
GFE*	Reqn	DES/DLA Various	8.103	1.500	Oct 2009	1.310	Oct 2010	0.000		1.310	Continuing	Continuing	Continuing
Award Fees	C/CPAF	Various Various	1.305	0.000		0.000		0.000		0.000	0.000	1.305	1.305
Sys Eng Other In-House Spt	Various/ Various	Various Various	18.928	0.315	Oct 2009	0.274	Oct 2010	0.000		0.274	Continuing	Continuing	Continuing
Sys Eng Contracts under 1.0M	Various/ Various	Various Various	16.114	0.000		0.000		0.000		0.000	0.000	16.114	16.114
		Subtotal	623.854	65.151		75.166		0.000		75.166			

Remarks

GFE includes expected cost of fuel necessary to support engine development and qualification testing.
Total may be off due to rounding.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various/ TBD	Various Various	7.009	0.307	Dec 2009	0.307	Dec 2010	0.000		0.307	Continuing	Continuing	Continuing
		Subtotal	7.009	0.307		0.307		0.000		0.307			

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	Various/ TBD	Various Various	3.173	0.053	Dec 2009	0.053	Dec 2010	0.000		0.053	Continuing	Continuing	Continuing
		Subtotal	3.173	0.053		0.053		0.000		0.053			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Mgmt Support	Various/ Various	Various Various	1.447	0.000	Dec 2009	0.000		0.000		0.000	0.000	1.447	1.559
Travel	Various/ Various	NAVAIR PAX RIVER, MD	0.488	0.057	Oct 2009	0.057	Oct 2010	0.000		0.057	Continuing	Continuing	Continuing
		Subtotal	1.935	0.057		0.057		0.000		0.057			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	635.971	65.568		75.583		0.000		75.583			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3190: *Multi-Purpose Bomb Racks*	9.510	22.329	20.023	0.000	20.023	25.854	16.951	18.004	15.541	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

3190- Multi-Purpose Bomb Racks (MPBR): The MPBR will replace the BRU-41 / 42 / 33 / 55 for the F/A-18E/F platform and provide for the carriage and release of both tactical and training stores on one common rack.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MULTI-PURPOSE BOMB RACK(MPBR) DEV.	8.056	15.440	12.904	0.000	12.904

The MPBR funding develops a bomb rack to replace the BRU-41 / 42 / 33 / 55 for the F/A-18E/F. The vendors effort will be required not only in rack development, but also in a support role throughout the integration effort.

FY 2009 Accomplishments:

FY 09 : Completed MPBR requirements documentation and source selection. Commenced design and development of the MPBR.

FY 2010 Plans:

FY10 : Continue MPBR design and development and conduct vendor wind tunnel testing and analysis.

FY 2011 Base Plans:

FY11 Base : Begin rack MPBR prototype development and fabrication after electrical and mechanical designs are complete. Once integration assets are available the design and/or modification of

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Support Equipment (SE) will occur. This effort will occur at both the rack and at the system/platform level.					
MULTI-PURPOSE BOMB RACK SOFTWARE DEV. The MPBR funding will be used to develop the aircraft software required to interface the bomb rack and the stores it will carry with the aircraft. This interface is essential to the safe carriage and successful stores release. *FY 2009 Accomplishments:* FY09 : Identified MPBR platform software requirements definition and coding. *FY 2010 Plans:* FY10 : Continue MPBR refinement of the rack and platform software requirements. *FY 2011 Base Plans:* FY11 Base : Provide MPBR software to test activities to identify deficiencies and make corrections as required. Additional coding will be performed as expanded stores integration occurs.	1.454	4.102	4.022	0.000	4.022
MULTI-PURPOSE BOMB RACK TESTING The MPBR testing will include ground (aircraft and test stand) and flight integration testing. These efforts will begin prior to delivery and will occur throughout the EMD efforts of this rack. They will begin with prototype design coordination, initial test planning and will progress to ground and flight test events. *FY 2010 Plans:* FY 10 : Coordinate MPBR design concept and test planning with rack vendor and begin subcomponent testing.	0.000	2.787	3.097	0.000	3.097

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 11 Base : Perform MPBR initial test planning for ground rack testing with a build-up toward first flight testing.					
Accomplishments/Planned Programs Subtotals	9.510	22.329	20.023	0.000	20.023

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN-7/072000: *War Consumables*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.700	19.900	315.900	357.500

D. Acquisition Strategy

The design and development of the MPBR will be a Cost Plus Incentive Fee (CPIF) competitive contract. The aircraft software integration will be done by the F/A-18 Advanced Weapons Laboratory at NAWC WD China Lake and through a Cost Type contract with Boeing awarded through China Lake CA.

E. Performance Metrics

Successfully complete milestones: System Functional Review (SFR), Preliminary Design Review (PDR), and Critical Design Review (CDR).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPIF	Various Various	5.415	11.207	Jan 2010	11.442	Mar 2011	0.000		11.442	13.985	42.049	42.049
		Subtotal	5.415	11.207		11.442		0.000		11.442	13.985	42.049	42.049

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NAWCAD LAKEHURST, NJ	0.000	0.000		0.000		0.000		0.000	2.700	2.700	Continuing
Software Developoment	WR	NAWCWD CHINA LAKE, CA	1.454	4.102	Mar 2010	4.022	Mar 2011	0.000		4.022	19.015	28.593	Continuing
		Subtotal	1.454	4.102		4.022		0.000		4.022	21.715	31.293	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	NAWC AD PATUXENTRIVER, MD	0.000	0.204	Dec 2009	0.414	Oct 2010	0.000		0.414	31.688	32.306	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR NORFOLK, VA	0.000	0.000		0.000		0.000		0.000	2.676	2.676	Continuing
Wind Tunnel Testing	Various/ TBD	TBD TBD	0.000	2.583	Sep 2010	1.015	Dec 2010	0.000		1.015	0.000	3.598	Continuing
		Subtotal	0.000	2.787		1.429		0.000		1.429	34.364	38.580	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	SS/TBD	SAIC SAN DIEGO, CA	0.376	0.500	Mar 2010	0.500	Nov 2010	0.000		0.500	2.059	3.435	3.435
Government Engineering Support	WR	NAWCAD PATUXENT RIVER, MD	2.004	0.893	Mar 2010	0.750	Nov 2010	0.000		0.750	4.155	7.802	Continuing
Government Engineering Support	WR	NAWCWD CHINA LAKE, CA	1.945	2.000	Feb 2010	1.000	Nov 2010	0.000		1.000	4.373	9.318	Continuing
	WR	NAWCAD	1.439	0.640	Jan 2010	0.680	Nov 2010	0.000		0.680	1.814	4.573	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 3190: *Multi-Purpose Bomb Racks*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support		PATUXENT RIVER, MD											
Travel	Various/ Various	NAVAUR PATUXENT RIVER MD	0.200	0.200	Oct 2009	0.200	Oct 2010	0.000		0.200	0.900	1.500	Continuing
		Subtotal	5.964	4.233		3.130		0.000		3.130	13.301	26.628	3.435

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.833	22.329		20.023		0.000		20.023	83.365	138.550	45.484

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205633N: *Aviation Improvements*	**PROJECT** 3190: *Multi-Purpose Bomb Racks*

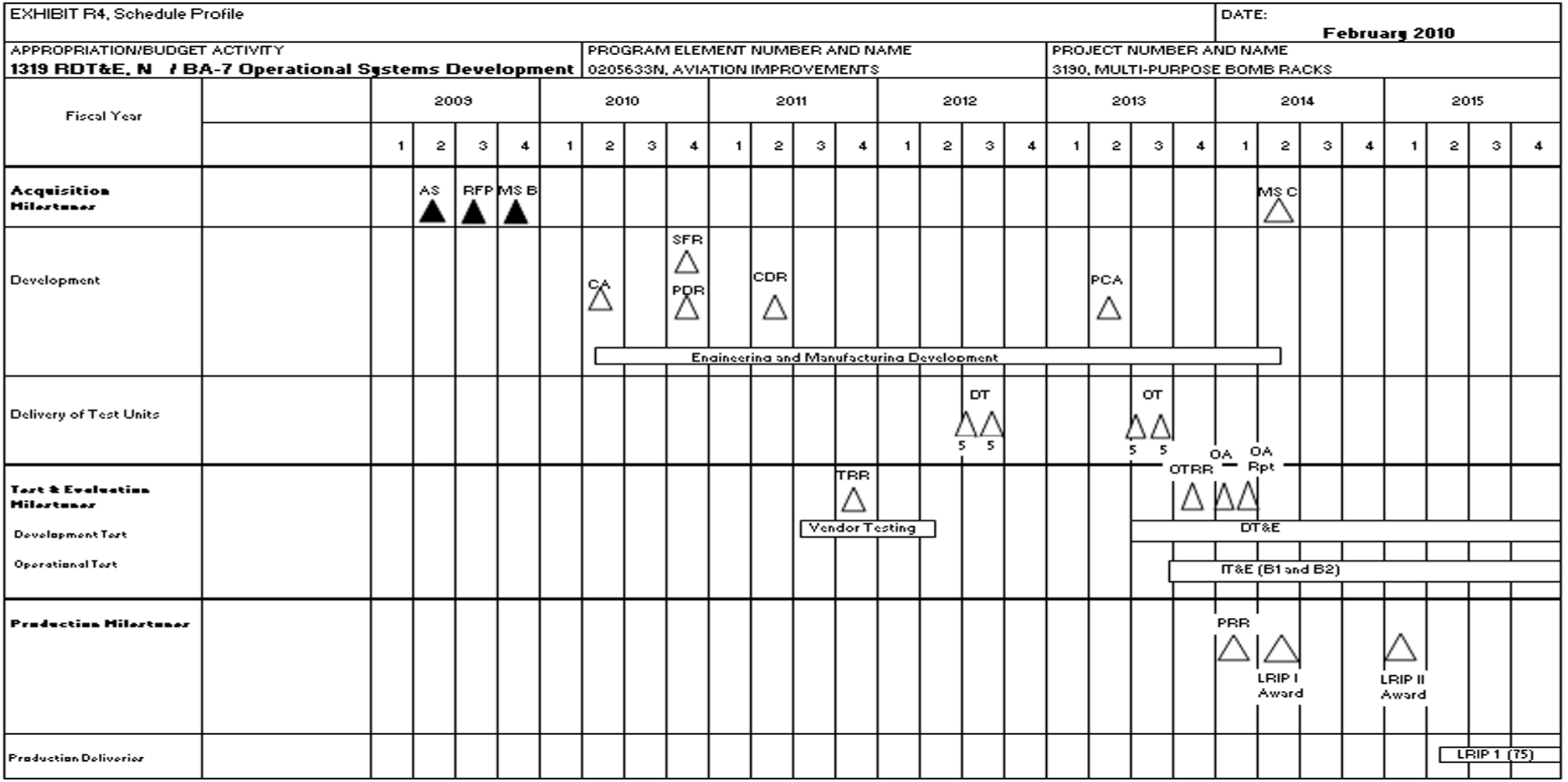

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205633N: *Aviation Improvements*	**PROJECT** 3190: *Multi-Purpose Bomb Racks*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Strategy (AS)	2	2009	2	2009
Request For Proposal (RFP)	3	2009	3	2009
Milestone B	4	2009	4	2009
Contract Award	2	2010	2	2010
Development Phase - EMD	2	2010	2	2014
System Functional Review	4	2010	4	2010
Preliminary Design Review (PDR)	4	2010	4	2010
Critical Design Review (CDR)	2	2011	2	2011
Vendor Testing	3	2011	2	2012
Test Readiness Review (TRR)	4	2011	4	2011
Delivery of Test Assets (DT)	3	2012	3	2012
Developmental Test and Evaluation	3	2013	4	2015
Delivery of Test Assets (OT)	3	2013	3	2013
Integrated Test and Evaluation (IT&E)	4	2013	4	2015
Physical Configuration Audit (PCA)	2	2013	2	2013
Operational Test Readiness Review (OTRR)	4	2013	4	2013
Operational Assessment	1	2014	1	2014
OA Report	1	2014	1	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 3190: *Multi-Purpose Bomb Racks*

	Start		End	
Event	Quarter	Year	Quarter	Year
Production Readiness Review	1	2014	1	2014
Milestone C (MS C) / LRIP Decision	2	2014	2	2014
LRIP 1 Award	2	2014	2	2014
LRIP 2 Award	1	2015	1	2015
LRIP 1 Delivery	2	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	12.326	11.791	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	73.430
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Add

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Highly Conductive Lightweight Aircraft Sealant *FY 2010 Plans:* Resolve the viscosity versus conductivity stalemate. Find ways to adjust viscosity or conductivity without adversely impacting the other. Resolve corrosion issues. Optimize processing and application methods.	0.000	0.956
Congressional Add: Laser Peening for P-3 Life Extension *FY 2010 Plans:* Funding will support technology development of processes to increase life expectancy of components, starting with the United States Navy's P-3 Orion fleet, thereby reducing maintenance costs and improving safety and reliability.	0.000	1.275
Congressional Add: ARC FAULT CIRCUIT BREAKER WITH ARC LOCATION SYSTEM	0.997	0.797

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: Created inversion algorithm software to locate arc faults at distances closer than 10 feet. Performed blind/functional test. *FY 2010 Plans:* Continue FY09 efforts.		
Congressional Add: F/A 18 AVIONICS GROUND SUPPORT SYSTEM *FY 2009 Accomplishments:* Supports the F/A 18 Avionics Ground Support System.	2.393	0.000
Congressional Add: ROTOR BLADE PROTECTION *FY 2009 Accomplishments:* Characterized sand particles, flow fields, and commercially available polyurethanes. Initiated modeling of erosion mechanisms.	0.798	0.000
Congressional Add: Sacrificial Film Laminates For Navy Helicopter Win *FY 2009 Accomplishments:* Improved total light transmission. Improved hard-coat layer of the film with respect to aging. Improved humidity performance. Increased ease of successful installation.	0.957	0.000
Congressional Add: WIRELESS SENSORS FOR NAVY AIRCRAFT *FY 2009 Accomplishments:* Demonstrated critical elements in laboratory setting.	2.394	2.390

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2010 Plans: Proceed to limited system-level demonstration if full flight test is successful.		
Congressional Add: LIGHTWEIGHT COMPOSITE STRUCTURE DEV FOR AEROSPACE *FY 2009 Accomplishments:* Completed test plan and test panel manufacture. Panels were delivered. Manufactured component to demonstrate CH-53K cargo ramp. *FY 2010 Plans:* Continue FY09 efforts.	0.798	2.390
Congressional Add: RAPID REPAIR UV CURABLE STRUCTURAL ADHESIVES *FY 2009 Accomplishments:* Developed resin and repair procedures. Prepared samples for dielectric and mechanical tests.	2.393	0.000
Congressional Add: Vet-Biz Initiative for National Sustainment (VINS- *FY 2009 Accomplishments:* Developed operational plan. Formed government team. Initiated pilot program for initial parts run-through and process prototyping. *FY 2010 Plans:* Continue FY09 efforts.	1.596	3.983
Congressional Adds Subtotals	12.326	11.791

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205633N: *Aviation Improvements*	PROJECT 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds

E. Performance Metrics

Not required for Congressional Adds

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	6.152	3.701	3.535	0.000	3.535	3.605	3.670	3.756	3.830	Continuing	Continuing
0834: *LAB Fit Support*	6.152	3.701	3.535	0.000	3.535	3.605	3.670	3.756	3.830	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Naval Science Advisor Program ensures the Fleet/Force (F/F) helps shape the Department of the Navy (DoN) investment in Science and Technology (S&T), develops teaming relationships to rapidly demonstrate and transition technology, supports development of technology-based capability options for naval forces, and enables warfighting innovations based on technical and conceptual possibilities. This is accomplished through proactive connectivity and collaboration between DoN S&T and Joint, Navy, and Marine Corps commands worldwide. The program accomplishes this through several methods. It provides Science Advisors to Joint, Navy, and Marine Corps operational and strategic planning commands. Science Advisors facilitate and disseminate Joint Capabilities Integration and Development System (JCIDS) requirements provided by the F/F Commanders to the Director of Navy Test and Evaluation and Technology Requirements (OPNAV N091). Science Advisors collaborate with the F/F to identify specific solutions to known operational capability needs and provide the means to develop and demonstrate prototype systems. As a result, Science Advisors provide insight into issues associated with Naval Warfighting Capabilities that influence S&T program decision making. The program develops leaders among civilian scientists and engineers in the Naval Research Enterprise (NRE). Upon completion of their tours, Science Advisors return to the NRE with first hand knowledge of the F/F, warfighting issues, and strategic decision making. The Office of Naval Research (ONR) Science Advisor program enables continuous communication and collaboration between the warfighters, the technical community, and strategic development commands.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205658N: *Navy Science Assistance Progr*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	3.609	3.716	0.000	0.000	0.000
Current President's Budget	6.152	3.701	3.535	0.000	3.535
Total Adjustments	2.543	-0.015	3.535	0.000	3.535
• Congressional General Reductions		-0.015			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	2.543	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	3.535	0.000	3.535

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0834: *LAB Fit Support*	6.152	3.701	3.535	0.000	3.535	3.605	3.670	3.756	3.830	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Naval Science Advisor Program ensures the F/F helps shape the DoN investment in S&T, develops teaming relationships to rapidly demonstrate and transition technology, supports development of technology-based capability options for naval forces, and enables warfighting innovations based on technical and conceptual possibilities. This is accomplished through proactive connectivity and collaboration between DoN S&T and Joint, Navy, and Marine Corps commands worldwide. The program accomplishes this through several methods. It provides Science Advisors to Joint, Navy, and Marine Corps operational and strategic planning commands. Science Advisors facilitate and disseminate JCIDS requirements provided by the F/F Commanders to the OPNAV N091. Science Advisors collaborate with the F/F to identify specific solutions to known operational capability needs and provide the means to develop and demonstrate prototype systems. As a result, Science Advisors provide insight into issues associated with Naval Warfighting Capabilities that influence S&T program decision making. The program develops leaders among civilian scientists and engineers in the NRE. Upon completion of their tours, Science Advisors return to the NRE with first hand knowledge of the F/F, warfighting issues, and strategic decision making. The Office of Naval Research (ONR) Science Advisor program enables continuous communication and collaboration between the warfighters, the technical community, and strategic development commands.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NAVAL SCIENCE ADVISOR PROGRAM	6.152	3.701	3.535	0.000	3.535
FY 2009 Accomplishments: The Science Advisors are a conduit between the F/F, ONR and the NRE. Specific Fleet Accomplishments were: - Science Advisor, Commander Seventh Fleet (COMSEVENTHFLT) (C7F), continued engagement with the NRE as follows: briefed senior level audiences, participated in discussions on relevant technology and S&T gaps in the areas of Information Operations (IO), Electronic Warfare (EW),					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Computer Network Operations (CNO), Information Analysis & Communications, Survivability & Self Defense, Strike, and Anti-Submarine Warfare in the context of the Navy's 13 S&T Focus Areas and Sea Power 21 Pillars. Initiated projects, solicited and received over $3M in project funds for the following efforts: Office of the Secretary of Defense Research Development Test & Evaluation (RDT&E) sponsored Project DogStar, a Command and Control and Combat Support (C2/CS) Protection effort for the Command & Control of Cyberspace fusing NetOps, Intel, and CNO. ONR TechSolutions sponsored EW Toolkit using Google Earth Commercial Off the Shelf (COTS) technology as applied to Tactical EW. Deputy Chief of Naval Operations for Communications Networks (OPNAV N6) sponsored Low Bandwidth Pilot to provide a proof of concept capability for Knowledge Management system replication between ship and shore. Technology and experiment prioritization were also staffed and provided to higher headquarters for Future Naval Capabilities (FNC), Rapid Technology Transitions (RTT), and Joint Capability Technology Demonstrations (JCTD). - Science Advisor, Commander United States Fleet Forces Command (CUSFFC), facilitated integration and articulation of fleet warfighter and readiness requirements influencing Naval and Department of Defense RDT&E resourcing as follows: Led team from Operational Fleets, Force Providers and Naval Component Commands in articulation of fleet requirements to S&T community. Managed prioritization of proposed technical capabilities including FNC Program, RTT Program, Rapid Development and Deployment Program supporting Navy Urgent Operational needs, and Joint Concept Technology Demonstrator. Programs were prioritized in accordance with overarching Defense, Naval, and Fleet guidance (Combatant Command Integrated Priority List, Naval Strategic Plan, Warfighter Capability Plan, Integrated Capability Plan, etc.) and supported United States Fleet Forces (USFF) Flag Officer/Senior Executive Service (SES) voting member. - Science Advisor, Commander U. S. Naval Forces Central Command (COMUSNAVCENT), developed, prioritized, and socialized COMUSNAVCENT Technology gaps based on prioritized threat with Chief of Naval Operations (CNO), OSD, National Reconnaissance Office (NRO), National Maritime Intelligence Center (NMIC), Naval Sea Systems Command (NAVSEA) and ONR. Developed					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
and issued unclassified common operational picture Urgent Operational Need Statement (UONs) for Commander Task Force (CTF) 151- counters piracy efforts. Provided oversight to three previously issued UONs: 1) Counter surveillance; 2) Non Lethal Weapons; and 3) Counter Swarm. Coordinated with NAVCENT Force Protection, Naval Support Activity Security and Fleet Anti-Terrorism Security Team (FAST) company Marines to provide independent operational evaluation of counter surveillance technologies. Demonstrated 3D line of sight software tools to the National Geospatial Imagery Analysts and Naval Criminal Investigative Service (NCIS) agents on staff to optimize the use of these technologies. Influenced TechSolutions investments in Rapid detection of contraband in voids and spaces by the Visit, Board, Search, and Seizure (VBSS) teams. Initiated the JCTD "Darkfusion" through the ONR, the JCTD is at the Joint Requirements Oversight Council (JROC). - Science Advisor, Commander Submarine Forces (COMSUBFOR), influenced ONR investments to improve alignment with Undersea Enterprise (USE) S&T needs. FNC proposals jointly shaped, developed and advocated by ONR and USE were subsequently approved by Navy: Torpedo Fuze; Data Triage and Information Architecture for Improved Decision Making; and Adaptive Learning for Trainers. Influenced Defense Advanced Research Projects Agency (DARPA) to start a Laser-based Submarine Communications Program. Initiated first-ever USE/ONR Discovery and Invention (D&I) exchange between ONR and NRE. - Science Advisor, Commander Naval Surface Forces (SURFOR). Elevated Surface input for Improved Affordable Watertight Doors; evaluation and transition of an ONR/Program Executive Office Ships (PEO-SHIPS) Solid State Lighting project; Replaced Guided Missile Destroyer (DDG) Sonar fittings with quick-disconnects. Principal in Surface Ship Technology process (SURFTECH), providing the Command's perspective to the Chief Technology Officer's Team. SURFOR's advocate for Anti-Submarine Warfare (ASW) Improvement Program (ASWIP), Surface Warfare Improvement Program (SUWIP), and the Sea Trial experimentation working group. Supported commander, Naval Surface Forces for Littoral Combat Ship, Fleet requirements, and evaluation of candidate concepts of naval relevance. Managed and coordinated the Scientist at Sea Program.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Science Advisor, Commander Third Fleet (COMTHIRDFLT) (C3F), coordinated and participated in S&T cell for Valiant Shield 08 exercise. Actively participated as C3F's SeaShield pillar initiatives including ASW, Mine Warfare (MIW), Anti-Terrorism/Force Protection (AT/FP), and Ballistic Missile Group (BMG). Supported development of Joint Multi-Mission Electro Optic System (JMMES) and JCTD. Coordinated C3F Sea Trial/Sea Shield Experimentation efforts for the C3F Operational Agent. - Science Advisor, Commander SIXTH Fleet (COMSIXTHFLT) / Commander U.S. Naval Forces Europe (COMUSNAVEUR) / Commander U.S. Naval Forces Africa (COMUSNAVAF) conducted ongoing dialogs with international partners, the United States Government Interagency, and System Command (SYSCOM) principals on Maritime Domain Awareness (MDA) issues for the COMUSNAVEUR / COMUSNAVEUR operational area. These initiatives not only promote nation building but have greatly improved our Command and Control operational picture by incorporating white shipping. In addition to the Maritime Security and Safety Information System (MSSIS), other MDA tools are being incorporated to support analysis of the operational picture, including the Computer Aided Maritime Threat Evaluation System (CAMTES) which is under development. - Science Advisor, Commanding General 1st Marine Expeditionary Force (CG I MEF), assisted in the expansion of the Infantry Immersion Trainer (IIT) and the Future Infantry Training Environment (FITE) JCTD. These efforts provided small unit infantry with the sensory inputs and stresses of the battle field in coordination with the need to make sound moral, ethical, and tactical decisions. Supported Combat Hunter development and new Joint Improvised Explosive Device Defeat Organization (JIEDDO) training to provide Marine Expeditionary Brigade - Afghanistan (MEB-A) with improved forensic awareness to enable increases in actionable intelligence. Coordinated Warfighter S&T Seminars at which major supporting commands were able to interact directly with the S&T community. - Science Advisor, Chief of Naval Operations (CNO) Strategic Studies Group (SSG) fully partnered in the generation of revolutionary warfighting concepts for the Navy of the future. Organized the					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
CNO Fellows Tech Travel week and the Fall Program including: Researching and inviting lecturers to address the SSG, and oversaw and helped coordinate Mini Tech Travel for all SSG members. Engaged in the development of the 'Way Ahead Plan' which in SSG's annual research theme that is ultimately presented to CNO. Supported, and coordinated the Concept Teams in review of the various aspects and utility of unmanned vehicles systems. Participated in Plenary Sessions, CNO Executive Panel Sessions, and Concept Exploration Events. Aided in the development of the final brief and report of last year's focus topic to CNO and senior flag officer leadership and staffs throughout the Navy. Researched various topics related to unmanned systems, operations, deployment, and connectivity as presented by Admiral Hogg, the CNO Fellows, and Associate Fellows. - Science Advisor, Commander, U.S. Marine Corps Forces Command (COMMARFORCOM), continued a cohesive and close teaming relationship with ONR Global Science Advisors at I MEF, II MEF, III MEF, and Marine Forces Pacific (MARFORPAC) that coordinated United States Marine Corps (USMC) operating force's voice on S&T matters. Performed continuous communication and collaboration with United States Joint Froces Command (USJFCOM) and United States Fleet Forces Command (USFFC) capability development communities to ensure development of technology-based capabilities are optimal to support naval forces. Facilitated command prioritization of JCTD, RTT, and FNC. Performed continuing coordination with Marine Corps Combat Development Command (MCCDC) and Marine Corps Warfighting Lab (MCWL) to ensure operating force needs are represented in future naval expeditionary warfare capabilities. Reviewing USMC Urgent Needs Statement (UNS) requests for applicability to ONR S&T programs. - Science Advisor, Commander, Naval Air Forces (COMNAVAIRFOR), completed the development and installation of the North Atlantic Treaty Organization (NATO) Sea Sparrow Missile (NSSM) Electro-Optical/Infrared (EO/IR) upgrade on 2 Multi-Purpose Aircraft Carriers (CVNs), USS Dwight D. Eisenhower (CVN-69) and USS Harry S. Truman (CVN-75) for detection and identification of small boat threats to aircraft carrier strike groups. NSSM EO/IR was partially funded through ONR Code 31. Completed the design, development, and installation of the Advanced Shipboard Acoustical					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Communications System (ASACS), a program for Anti-Terrorism/Force Protection (AT/FP) close-in perimeter surveillance, hailing and warning system onboard Navy Ships. ASACS was installed on CVN-69 prior to her deployment. Completed the development and operational testing of Mobile Cleaning, Recovery, and Recycling System (MCRRS), a stand-alone CVN flight deck cleaner project (a flight deck "Zamboni") using high pressure water. MCRRS was partially funded through ONR Code 33. Initiated 4 Tech Solutions addressing: a) Tool Room Process Management Efficiencies, b) CVN Catapult Calculator to replace manual paper lookup tables, c) Powered rope ascender device to lift men and materials during maritime helicopter extractions, and d) Injection of "Training" tracks from Ship's Self Defense System to the Carrier Tactical Support Center. - Science Advisor, CNO Executive Panel (CEP), performed direct support activities to the CEP subcommittee on Environmental Stewardship and Navy's Industrial Base in Economic Downturn, including technology discussions with ONR. Performed as Principal Staff on the Piracy subcommittee, including Federal Advisory Committee Activity (FACA) requirements, integration and liaison with the following; CTF 151, OSD/International Security Affairs, OPNAV N3IPS (Information, Plans & Security), OPNAV N3N5L (International Law), State Department, ONR and various intelligence agencies. Coordinated and monitored the CEP Panel Member's mentoring of the CNO's SSG efforts for Cyberspace research (SSG XXVII) and Unmanned Systems (SSG XXVIII). - Science Advisor, Commanding General II Marine Expeditionary Force (CG II MEF)assisted 2D Marine Expeditionary Brigade (MEB) S&T Officer in researching technology enablers for upcoming deployment to Afghanistan. Developed information papers for the II MEF Forward S&T Officer to support decisions on conducting two proposed Extended User Evaluations (EUE) of systems in Iraq. Met with MARFORPAC Experimentation Center (MEC) representative to discuss the Advanced Convoy Security system known as GunPACS, which is being developed for Operation Enduring Freedom. Provided comments to Marine Special Operations Command (MARSOC) on their test plan and test results for two systems designed for clearing landmines and Improvised Explosive Devices (IEDs) in an irregular warfare environment. Served as a voting member on a Source Selection Board					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(SSB) for a DARPA program using nano-materials for desalinization and sanitization of available water. Assisted ONR and II MEF with coordination of the Operational Adaptation Developmental Test 1 (DT-1) at Camp Lejeune. Coordinated Marine units to conduct communications checks with a Combat SkySat Tactical Satellite (TACSAT) surrogate system during Exercise Trident Warrior 09 (TW09). - Science Advisor, Commander, U.S. Marine Corps, Pacific (COMMARFORPAC), worked with the operating forces and S&T community to improve joint warfighting capabilities as well as highlight S&T issues unique to the Pacific Area of Responsibility (AOR). A prototype Graphic Operations Order project, created using a Hawaii based company, that can significantly improve the timeliness and accuracy of the development of mission plans was successfully demonstrated. Significant strides were made in development of renewable energy experiments for Hawaii that will have a long term benefit in the execution of energy and water security strategies critical to operations in the Pacific region as well as enablers for the relocation of Marines from Okinawa to Guam. Executed two successful experiments to prove that new airborne and space based hyper-spectral imaging sensors can be used to accurately map critical coastal parameters required for planning amphibious operations. The algorithms and hyper-spectral data libraries developed as a result of these experiments will be available to the operating forces by the end of the year. Worked with Navy researchers, industry and acquisition commands to develop requirements for new fire suppression systems for armored vehicles. Personnel riding in armored vehicles are facing new risks from incendiary-enhanced IEDs and studies showed that fire suppression systems being installed were inadequate and themselves dangerous when activated. New technologies for fire suppression systems and protective equipment will be developed and fielded. Engaged Okinawa Marines in the S&T process to deal with issues unique to their missions in the western Pacific which resulted in the creation of a new science advisor position at the Third Marine Expeditionary Force (III MEF). - Science Advisor, Commander Pacific Fleet (COMPACFLT), improved capabilities across the Pacific Fleet AOR through rapid technology pull in various mission areas including Maritime Security					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Operations, ASW and Counter-Intelligence Surveillance Reconnaissance (ISR). Engaged S&T, Acquisition, Industry, University, Other Government Agencies and Coalition Partners to emphasize our warfighting gaps and identify possible long-term solutions and collaborative efforts. Finalized three Techsolution requests to address a critical warfighting gap associated with 1) Maritime Security Operations (MSO) to provide an Enhanced Maritime Intercept Operations (E-MIO) capability to support intelligent collection, dissemination, analysis and reachback, 2) Real-time assessment of ASW operational performance during exercises to enhance operator training and 3) threat surveillance situational awareness tool. The EMIO capability was tested during Talisman Sabre and results were transitioned into PEO Command, Control, Communications, Computers, and Intelligence (C4I's) E-MIO program of record. Acted as Operational Manager and project oversight lead at COMPACFLT for a JCTD. Worked with the Navy's S&T and Acquisition communities to identify advanced technologies for PACFLT's Maritime Operations Center (MOC) to improve our capability to Command and Control associated with Joint Task Force responsibilities. Continued Shipyard Innovation, formulated a project regarding application of Nanotechnologies for coatings and paints in an effort to reduce maintenance of shipboard equipment and possibly improve anti-fouling bottom coatings. Continued to engage leadership involved in improving ASW and Surface Warfare capabilities to support Pacific AOR wartime contingency plans. Emphasis has been in non-traditional ASW technologies, Fleet Synthetic Training and Distributed Netted Sensors for ASW and Over-the-horizon targeting and improve weapons for Surface Warfare. Naval Post Graduate School (NPGS) established significant research proposals/experiments, in support of PACFLT, focused on Cooperative Operations and Applied Science & Technologies Study (COASTS), Littoral Combat Ship (LCS) Platform Logistics support and asymmetric Ballistic Missile Defense concepts. - Science Advisor, Naval Supply Systems Command (NAVSUP) is the Research and Development manager, technology requirement and technology facilitator and Naval Research Enterprise conduit for NAVSUP. Executed two Technology Insertion Program for Savings (TIPS) funded projects, one for Modified Atmosphere Packaging System (MAPS) that will extend shelf life for Fresh Fruits and Vegetables (FFV); and the other for Retail operations management enterprise support (ROM-ES)					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
that will automate ship retail sales and inventory. Managed Navy Logistics Program (NLP) projects to include, Navy Integrated Lifecycle Product Support Center (NILPSC), National Item Identification Number (NIIN) Validation and Correction, Defense Integrated Technical Data Center (D-ITDC) and Lead Free Solder. Managed NAVSUP's Small Business Innovation Research (SBIR) program. Served as NAVSUP representative to Virtual System (VS) SYSCOM Command Systems Engineering and Corrosion Prevention and Control Working Group. Served as coordinator for NAVSUP Technical Authority Board and as manager of internal SYSCOM documentation necessary to implement Technical Authority within the command. - Science Advisor, U. S. Pacific Command (USPACOM), developed a Command-wide S&T strategy to address operational shortfalls and synchronize S&T engagement with the USPACOM Theater Campaign Plan. Established and executing multi-phase action plan to inform Service RDT&E enterprise of Command war fighting shortfalls and identify candidate mitigation capabilities via USPACOM S&T Integrated Priority List. Planned and executed S&T cell to support exercise TERMINAL FURY augmenting USPACOM personnel with representatives from National Agencies, Service Laboratories, and Defense Advanced Research Project Agency. Established tactics, techniques, and procedures to synchronize S&T discovery of mitigating capabilities to emerging shortfalls and insertion of disruptive technology into Command planning and execution cycle during crisis and contingency operations. Continued and extended cooperative technology development to build interoperability and coalition operational military capabilities with India, Singapore, and Korea. Extended and improved outreach to Japan, Australia, Malaysia, and Thailand by building cooperative relationships with Department of Defense S&T and International Cooperation activities located in each host nation. Developed plan to build Global Technology Awareness program for professional development of USPACOM staff, providing opportunity to ONR scientists for increased understanding of roles and relevance of S&T to Combatant Commands. - Science Advisor, Chief of Naval Operations Code N81 (OPNAV N81), focused on disseminating the Navy's warfighting capability/risk analysis products to the broader S&T community, resulting					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
in an improved influence of requirements pull on S&T. In addition the N81 Science Advisor led the development of a comprehensive set of warfighting capability gaps which formed the basis for the Program Objective Memorandum (POM)-12 FNC refresh. On an ongoing basis, the N81 Science Advisor synthesized products from think tanks, defense policy experts, intelligence analysts, warfighters, technologists and scientists, to frame S&T in the context of emergent warfighting capability issues, while advising N81 leadership on programmatic S&T issues of particular interest. Specific projects that the N81 Science Advisor led included getting ONR leadership directly integrated into the Navy's Strategic Planning Process, participating in the Defense Science Board Summer Study on Capability Surprise, and developing, socializing and securing funding for an innovative project that has the potential to improve how wargaming gets done. - Science Advisor, Commander Submarine Forces Pacific Fleet (COMSUBPAC) led the test efforts on Unmanned Aerial System (UAS), culminating in a successful first-ever launch of a Unmanned Aerial Vehicle (UAV) from a submerged platform. In ASW, advanced development and test efforts on the Non-Traditional Sensor System (NTSS) demonstrating unique detection capabilities against a variety of submerged platforms. Raised the visibility of UAS and NTSS efforts within COMSUBPAC, COMSUBFOR, COMPACFLT, N87, and elsewhere to secure ongoing support for future development work. Submitted one request to TechSolutions, Voice Controlled Contact Entry (VCCE) which would utilize voice recognition technology to simplify and automate contact entry, freeing manpower for other duty. Other efforts have been focused on influencing the ONR FNC and UnderSea Enterprise S&T processes to ensure COMSUBPAC priorities are understood and funded. - Science Advisor, Naval Mine and Anti-Submarine Warfare Command (NMAWC), served as a key member of the ASW and MIW Fleet Collaborative Teams which annually develop the Integrated Prioritized Capabilities List (IPCL) for the Navy's ASW and MIW capability gaps. Directly involved in developing the State of ASW and the State of MIW Reports to the CNO which provided valuable information to Navy leadership for warfighting and fiscal planning. Worked closely with ONR personnel to provide essential information for the FNC process to ensure the best technology options were					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
selected. Submitted two important technology support requests to ONR-Global TECHSOLUTIONS to solve Fleet issues that otherwise would continue to be unfunded hurting operational readiness. Represented the Fleet and NMAWC at several technical forums including LCS development, Multi-static Active coordination and planning, and critical review team meetings providing necessary perspective to ensure Fleet issues were considered in these Navy decisions. Was responsible for the Technology Assessment Board (TAB) led by NMAWC which reviewed the latest science and technology projects using Distributed Netted Systems (DNS) to determine which should receive accelerated funding to meet emerging ASW requirements. - Science Advisor, OPNAV N6 advised the Deputy Chief of Naval Operations for Communications Networks (DCNO N6) and his staff on decisions regarding critical technology issues addressed through S&T and RDT&E initiatives. Efforts focused on the development of S&T investments that increased capability and reduced costs across the Navy Information Technology (IT) Enterprise have resulted in the establishment of Enterprise IT pilots to shape the future Naval Network Environment (NNE). In conjunction with these efforts, the N6 Science Advisor worked across the Naval Network FORCENET Enterprise to develop the Navy's Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR) vision and provided the framework for future strategic, operational, and financial decisions within the NNE for the next decade and beyond. - Science Advisor, Commander, Navy Expeditionary Combat Command (COMNECC). Updated the Command top 15 S&T objectives. Continued to develop strategic partnerships with Navy Special Warfare and the USMC requirements efforts to provide common approaches to shared gaps. Supported US Southern Command in the development of the Riverine and Intercoastal Operations (RIO) JCTD to demonstrated distributed unattended sensors for NECC forces. Continued to mature the strategic planning for execution of S&T requirements including the transition of capability to the NECC forces.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Science Advisor, Commander, Naval Network Warfare Command (NNWC), led study to identify top five S&T issues for the Command (i.e., Computer Network Defense, Afloat Network Management, Persistent Intelligence, Surveillance & Reconnaissance /Fusion Correlation, Operational Level Command and Control, and Maritime Domain Awareness), participated in NNWC prioritization for FY10 FNCs proposals. Led effort to adapt Joint Test and Evaluation methods to measure non-material contributions from Naval experimentation efforts. Coordinated and led investigations into maritime requirements for space based laser communication and sensing capabilities. Acquisition Workforce Fund - - Funded DoD Acquisition Workforce Fund. *FY 2010 Plans:* Continue all efforts of FY 2009 *FY 2011 Base Plans:* Continue all efforts of FY 2010					
Accomplishments/Planned Programs Subtotals	6.152	3.701	3.535	0.000	3.535

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Goal: Provide leadership with timely S&T advice on issues.

Metric: Monthly reports by Science Advisors to the Office of Naval Research and senior leadership within

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

their assigned commands.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Science Advisors	WR	Space and Naval Warfare Systems Center (SPAWAR) San Diego, CA	2.130	2.173		2.195		0.000		2.195	Continuing	Continuing	Continuing
Science Advisors	WR	Naval Undersea Warfare Center (NUWC) Newport, RI	1.640	1.345		1.118		0.000		1.118	Continuing	Continuing	Continuing
Science Advisors	WR	Naval Research Labs Various	2.353	0.183		0.222		0.000		0.222	Continuing	Continuing	Continuing
		Subtotal	6.123	3.701		3.535		0.000		3.535			

Remarks

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce Fund	Various/ Various	Various Various	0.029	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	0.029	0.000		0.000		0.000		0.000			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks													

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.152	3.701		3.535		0.000		3.535			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0205658N: *Navy Science Assistance Progr*	PROJECT 0834: *LAB Fit Support*

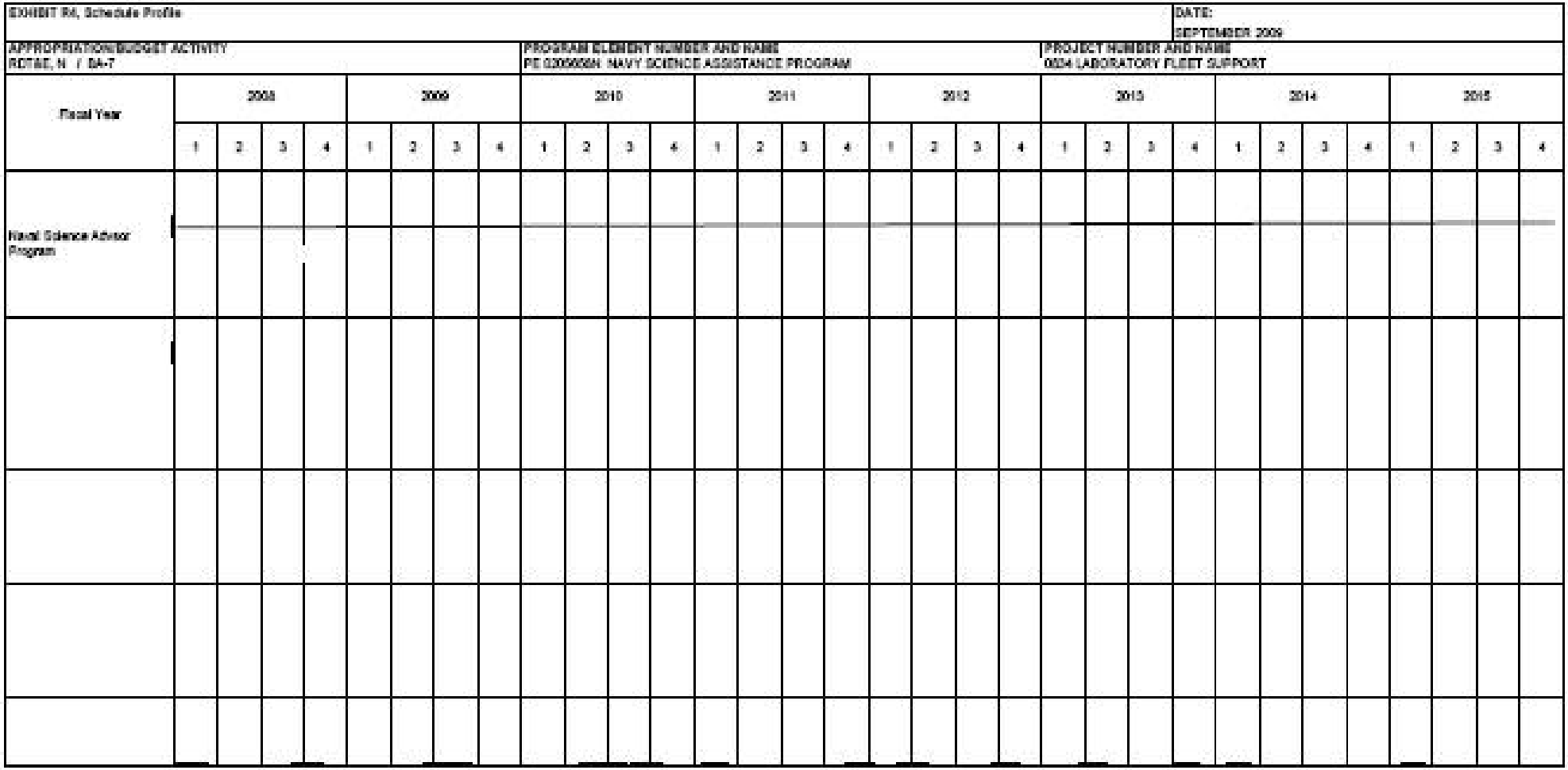

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0205658N: *Navy Science Assistance Progr*	**PROJECT** 0834: *LAB Fit Support*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Naval Science Advisor Program	1	2009	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	356.571	279.222	245.298	0.000	245.298	195.723	184.231	154.194	145.370	Continuing	Continuing
2270: *Exp Indirect Fire Gen Supt Wpn Sys*	48.136	25.666	25.747	0.000	25.747	30.410	42.625	43.097	32.520	Continuing	Continuing
2272: *Intel Command and Control (C2) Sys*	17.712	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	203.323
2273: *Air Ops Cmd & Control (C2) Sys*	47.652	66.108	68.465	0.000	68.465	52.196	38.339	42.132	41.626	Continuing	Continuing
2274: *Command & Control Warfare Sys*	6.319	11.801	19.633	0.000	19.633	14.655	14.393	15.407	17.019	Continuing	Continuing
2275: *Joint Tactical Radio System*	10.954	8.713	2.038	0.000	2.038	2.030	4.371	1.546	1.579	Continuing	Continuing
2276: *Comms Switching and Control Sys*	2.385	2.927	4.293	0.000	4.293	4.118	4.405	3.733	2.687	Continuing	Continuing
2277: *System Engineering and Integration*	7.184	6.887	5.580	0.000	5.580	8.640	8.817	8.979	9.205	Continuing	Continuing
2278: *Air Defense Weapons System*	5.700	7.715	5.938	0.000	5.938	8.212	8.432	3.443	3.558	Continuing	Continuing
2510: *MAGTF CSSE & SE*	48.221	61.806	33.538	0.000	33.538	26.696	21.368	21.657	22.230	Continuing	Continuing
3099: *Radar System*	108.928	17.566	24.893	0.000	24.893	34.317	34.344	8.216	8.834	Continuing	Continuing
9999: *Congressional Adds*	15.380	6.373	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	73.641
9C89: *Marine Ground-Air Radar*	38.000	63.660	55.173	0.000	55.173	14.449	7.137	5.984	6.112	Continuing	Continuing

Note

Ground/Air Task Oriented Radar (G/ATOR) (formerly known as the Multi-Role Radar System (MRRS) was funded under project C30999D prior to FY2010.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*

A. Mission Description and Budget Item Justification

This program element provides funding to develop the command and control (C2) support and information infrastructures for the Fleet Marine Force and supporting establishment. Doctrinally, the C2 support system and the information infrastructure form two parts of a triad of capabilities which permits command and control systems to be transformed into a complete operating system. The third element of the triad is command and control organization and is not covered in this program element. USMC command and control is divided into seven functional areas and one supporting functional area as follows: intelligence C2, fire support C2, air operations C2, radio systems C2, combat service support C2, warfare C2, radar systems C2, and C2 support (information processing and communications).

Within this program element, subprojects have been grouped by C2 functional area for more efficient planning. Air defense weapons systems have been added to facilitate planning and a separate project is used for systems assigned to the supporting establishment. Subprojects which support the commander's decision processes have been collected into the Command Post Systems project since these systems must work in close cooperation to ensure effective C2 of Marine Air Ground Task Forces.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	280.014	287.348	0.000	0.000	0.000
Current President's Budget	356.571	279.222	245.298	0.000	245.298
Total Adjustments	76.557	-8.126	245.298	0.000	245.298
• Congressional General Reductions		-1.163			
• Congressional Directed Reductions		-13.000			
• Congressional Rescissions	0.000	-0.363			
• Congressional Adds		6.400			
• Congressional Directed Transfers		0.000			
• Reprogrammings	81.984	0.000			
• SBIR/STTR Transfer	-5.427	0.000			
• Program Adjustments	0.000	0.000	245.298	0.000	245.298

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Media Exploitation Tool Integration with Intelligence C2 Systems*	0.000	1.195
Congressional Add: *BATTLEFIELD SENSOR NETTING*	2.394	2.390

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add: *PERFORMANCE ENHANCEMENTS FOR IA & IS*	6.381	0.000
Congressional Add: *Center for geospatial intelligence and investigati*	1.516	0.000
Congressional Add: *M2C2*	5.089	2.788
Congressional Add Subtotals for Project: 9999	15.380	6.373
Congressional Add Totals for all Projects	15.380	6.373

Change Summary Explanation

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2270: *Exp Indirect Fire Gen Supt Wpn Sys*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2270: *Exp Indirect Fire Gen Supt Wpn Sys*	48.136	25.666	25.747	0.000	25.747	30.410	42.625	43.097	32.520	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Systems assigned to this project are to be used by commanders and their staffs to process, fuse, and tailor information to assist decision-making and enhance situational awareness. They will integrate and share information from sources both internal and external to the Marine Air-Ground Task Force (MAGTF) to provide a shared understanding of the battle space. Maneuver Command and Control (C2) is the executive layer of decision support that retrieves and fuses information from functional areas. It provides an integrated representation of the battle space or a specific area of concern. The subprojects below develop systems that report unit status and location to the Tactical Combat Operations (TCO) System, and disseminate maneuver information throughout the battle space.

A. Mission Description and Budget Item Justification

Advanced Field Artillery Tactical Data System (AFATDS) - Consists of fire support Command and Control C2 software fielded on Marine Corps common hardware. AFATDS provides the MAGTF with the ability to rapidly integrate all supporting arms assets into maneuver plans via a digital link utilizing currently fielded communications equipment. AFATDS automates the fire planning, tactical fire direction, and fire support coordination required to support maneuvers from the sea and subsequent operations ashore. The AFATDS program includes AFATDS software and hardware, the Effects Management Tool (EMT) (a C2PC injector), the Back-up Computer System (BUCS), and the Battery Mobile Tactical Shelter (MTS).

Command and Control Personal Computer (C2PC) - C2PC is the core client and gateway for the Joint Tactical Common Operating Picture Workstation. It is the authoritative data source for the ground common operating picture within the Marine Air Ground Task Force (MAGTF).

Tactical Command Operations System (TCO) - TCO is the principle tool within the Marine Air Ground Task Force (MAGTF) for situational awareness through distribution of the Common Tactical Picture (CTP). It supports tactical operations providing information via high speed computer systems in a timely manner and includes the Intel Operations Workstations/Servers. R&D funds provide science and technology advanced concepts to be applied to the system for an increase in functional capabilities to the warfighter.

Tactical Locator Designation and Handoff System (TLDHS) - Hand-Off System - Provides the ability for Forward Observers (FOs) and Forward Air Controllers (FACs) to: observe their area of interest, quickly and accurately locate ground targets, receive and display Blue Force Situational Awareness information and Fire Support

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2270: *Exp Indirect Fire Gen Supt Wpn Sys*

Coordination Measures (FSCMs) on map displays interfaced with C2PC. TLDHS can digitally request and provide digital terminal control for target engagements by field artillery (FA) through AFATDS, close air support (CAS) aircraft, and naval surface fire support (NSFS), and the machine-to-machine interface of the system reduces the potential for fratricide due to human error and by displaying friendly positions and target locations to the terminal controller. TLDHS Block II also provides the capability to designate targets for laser-guided munitions and laser spot trackers. TLDHS Block II is comprised of and integrates two major subsystems: the Targeting Subsystem and the Target Hand-Off Subsystem. USMC Milestone C for TLDHS Block II was June 2005 and Fielding and Full rate Production Decisions were October 2006. Fluctuations of R&D across the FYDP are due to the nature of a spiral development approach.

Marine Air Ground Task Force (MAGTF) Command and Control (C2) Systems Applications - MAGTF C2 SA merges the development, integration and testing of 45 existing C2 systems and applications into one common enterprise capability. They reside in all Combat Operations Centers (COCs) and related USMC C2 platforms. This effort provides greater economies of scale/affordability with system developers, technical design agents, integration agents and individual program offices. MAGTF C2 SA efforts are in alignment with MCCDC's requirements for: Net-Centric systems, Service Oriented Architecture, Open Architecture components, Maximize C2 capabilities, Enhance the war-fighter's Situational Awareness, Increase/Maximize the Commander's decision space.

Joint Battle Command - Platform (JBC-P) - will provide a single integrated Joint Blue Force Situational Awareness (JBFSA) capability solution for C2, Position Location Information (PLI), Mapping, Messaging, Overlays, and Routes, as required by Joint Requirements Oversight Council Memoranda 163-04, and 161-03. JBC-P will replace, DDACT, MRC, and BFT family of systems.

Blue Force Situational Awareness (BFSA) - is the Marine Corps' Situational Awareness family of systems comprised of the Mounted and Dismounted variants of terrestrial (EPLRS/SINCGARS) systems, and the mounted celestial (SATCOM) system.

Data Automated Communications Terminal (DACT) (BFSA) - is the Marine Corps' Blue Force Tracking Program of Record. It is the primary source of all tactical ground tracks below the Marine battalion, and is the primary provider of Position Location Information (PLI) into the Combat Operations Center (COC) and to Joint forces viewing the Common Operational Picture (COP). DACT is one tool in the Joint Combat ID toolbox that the Marine Commander uses to reduce the potential for fratricide.

The Mounted Refresh Computer (MRC) (BFSA) - MRC is the replacement for the Mounted DACT and consists of a militarized central processing unit with Joint Capability Release (JCR) software integrated with various tactical vehicle platforms and communications systems through the use of a Vehicle Modification (VM) kit. It is mounted in vehicles from the battalion to the mechanized platoon (HMMWV, AAV, LAV and tanks).

The Dismounted Data Automated Communications Terminal (D-DACT) (BFSA) - The Dismounted DACT is a smaller, lighter handheld device having greater battery life, consisting of the Rugged Personal Digital Assistant (R-PDA) with Windows Command and Control CE (C2CE) software. The Dismounted DACT is intended for the dismounted user at the platoon level. Future DACT improved capabilities for replacement systems will meet stipulated Operational Requirements and OIF-derived

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Requirements to provide Blue Force Tracking and automated communications support for commander in tactical operations. New capabilities will include Non Line of Sight (NLOS) and enhanced communication paths; improved Graphic User Interface (GUI) software, a larger screen, and Selective Availability Anti-Spoofing Module (SAASM) GPS integration.

Blue Force Tracker (BFT) (BFSA) System is a satellite-based Tracking and Communication System. BFT provides the capability to identify position, track progress, and communicate with the operators of tactical vehicles. The BFT is employed at the battalion level below to provide operational commanders with USMC/Army Position Location Information within a given area of operations. It is mounted in vehicles at the Battalion level and below down to the individual vehicle (HMMWV, AAV, LAV and tanks).

Identity Dominance System (IDS) - will provide a user friendly biometric authentication technology that will be employed to deny the enemy freedom of movement within the populace and positively identify known insurgents within an Area of Responsibility (AOR). It will enable Marine Corps and host-nation security personnel to detain, apprehend or deny entry to unwanted individuals in critical areas. The capability will enhance overall Force Protection and High-Value Target Identification by providing a means to rapidly ascertain whether or not a detained individual is wanted for criminal or terrorist activity, badge local workers and support post incident investigation by allowing collected evidence to be compared to available biometrics to identify likely suspects. Specifically, these items will enable enhanced perimeter security for high-visibility events such as national elections on foreign soil; high profile dignitary meetings between U.S. military officials and host nation political and military leaders; and U.S. military demonstrations. This capability will also enable enhanced prisoner management for the efficient administration of detainees, and improve Civil Action of DoD personnel by providing a means to track payments to host-nation workers and managed local labor who support/access facilities where military/ Marines are located. Finally, this capability will enhance available intelligence by allowing "link analysis" on individuals to reveal criminal or terrorist associations not readily apparent when records are reviewed individually.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*TLDHS: Software Development, New Functionality and Sustainment	1.448	3.722	0.878	0.000	0.878
FY 2009 Accomplishments: Link16 implementation in support of Close Air Support for legacy aircraft.					
FY 2010 Plans: Commercial Joint Mapping Tool Kit (CJMTK)/ Situational Awareness Data Link (SADL) implementation					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Net Enabled Weapons (NEW) implementation					
*TLDHS: Test Development and Integration Support *FY 2009 Accomplishments:* Link16 testing *FY 2010 Plans:* Commercial Joint Mapping Tool Kit (CJMTK)/ Situational Awareness Data Link (SADL)testing *FY 2011 Base Plans:* Net Enabled Weapons (NEW) testing	0.213	0.342	0.108	0.000	0.108
*AFATDS: Development of BackUp Computer System (BUCS) & Software (SW) *FY 2009 Accomplishments:* Development of BackUp Computer System (BUCS) and Software (SW) *FY 2010 Plans:* Continuation of BUCS and SW refresh *FY 2011 Base Plans:* Continuation of BUCS and SW refresh	1.000	1.100	1.192	0.000	1.192
*AFATDS: Software Development, Testing, and Integration *FY 2009 Accomplishments:* Development of Increment I AFATDS software.	2.786	3.081	3.024	0.000	3.024

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continued development of Increment I capabilities. Incorporates new munition changes as well as Fire Planning and digital C2 interoperability upgrades. Also supports AFATDS Mobile Tactical Shelter (MTS) integration testing. -SPAWAR: SPAWAR will conduct testing on the MTS to ensure it meets the requirements of the PO. *FY 2011 Base Plans:* Development of Increment II capabilities. Supports the modification of AFATDS into application level software and will break it away from a stovepipe system.					
*AFATDS: Program Management, Engineering Support *FY 2009 Accomplishments:* Program Management and Engineering Support *FY 2010 Plans:* Continuation of Program Management and Engineering Support *FY 2011 Base Plans:* Continuation of Program Management and Engineering Support	0.587	0.311	0.321	0.000	0.321
*AFATDS: MCTSSA/MCOTEA testing new Software (SW) and Federation of Systems (FEDOS) *FY 2009 Accomplishments:* Supported Engineering User Evaulations and provided software test support. *FY 2010 Plans:* Continued Engineering User Evaulations and software test support.	0.313	0.354	0.392	0.000	0.392

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continued Engineering User Evaulations and software test support.					
*AFATDS: USMC and Joint Systems. Enhancement to EMT and C2PC interface. *FY 2009 Accomplishments:* Interoperability testing with JTCW software. These tests will ensure the application extention continues to meet the JTCW fire support needs as the Army migrates away from the software. *FY 2010 Plans:* Continued interoperability testing with JTCW software. *FY 2011 Base Plans:* Continued interoperability testing with JTCW software.	0.300	0.304	0.308	0.000	0.308
*C2PC: Engineer Change Proposals *FY 2009 Accomplishments:* Engineer Change Proposals of the client and gateway	0.260	0.000	0.000	0.000	0.000
*MAGTF C2: Engineering, research, development, integration and testing support for 2010 MAGTF release *FY 2009 Accomplishments:* Primary focus in FY 09 was establishing and maintaining the MAGTF software baseline as it relates to the Combat Operations Centers (COCs), Intelligence Operations Workstation (IOW) and related USMC C2 platforms and migrating existing systems and applications. Extensive developmental work conducted on creating Service Oriented Infrastructure on which future development will be based.	36.583	4.266	2.178	0.000	2.178

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Complete developmental of Service Oriented Infrastructure, integrate legacy Tactical Data Systems, complete systems integration and conduct developmental/operational testing. *FY 2011 Base Plans:* Complete developmental of Service Oriented Infrastructure, integrate legacy Tactical Data Systems, complete systems integration and conduct developmental/operational testing.					
*MAGTF C2: Engineering, research, and software development for 2012 MAGTF capability release. *FY 2010 Plans:* Focus of effort is initiating adaptation, development and integration of entity, task and presentation services from multiple programs of record to operate with the Service Oriented Infrastructure. *FY 2011 Base Plans:* Focus of effort is initiating adaptation, development and integration of entity, task and presentation services from multiple programs of record to operate with the Service Oriented Infrastructure.	0.000	5.193	5.600	0.000	5.600
*MAGTF C2: Program Support. Software engineering program support. *FY 2009 Accomplishments:* Federally Funded Research Center (FFRDC) software engineering support to provide appropriate government direction in design and development of software. *FY 2010 Plans:* Federally Funded Research Center (FFRDC) software engineering support to provide appropriate government direction in design and development of software.	0.921	0.900	0.900	0.000	0.900

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Federally Funded Research Center (FFRDC) software engineering support to provide appropriate government direction in design and development of software.					
*BFSA: Increased Capabilities *FY 2009 Accomplishments:* Supported developmental efforts for new software (JCR) training curriculum and enhance bandwidth GPS transceiver (BFT II) capability. *FY 2010 Plans:* Continuing improvements of a new satellite network and processor unit. *FY 2011 Base Plans:* Continuing improvements of a new satellite network and processor unit.	1.424	1.019	0.800	0.000	0.800
*BFSA: Software Integration. *FY 2009 Accomplishments:* URN Database integration, JCR integration on unique USMC devices,and Information Assurance activities. Also supported C2CE development and integration. *FY 2010 Plans:* Continued URN Database integration, JCR integration on unique USMC devices, and Information Assurance activities. *FY 2011 Base Plans:* Continued URN Database integration, JCR integration on unique USMC devices, and Information Assurance activities.	1.068	1.075	0.266	0.000	0.266

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*JBC-P: Software Development/Integration. *FY 2010 Plans:* Requirements identification/decomposition as well as funding a position in Huntsville, AL to serve as a liaison and integrated team member in the development of the JBC-P Core software. Federally Funded Research Center (FFRDC) software engineering support funded to provide appropriate government direction in design and development of software, Contract support funded to assist and serve as subject matter experts in this effort, as well as SPAWAR in later integration efforts. *FY 2011 Base Plans:* Requirements identification/decomposition as well as funding a position in Huntsville, AL to serve as a liaison and integrated team member in the development of the JBC-P Core software. Federally Funded Research Center (FFRDC) software engineering support funded to provide appropriate government direction in design and development of software, Contract support funded to assist and serve as subject matter experts in this effort, as well as SPAWAR in later integration efforts.	0.000	1.630	1.441	0.000	1.441
*JBC-P: Training Development. *FY 2010 Plans:* User juries and update of the existing JCR training efforts in support of the evolution to JBC-P. *FY 2011 Base Plans:* User juries and update of the existing JCR training efforts in support of the evolution to JBC-P.	0.000	0.525	0.250	0.000	0.250
*JBC-P: Developmental Test (DT)/Operational Test (OT) *FY 2011 Base Plans:* Test planning and development as well participation and evaluation of s/w and some h/w test events.	0.000	0.000	2.500	0.000	2.500
*JBC-P: System Engineering, Programmatic, and Logistics Program Support	0.000	0.000	0.476	0.000	0.476

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Support personnel and travel					
*TCO: System testing and integration to develop additional functional capabilities. Hardware upgrade solutions were researched and documented, in preparation for seamless transition to future technology and increased software capability. *FY 2010 Plans:* TCO, as a part of the USMC Global Command and Control System Family of Systems (GCCS FoS), is considered to be in sustainment during FY10. However FY10 is also considered a transition year for all the services GCCS FoS with each service planning to development enhanced Command and Control (C2) capabilities if joint funding is provided. The Marine Corps is planning on maturing the C2 Alerting Capability Module (CM) originally developed in FY09 under the Net Enabled Command Capability (NECC). This maturing will consist of backwards compatibility with the services current GCCS FoS as well as increased functionality in accordance with the JC2 CDD, formally the NECC CDD. As part of this FY10 effort, development will use advanced concepts and technologies specifically Net Centric Service Oriented Architecture (SOA). *FY 2011 Base Plans:* The Marine Corps is planning on developing Registration and Orchestration Capability Modules (CM) originally signed to and agreed upon by the Marine Corps under the Net Enabled Command Capability (NECC). This development will consist of backwards compatibility with the services current GCCS FoS as well as increased functionality in accordance with the JC2 CDD, formally the NECC CDD.	0.000	0.126	2.140	0.000	2.140
*TCO: Integrate software changes into new system and perform testing.	0.344	0.355	0.648	0.000	0.648

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Updated software that was released by the Joint Staff and DISA was successfully integrated into the TCO system and in house validation testing was completed. to work with sister USMC and Joint C2 Systems. *FY 2010 Plans:* The Marine Corps is planning on maturing the C2 Alerting Capability Module (CM) originally developed in FY09 under the Net Enabled Command Capability (NECC). As part of this FY10 effort, development will use advanced concepts and technologies specifically Net Centric Service Oriented Architecture (SOA). This development will include integration of the advanced concepts and technologies on existing, as well as possible upgraded hardware. *FY 2011 Base Plans:* The Marine Corps is planning on developing Registration and Orchestration Capability Modules (CM) originally signed to and agreed upon by the Marine Corps under the Net Enabled Command Capability (NECC). As part of this FY11 effort, development will use advanced concepts and technologies specifically Net Centric Service Oriented Architecture (SOA). This development will include integration of the advanced concepts and technologies on existing, as well as possible upgraded hardware.					
*TCO: Testing and validations of advanced concepts and technologies. *FY 2009 Accomplishments:* Formal Joint Interoperability Certification Testing (JITC) was successfully completed for both hardware and software changes/upgrades. *FY 2010 Plans:* The Marine Corps is planning on maturing the C2 Alerting Capability Module (CM) originally developed in FY09 under the Net Enabled Command Capability (NECC). This maturing will consist of backwards compatibility with the services current GCCS FoS as well as increased functionality in accordance with	0.220	0.232	0.557	0.000	0.557

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
the JC2 CDD, formally the NECC CDD. All the above with go through detailed testing, certification and accreditation before being deployed throughout the Marine Corps or the joint community. *FY 2011 Base Plans:* FY11 is also considered a transition year for all the services GCCS FoS with each service planning to development enhanced Command and Control (C2) capabilities if joint funding is provided. The Marine Corps is planning on developing Registration and Orchestration Capability Modules (CM) originally signed to and agreed upon by the Marine Corps under the Net Enabled Command Capability (NECC). All the above with go through detailed testing, certification and accreditation before being deployed throughout the Marine Corps or the joint community.					
*IDS: Concept and Technology Development Background information: On 6 July 2009, USD AT&L issued an ADM in which he emphasized the ACAT 1 - Special Interest designation for all DoD biometrics activities. The USD AT&L also tasked the Army, as the DoD Executive Agent for Biometrics, to conduct an Analysis of Alternatives (AoA) for the Biometric Enterprise Capability and the Biometrics Tactical Collection Devices, as well as developing an architecture into which all services and components can fit. The Army is to return to the Office of the Secretary of Defense (OSD) Biometrics Overarching Integrated Product Team (OIPT) for a review to present the initial AoA findings and a description of the biometrics enterprise architecture no later than February 2010. Based on the results of this review, the USD AT&L will consider service recommendations for new ACAT designations, milestone point of entry and delegation of MDA responsibility.	0.000	1.057	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: The IDS acquisition process for the Marine Corps is streamlined and is based on an approach that includes relying on the Army Analysis of Alternatives(AoA) due in Feb 2010 for the majority of the market research required for a hardware platform solution, followed by additional testing, and a limited FUE to ensure system operational suitability prior to fielding. Integration efforts will focus on integrating COTS and NDI hardware, and COTS and GOTS software for a robust open system architecture, fully compliant with Common Operating Environment standards and requirements. To the maximum extent possible the Marine Corps will utilize the same procurement solution as the Army and, where necessary, evaluate and integrate COTS/NDI systems to satisfy unique USMC requirements. Future IDS upgrades will be based on commercial technology to the maximum extent possible. At this time, there is no material solution defined.					
*IDS: System Development and Testing	0.000	0.000	1.508	0.000	1.508
FY 2011 Base Plans: The IDS acquisition process for the Marine Corps is streamlined and is based on an approach that includes relying on the Army Analysis of Alternatives (AoA)due in Feb 2010 for the majority of the market research required for a Hardware platform solution, followed by additional testing, and a limited FUE to Ensure system operational suitability prior to fielding. Integration efforts will Focus on integrating COTS and NDI hardware, and COTS and GOTS software for a Robust open system architecture, fully compliant with Common Operating Environment standards and requirements. To the maximum extent possible the Marine Corps will utilize the same procurement solution as the Army and, where necessary, Evaluate and integrate COTS/NDI systems to satisfy unique USMC requirements. Future IDS upgrades will be based on commercial technology to the maximum extent					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
possible. At this time, there is no material solution defined.					
*BFSA: Test support *FY 2009 Accomplishments:* Funding supported engineering efforts for C2CE SW interoperability testing, DACT and JCR certification. Also, support went to software (JCR) developmental testing efforts. *FY 2010 Plans:* Continued engineering efforts for C2CE SW interoperability testing, DACT and JCR certification. Also, support to software (JCR) developmental testing efforts. *FY 2011 Base Plans:* JCR software operational testing efforts.	0.669	0.074	0.260	0.000	0.260
Accomplishments/Planned Programs Subtotals	48.136	25.666	25.747	0.000	25.747

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/46310001: *MCOIC*	0.548	0.336	0.343	0.000	0.343	0.352	0.361	0.371	0.382	Continuing	Continuing
• PMC/4631002: *AFATDS*	7.219	16.337	12.057	0.000	12.057	2.487	29.859	20.138	2.667	Continuing	Continuing
• PMC/4631003: *BFSA*	124.830	37.709	3.230	10.500	13.730	7.360	42.150	44.830	24.397	Continuing	Continuing
• PMC/4631004: *GCCS*	4.672	7.356	7.587	0.000	7.587	1.980	2.215	2.278	2.350	Continuing	Continuing
• PMC/4631005: *TCO*	0.843	0.772	5.881	24.381	30.262	6.175	1.972	10.331	13.019	Continuing	Continuing
• PMC/4631006: *TLDHS*	4.153	10.197	3.923	0.000	3.923	3.013	3.041	2.119	2.187	Continuing	Continuing

D. Acquisition Strategy

TLDHS: The acquisition of components (software/hardware) for the TLDHS initiative will maximize the use of existing COTS, GOTS, NDI and GFE. Software development is conducted utilizing a sole source small-business contract. Software must maintain compatibility with 5 POR and 7 Operational Flight Programs (OFP).

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AFATDS: AFATDS is a Cost Plus Award Fee contract through Army CECOM, Ft. Monmouth, NJ. R&D efforts will be a combined effort between the software developer (Raytheon), the Army PM and the USMC of software enhancements for the next planned versions of AFATDS.

TCO: Contracting is done with various vendors for software test and integration, COTS evaluation and documentation to develop advanced concepts and additional functional capabilities. The PMO conducts quarterly performance reviews. Specific hardware is also procured for test purposes which include environmental and shock testing.

MAGTF C2 SA: MAGTF C2 SA is a spiraled development of capabilities. Spiral 1 Initial Operational Capability (IOC) in 2010 has the following capabilities/attributes: Single integrated air and ground picture; full real time to near real time, and non real time data exchange; integrated fire control. Each spiral will be accepted as an integrated whole, running on the target hardware, following a contractor development test.

BFSA: These programs develop software and hardware for a family of systems that provide C2/SA and operate on both a terrestrial and celestial network. The Army (Force Battle Command XXI Brigade and Below (FBCB2)) is the lead Service for celestial devices and the lead for key interoperability software development, the Marine Corps is responsible for its devices that operate on the terrestrial network. Programs include DDACT, MRC, JCR, and the BFT (includes the KGV-72 and BFT II transceiver).

JBC-P: Currently, PM FBCB2/BFT is using a broadly defined projected schedule for JBC-P. The Marine Corps' program office will continue to work with the FBCB2 program office in the development of a detailed program schedule. PM FBCB2/BFT will fund research and development for JBC-P unless there are Service unique requirements, which the Marine Corps program office will fund. The Marine Corps' program office will participate in all design and readiness reviews and a joint IOT&E will be conducted.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TLDHS	C/CPFF	Stauder Tech St. Louis, MO	10.886	3.722	Mar 2010	0.878	Mar 2011	0.000		0.878	Continuing	Continuing	Continuing
AFATDS	C/CPAF	Raytheon Fort Wayne, IN	14.801	4.181	May 2010	4.217	May 2011	0.000		4.217	Continuing	Continuing	Continuing
AFATDS	WR	SPAWAR Charleston, SC	1.474	0.304	May 2010	0.308	May 2011	0.000		0.308	Continuing	Continuing	Continuing
C2PC	C/CPIF	NGMS San Diego	16.173	0.000		0.000		0.000		0.000	0.000	16.173	Continuing
MAGTF C2	C/CPIF	NGMS San Diego	10.269	1.943	Feb 2010	0.000		0.000		0.000	0.000	12.212	Continuing
MAGTF C2	WR	SPAWAR Charleston, SC	20.827	6.241	Feb 2010	2.178	Feb 2011	0.000		2.178	Continuing	Continuing	Continuing
MAGTF C2	WR	NSWC Panama City, FL	0.460	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
MAGTF C2	C/CPFF	GD Scottsdale, AZ	18.160	0.000		0.000		0.000		0.000	0.000	18.160	Continuing
MAGTF C2	C/CPFF	Viecore NJ	0.402	0.000		0.000		0.000		0.000	0.000	0.402	Continuing
MAGTF C2	C/CPFF	MCSC Quantico, VA	6.146	0.000		5.000	Feb 2011	0.000		5.000	Continuing	Continuing	Continuing
BFSA	WR	SPAWAR Charleston, SC	2.478	0.905	Feb 2010	0.691	Jan 2011	0.000		0.691	Continuing	Continuing	Continuing
BFSA	MIPR	CECOM Ft. Monmouth, NJ	0.890	0.114	Mar 2010	0.000		0.000		0.000	0.000	1.004	Continuing
TCO	MIPR	SPAWAR	4.186	0.481	Feb 2010	2.788	Dec 2010	0.000		2.788	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Charleston, S.C.											
JBC-P	WR	SPAWAR Charleston, SC	0.000	1.500	Feb 2010	1.000	Dec 2010	0.000		1.000	Continuing	Continuing	Continuing
JBC-P	MIPR	CECOM Ft. Monmouth, NJ	0.000	0.500	Feb 2010	0.494	Dec 2010	0.000		0.494	Continuing	Continuing	Continuing
JBC-P	C/CPFF	MCSC Quantico, VA	0.000	0.000		0.250	Dec 2010	0.000		0.250	Continuing	Continuing	Continuing
IDS	WR	SPAWAR Charleston, SC	0.000	1.057	Nov 2009	1.508	Nov 2010	0.000		1.508	Continuing	Continuing	Continuing
		Subtotal	107.152	20.948		19.312		0.000		19.312			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MAGTF C2	WR	MCTSSA Camp Pendleton, CA	1.195	0.250	Oct 2009	0.200	Oct 2010	0.000		0.200	Continuing	Continuing	Continuing
		Subtotal	1.195	0.250		0.200		0.000		0.200			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2270: *Exp Indirect Fire Gen Supt Wpn Sys*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TLDHS	WR	MCOTEA Quantico, VA	1.185	0.342	Mar 2010	0.108	Nov 2010	0.000		0.108	Continuing	Continuing	Continuing
AFATDS	WR	MCTSSA Camp Pendleton, CA	2.317	0.114	Mar 2010	0.116	Nov 2010	0.000		0.116	Continuing	Continuing	Continuing
AFATDS	WR	MCOTEA Quantico, VA	0.340	0.240	Mar 2010	0.276	Nov 2010	0.000		0.276	Continuing	Continuing	Continuing
MAGTF C2	WR	MCOTEA Quantico, VA	0.532	0.125	Feb 2010	0.125	Oct 2010	0.000		0.125	Continuing	Continuing	Continuing
MAGTF C2	WR	MCTSSA Camp Pendleton, CA	1.384	0.600	Dec 2009	0.175	Oct 2010	0.000		0.175	Continuing	Continuing	Continuing
MAGTF C2	MIPR	JITC Ft. Huachuca, AZ	0.000	0.300	Dec 2009	0.100	Oct 2010	0.000		0.100	Continuing	Continuing	Continuing
BFSA	WR	MCTSSA Camp Pendleton, CA	0.274	0.000		0.100	Jan 2011	0.000		0.100	Continuing	Continuing	Continuing
BFSA	WR	MCOTEA Quantico, VA	1.061	0.074	Feb 2010	0.160	Nov 2010	0.000		0.160	Continuing	Continuing	Continuing
BFSA	MIPR	DISA Not Specified	0.000	0.000		0.050	Jan 2011	0.000		0.050	Continuing	Continuing	Continuing
DACT	WR	MCOTEA Quantico, VA	0.468	0.000		0.000		0.000		0.000	0.000	0.468	Continuing
JBC-P	WR	MCOTEA Quantico, VA	0.000	0.000		1.500	Dec 2010	0.000		1.500	Continuing	Continuing	Continuing
JBC-P	MIPR	CECOM	0.000	0.000		1.000	Dec 2010	0.000		1.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Ft Monmouth, NJ											
TCO	MIPR	SPAWAR Charleston, S.C.	0.000	0.232	Feb 2010	0.557	Dec 2010	0.000		0.557	0.000	0.789	Continuing
		Subtotal	7.561	2.027		4.267		0.000		4.267			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AFATDS	C/FFP	MCSC Quantico, VA	1.624	0.311	Mar 2010	0.320	Mar 2011	0.000		0.320	Continuing	Continuing	Continuing
MAGTF C2	MIPR	CECOM/MITRE Ft Monmouth, NJ	0.025	0.900	Nov 2009	0.900	Nov 2010	0.000		0.900	Continuing	Continuing	Continuing
BFSA	C/FFP	MCSC Quantico, VA	1.068	1.075	Mar 2010	0.325	Mar 2011	0.000		0.325	Continuing	Continuing	Continuing
JBC-P	C/FFP	MCSC Ft Monmouth, NJ	0.000	0.155	Feb 2010	0.423	Feb 2011	0.000		0.423	Continuing	Continuing	Continuing
		Subtotal	2.717	2.441		1.968		0.000		1.968			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2270: *Exp Indirect Fire Gen Supt Wpn Sys*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	118.625	25.666		25.747		0.000		25.747			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2270: *Exp Indirect Fire Gen Supt Wpn Sys*

ADVANCED FIELD ARTILLERY TACTICAL DATA SYSTEM (AFATDS)

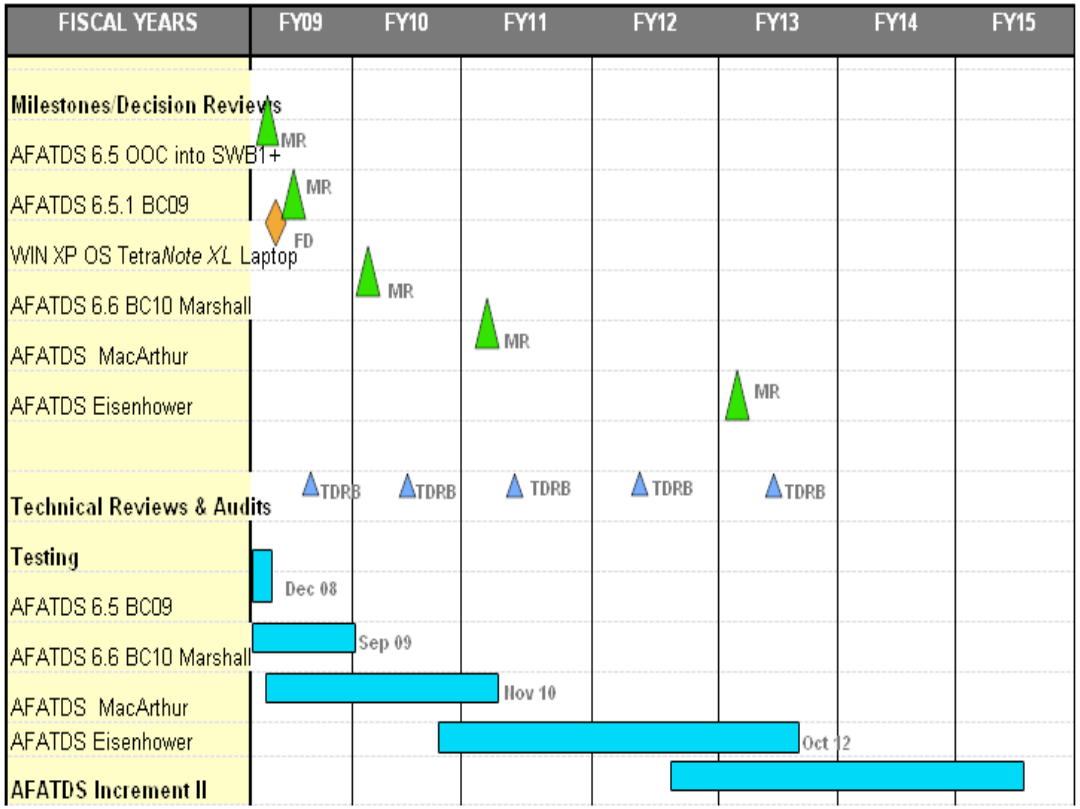

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2270: *Exp Indirect Fire Gen Supt Wpn Sys*

MAGTF C2 Systems and Applications

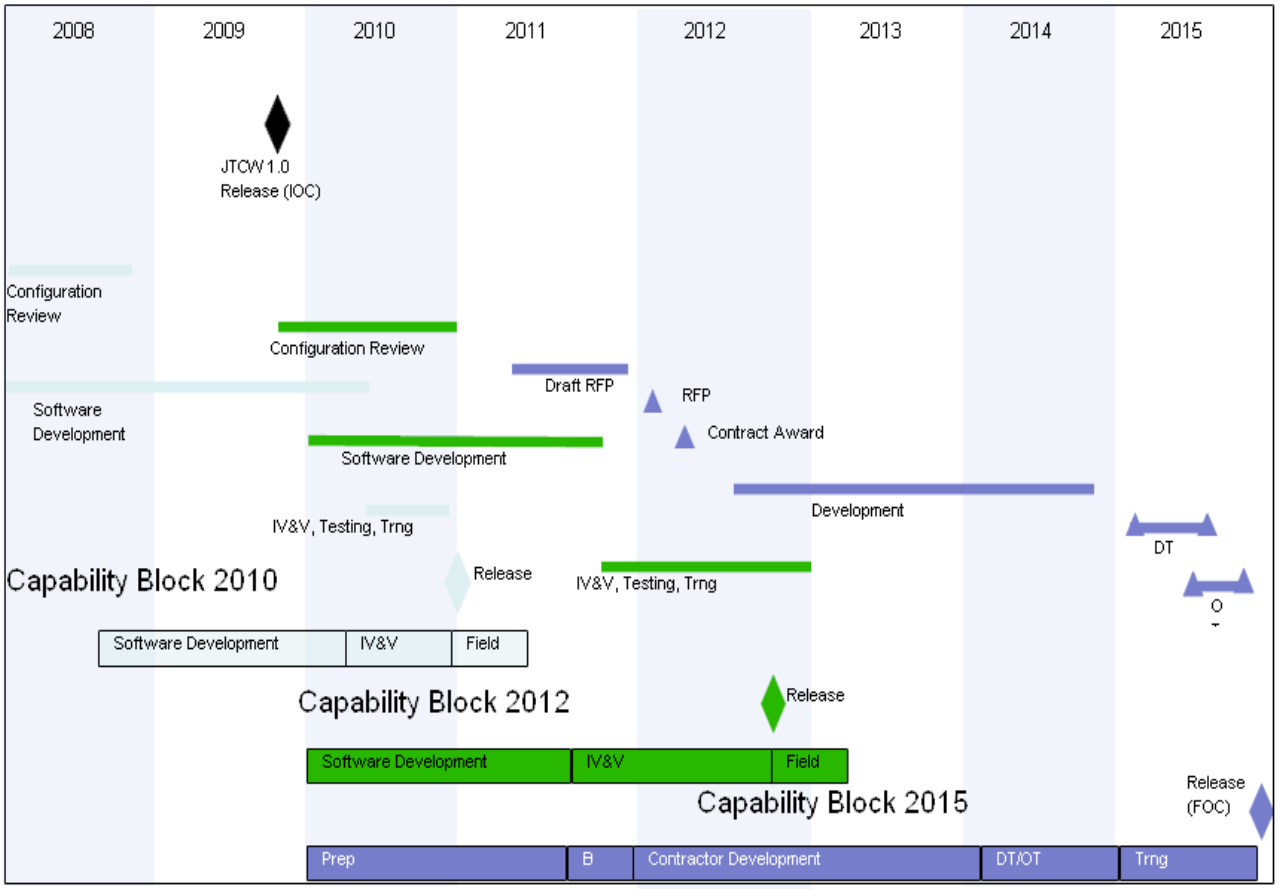

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2270: *Exp Indirect Fire Gen Supt Wpn Sys*

BFSA/DACT SCHEDULE

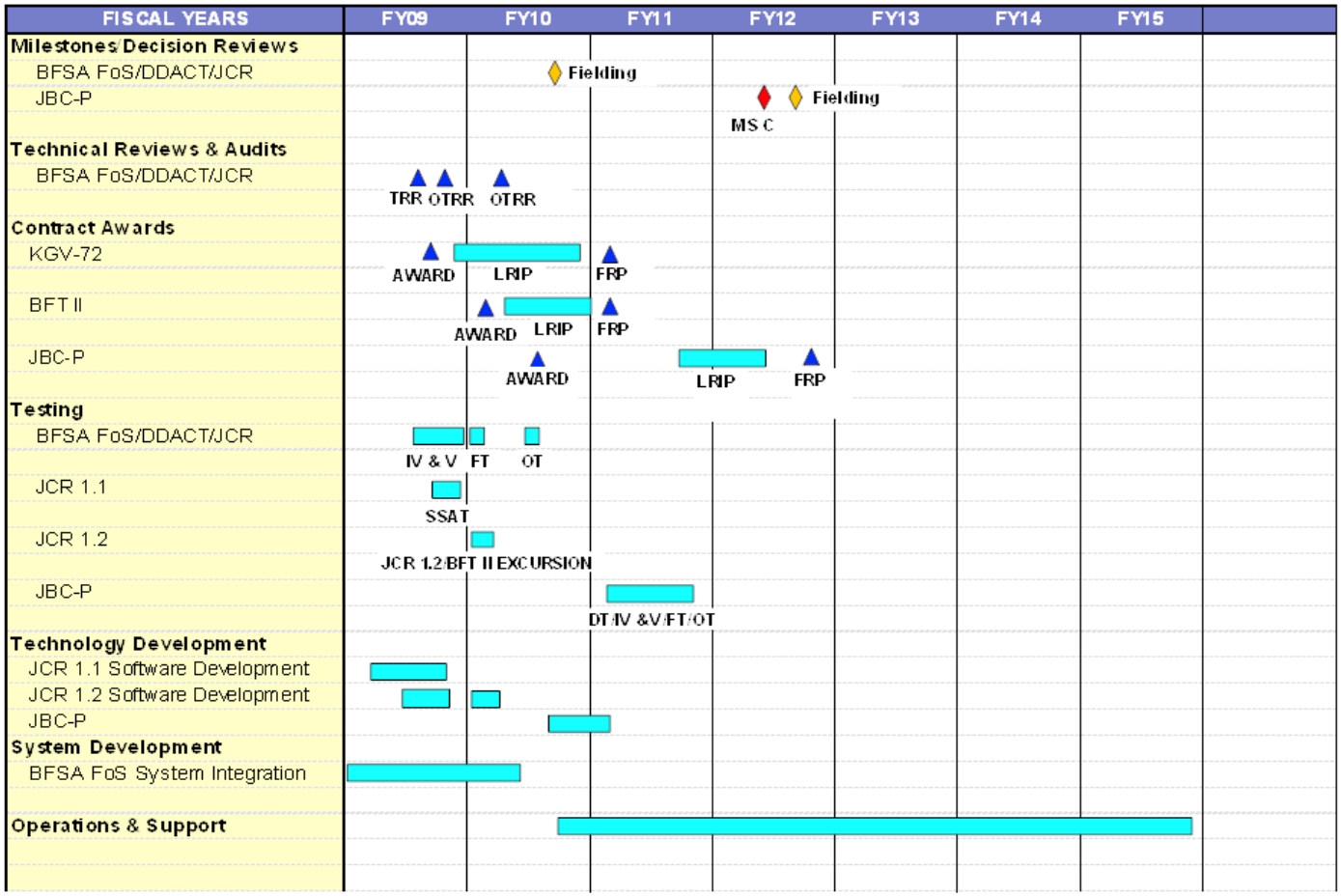

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2270: *Exp Indirect Fire Gen Supt Wpn Sys*

TLDHS SCHEDULE

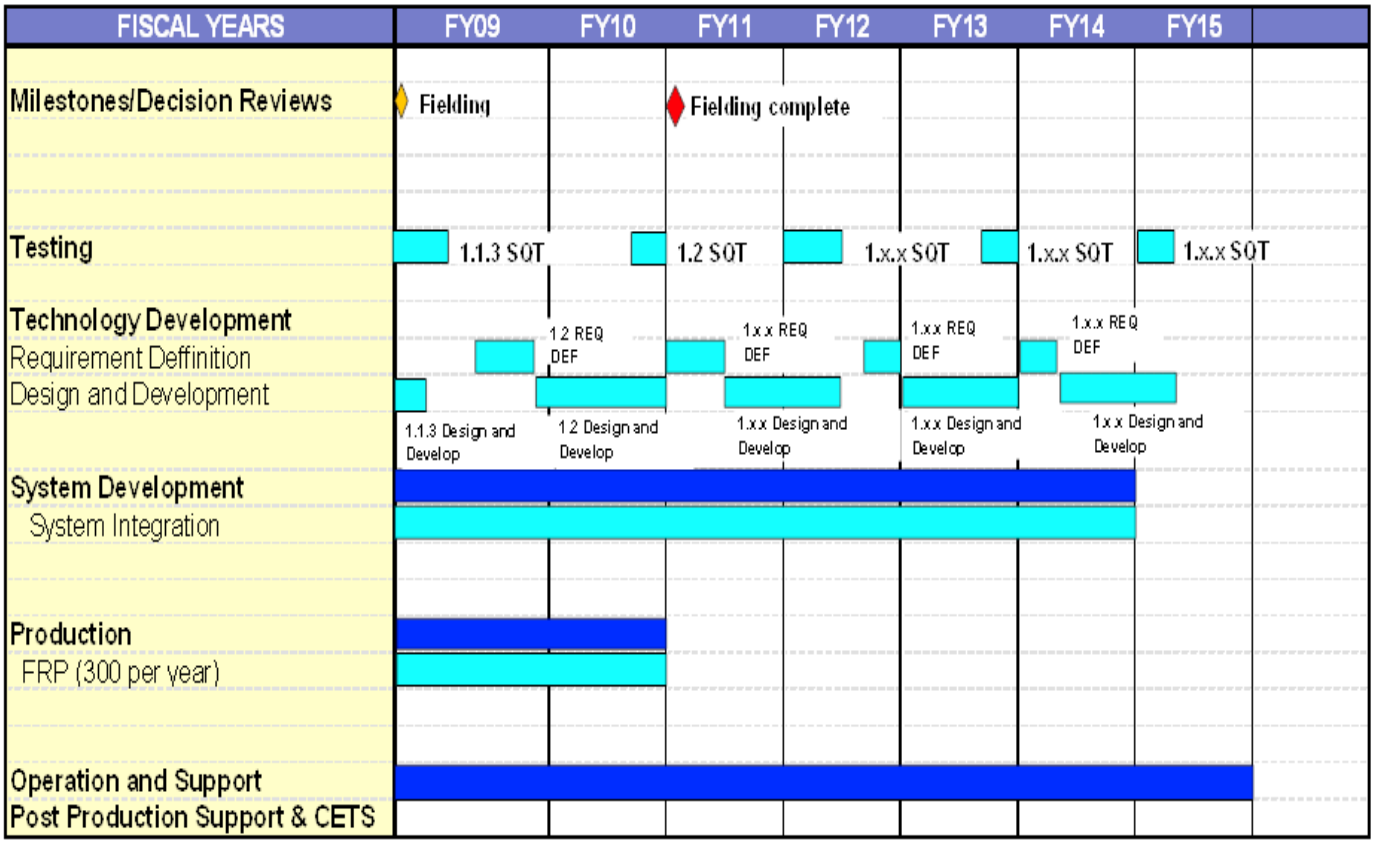

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2270: *Exp Indirect Fire Gen Supt Wpn Sys*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
MAGTF C2 SA Capability Block 2010 Release	3	2010	3	2010
MAGTF C2 SA Capability Block 2012 Release	3	2012	3	2012
MAGTF C2 SA Capability Block 2015 Release	3	2015	3	2015
AFATDS SW Block 2 Delivery	2	2009	2	2009
AFATDS 6.6 Delivery	2	2010	2	2010
AFATDS Follow on SW Delivery	2	2011	3	2015
AFATDS EMT SW Delivery	3	2009	3	2015
BFSA MRC/D-DACT/C2CE Test	2	2009	2	2009
BFSA JCR Follow on Test	3	2009	3	2009
BFSA JCR Operational Test	1	2010	1	2010
BFSA JCR MFD	2	2010	2	2010
BFSA JCR Initial Operational Capability (USMC-USA Tactical Interoperability and COP)	4	2010	4	2010
BFSA USMC Type-1 Safety Certification for JCR	1	2011	1	2011
BFSA USMC BFT-II (Tactical Latency reduction of minutes to seconds)	1	2011	1	2011
BFSA USMC C2 and SA preplanned product improvements	3	2011	3	2013
TLDHS IOC	1	2009	1	2009
TLDHS Spiral Development 1.1.3	3	2009	3	2009
TLDHS Spiral Development 1.2	3	2010	3	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	Quarter	Year	Quarter	Year
TLDHS Spiral Development 1.X.X	3	2011	3	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2272: *Intel Command and Control (C2) Sys*	17.712	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	203.323
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) Intelligence Command and Control (C2) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that all-source tactical intelligence is tailored to meet specific mission requirements. The systems below collect and convert raw intelligence data on the battlefield into processed information and deliver the processed products to the Intelligence Analysis Systems (IAS) for analysis and dissemination.

Global Command and Control System Integrated Imagery and Intelligence (GCCS I3) is a joint program that is designed to enhance the operational Commander's situation awareness and track management through the use of a standard set of integrated, linked tools and services that maximize commonality and interoperability across the tactical theater, and national communities. GCCS-I3 operates in joint and service specific battlespace and is interoperable, transportable, and compliant with the DoD mandated Common Operating Environment (COE).

Distributed Common Ground System-Marine Corps (DCGS - MC) - formerly known as Distributed Common Ground/Surface-Integration (DCGS-I), is a collection of Service Systems that will contribute to joint and combined warfighter needs for ISR support, with the Global Information Grid (GIG) providing unconstrained communications circa 2012 to support the Department of Defense (DoD) Intelligence, Surevillance and Reconnassiance (ISR) Enterprise end-state. The DCGS Integrated Backbone (DIB) is the architecture that will tie the Service DCGS systems together into one Family of Systems (FOS). The DIB will provide the tools, standards, architecture, and documentation for the DCGS community to achieve a Multi-Intelligence (Multi-INT) (e.g. Imagery Intelligence (IMINT), Signals Intelligence (SIGINT), Measurement and Signature Intelligence (MASINT), Counterintelligence/Human Intelligence (CI/HUMINT)), network centric environment with the interoperability to afford individual nodes' access to the information needed to execute their respective missions to include Irregular Warfare. The Marine Corps will conduct DIB integration reseach and development to meet a congressionally mandated implementation deadline.
Trojan Spirit II - is an SHF multi-band satellite communications terminal, available in either HMMWV-mounted or transit case configuration, that provides dedicated tactical communications capability at the TS/SCI and Secret Collateral levels to USMC intelligence units. TROJAN SPIRIT terminals provide connectivity into JWICSs, NSANET and SIPRNET via the TROJAN Network Control Center.

Technical Control Analysis Center (TCAC). consisting of the AN/UYQ-83 TCAC Remote Analysis Workstation (RAWS), AN/MYQ-9 TCAC Transportable Workstation, Multi-Level Security (MLS) and One Roof system is the focal point of Radio Battalions (RADBN) , Marine Corps Special Operations Command (MARSOC), and Fixed Wing Marine Electronic Attack Squadron (VMAQ) Signals Intelligence (SIGINT) operations. The TCAC automatically collects, stores, retrieves and plays back digital voice signals; fuses and analyzes SIGINT data from tactical, theater and national collectors and dtatbases for dissemination to tactical commanders. TCAC provides SIGINT analysis applications to deployedable MAGTF units capable of directing and managing the technical and operational functions of other RADBN SIGINT/EW assets. The TCAC provides termination of national, theater and tactical data networks for data exchange with the tactical SIGINT/EW assets, the Intelligence Analysis System (IAS), national databases, and provided USMC tactical SIGINT collection and analytical dtat into the Real-Time Regional Gateway (RTRG) and Distributed Common Ground System (DCGS).

Joint Surveillance Target Attack Radar (JSTARS) connectivity program will research and integrate a client software connectivity solution which will allow the JSTARS Moving Target Indicator (MTI), Fixed Target Indication (FTI) and Synthetic Aperture Radar (SAR) data to be passed from the JSTARS Common Ground Station (CGS) to lower echelons within the MAGTF. Additionally, the Marine Corps will continue future MTI, CDL and MTI sensor capabilities research and development .

Tactical Remote Sensor System (TRSS-PIP) - TRSS is a suite of hand emplaced and air-delivered unattended sensors, ground relays, and sensor monitoring stations, which are used by the Intelligence Battalions, Ground Sensor Platoons (GSPs). It provides the MEF/MAGTF Commander with an organic capability to conduct unattended, all-weather, semi-covert, ground surveillance of distant areas within his Area of Operations (AO). Through the use of seismic, acoustic, magnetic, infra-red, and imaging sensors, this suite provides an additional surveillance capability of personnel and/or vehicular activity, during tactical pre-assault, assault and post assault operations. TRSS covers gaps in the overall intelligence collection effort and reduces the requirement to employ Marines behind enemy lines for extended periods of time.

Team Portable Collection System - Multi-Platform Capable (TPCS-MPC) - is a semi-automated, man/team portable system providing intercept, collection, direction-finding, reporting and collection management to MAGTF commander. It provides special signals intercept, and DF capability for each system and is modular, lightweight and team transportable. The next upgrades will be the multi-platform capability and will allow the system to exploit information from more technically advanced target sets and will provide the MAGTF commander with a modular and scalable carry on/carry off suite of equipment.

Topographic Production Capability (TPC) is an integrated, independently deployed, self-contained terrain analysis system designed for data acquisition, manipulation, analysis and output, providing commanders and staff with geospatial intelligence (GEOINT) support at the Marine Expeditionary Force (MEF) and the Marine Expeditionary Wing (MEW) levels. The TPC configurations consist of Commercial-off-the-Shelf (COTS)/Government-off-the-Shelf(GOTS) software packages, servers, workstations, large-format printing/plotting devices and large-format scanning devices, all mounted in transit cases. The TPC provides critical, timely, and accurate digital and hardcopy geospatial information to support mission planning and execution. The TPC provides the capability to collect, process, exploit, analyze, produce, disseminate, and use all-source geospatical information as a foundation for a Common Operational Picture (COP) for the Marine Air Ground Task Force (MAGTF) Commander. The TPC is used by the Topographic Platoon of the MEF and provides deployable modules down to the Major Subordinate Command (MSC) and

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the Marine Expeditionary Unit (MEU). It supports the Commander, Joint Task Force or Marine Component Commander. The TPC provides the frame work for the Common Tactical Picture (CTP) of the battlefield; terrain analysis in support of the Intelligence Preparation of the Battlefield (IPB) process; all source terrain.

Wide Field of View Persistent Surveillance (WFVPS) (formerly Angel Fire) is a capability that supports persistent Inelligence, Surveillance and Reconnaissance (ISR), Improvised Explosive Device (IED) mitigation, and actionable intelligence in urban and other operations (e.g. disaster relief, security, etc). It delivers broad area, near real time, geo-registered imagery down to the tactical level of execution. Consisting of airborne and ground components such as the Airborne payload consists of an imager sensor (currently Electro-Optical (EO), on-board processors, and an air-to-ground communication link. Ground distribution network consist of the ground receive station, servers, storage and viewer client stations. AF is hosted on manned platforms, currently the King Air A-90p pilots fly the plane while the sensors can be controlled from the ground through autonomous software. The USMC objective EFVPS system will reside on an UAS.

MAGTF Secondary Imagery Dissemination System (MSIDS) is the only ground prospective Family of Systems (FoS) that provides organic tactical digital imagery collection, transmission and receiving capability to the MAGTF Commander. MSIDS is comprised of components necessary to enable Marines to capture, manipulate, annotate, transmit or receive images in Near Real Time (NRT), internally with subordinate commands that are widely separated throughout the area of operations and externally with higher adjacent commands. MSIDS capability resides with the MAGTF G/S-2 sections and
Ground Reconnaissance Battalions, Light Armored Reconnaissance Battalions, Infantry Battalion Scout Sniper Platoons and Marine Special Operations Command. The MSIDS FoS extends the digital imaging capability to all echelons within the MEF, down to and including battalions and squadrons. Captured images are capable of being forwarded throughout the MAGTF through the use of Base Station Workstation/Communication Interface (BW/CI), Out Station Workstation/Communication Interface (OW/CI) or existing C4ISR architecture. Images can also be transmitted to the Tactical Exploitation Group (TEG) for more detailed processing and analysis. A recent increase of the MSIDS Video Exploitation Workstatin (VEW) requirement within Infantry Battaliions and Wing units, down to the squadron level, has grown from 18to 140 in the past year. The VEW is utilized to import, manipulate, annotate still and video imager, create intelligence products, lift still frames from video, view multi-format TV signals and provide a field briefing capability. MSIDS FoS is currently employed in every location world-wide where the Marine Corps participates in military operations to include Irregular Warfare. MSIDS is currently, or has recently, been employed in Iraq, Kuwait, Afghanistan, Haiti, Philippines, and Horn of Africa.

Intelligence Equipment Readiness (IER) - The IER provides a responsive capability to alleviate Marine Corps intelligence systems shortfalls created by the rapidly evolving missions, threats and command relationships associated with the Overseas Contingencies Operations (OCO). The program provides for rapid technology insertion, as well as quick reaction training and logistics, to meeting the time sensitive intelligence infrastructure requirements of Marine Corps Operatng Forces and the theater and service intelligence organizations supporting those forces. IER rapidly mitigates intelligence infrastructure shortfalls through exploitation of COTS, GOTS and Non-Developmental Item technology to the greatest extent practical. This effort also centralizes support for Marine Corps intelligence infrastructure items and systems that are not separately identified within the program funding lines. IER addresses requirements that span the entire Marine Corps intelligence systems architecture.

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Intelligence Analysis Systems (IAS) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence; it ensures that tactical intelligence is tailored to meet specific mission requirements to include Irregular Warfare.

Radio Reconnaissance Equipment Program (RREP) provides the Radio Battalions, Radio Reconnaissance Platoons (RRP) and the Marine Corps Forces Special Operations Command (MARSOC) Direct Support Teams with mission unique Signals Intelligence/Ground Electronic Warfare (SIGINT/EW) Equipment suites. The latest suite of equipment, the SIGINT Suite 3 (SS-3) is comprised of technology and equipment necessary to prosecute advanced wireless signals. The RRP Marines are trained and equipped to support the full spectrum of Marine Expeditionary Unit Special Operations Capable (MEU SOC) mission profiles as well as provide real time, imbedded support to any special operations scenario. This provides the supported commander greater flexibility in employing his SIGINT assets when the use of conventional Radio Battalion assets are not feasible. RREP is currently maintaining the SS-3 using a spiral development approach that inserts the latest technology into the suite as it becomes mature and MARSOC. This enables the SS-3 to remain a current platform against emerging threats.

Counterintelligence (CI) and Human Intelligence (HUMINT) Equipment Program (CIHEP) provides the MAGTF with integrated, standardized, and interoperable information (automated data processing), communication, and specialized equipment to conduct the full spectrum of tactical CI/Force Protection to include Irregular Warfare, HUMINT, and technical collection operations in accordance with (IAW) applicable national oversight directives. CIHEP provides each CI/HUMINT Company (CIHCo) with a suite of state-of-the-market equipment comprised of commercial-off-the-shelf, government-off-the-shelf, and non-developmental items (COTS/GOTS/NDI). It integrates audio, video, imagery, communications, technical surveillance and computer equipment into lightweight, modular, scalable, deployable packages. CIHEP enhances the capability to collect, receive, process, and disseminate CI/HUMINT information from overt, sensitive, technical, tactical, and Force Protection, in the service, joint, and combined forces area of operations.

Intelligence Broadcast Receiver (IBR) provides Marine tactical commanders access to National level Near Real-Time intelligence data provided over the Integrated Broadcast Service. IBR is employed across the MAGTF echelons through the following Host Systems; Intelligence Analysis System; Tactical Air Operations Center; Technical Control and Analysis Center; Tactical Air Command Center; Joint STARS Common Ground Station; Tactical Electronic Reconnaissance Processing and Evaluation System and Common Air Command and Control Systems and Joint Stars Work Station.

Tactical Exploitation of National Capabilities (TENCAP) is a program designed to enhance the ability of tactical Marine Corps forces to exploit the capabilities of national intelligence-gathering systems. Congressionally directed, it requires close liaison with the intelligence community and involves complex and highly-sensitive activities.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*GCCS-I3: Program Support, Integration and Software Engineering	0.434	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Program Support, Integration and Software Engineering of software upgrades.					
*GCCS-I3: Software Engineering Support *FY 2009 Accomplishments:* Software Engineering Support for software upgrades.	0.612	0.000	0.000	0.000	0.000
*GCCS-I3: Engineering/Acq Logistics Support *FY 2009 Accomplishments:* Engineering/Acq Logistics Support for software upgrades.	0.080	0.000	0.000	0.000	0.000
*GCCS-I3: Program Testing *FY 2009 Accomplishments:* Program Testing for software upgrades.	0.100	0.000	0.000	0.000	0.000
*DCGS-MC - USMC DCGS Testing and Evaluation Support *FY 2009 Accomplishments:* Testing and Evaluation Support to Program Office Systems Engineering and Test and Evaluation Working Integrated Product Team.	0.086	0.000	0.000	0.000	0.000
*DCGS-MC - Research and Development and Integration Efforts *FY 2009 Accomplishments:* Research and Development and Integration Efforts in support of the system integration of TEG and TPC.	0.290	0.000	0.000	0.000	0.000
*DCGS-MC - Engineering and Technical Services	0.290	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Engineering and Technical Services for program documentation updates.					
*DCGS-MC - Hardware and Enterprise Services *FY 2009 Accomplishments:* Hardware and Enterprise Services for DIB Integration.	3.625	0.000	0.000	0.000	0.000
*TROJAN SPIRIT: Engineering and Technical Support *FY 2009 Accomplishments:* Engineering and Technical support for product improvement of systems.	0.431	0.000	0.000	0.000	0.000
*TCAC: Software Development and Testing *FY 2009 Accomplishments:* Software Development and Testing for the development of an automated Collections Planning/ Management Application for Organic USMC Collection Systems.	1.389	0.000	0.000	0.000	0.000
*TCAC: Program Management Support *FY 2009 Accomplishments:* Program Management Support for system storage requirements and solutions.	0.058	0.000	0.000	0.000	0.000
*JSTARS: Engineering and Technical, Management Support *FY 2009 Accomplishments:* Engineering and Technical Management Support for the continuation of CDL capabilities and future MTI capabilities.	0.186	0.000	0.000	0.000	0.000
*JSTARS: MTI Capability	0.050	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: MTI capability and development of MTI exploitation tools.					
*TRSS-PIP: Software development of HHPM *FY 2009 Accomplishments:* Software development of software refresh efforts in support of HHPM.	0.451	0.000	0.000	0.000	0.000
*TRSS-PIP: Management support - MCSC *FY 2009 Accomplishments:* Management support for ECP efforts for the CSR, GSSV, and Imager III.	0.020	0.000	0.000	0.000	0.000
*TRSS-PIP: Development of Imaging Processor Board I *FY 2009 Accomplishments:* Development and support of the Imaging Processor Board upgrade.	0.135	0.000	0.000	0.000	0.000
*TRSS-PIP: Support IOT&E and Increment II efforts *FY 2009 Accomplishments:* Support IOT&E and Increment II efforts for software refresh.	0.103	0.000	0.000	0.000	0.000
*TPCS-MPC: Training development and test support *FY 2009 Accomplishments:* Training development and test support for Block 1 upgrades.	0.450	0.000	0.000	0.000	0.000
*TPCS-MPC: Program support and management *FY 2009 Accomplishments:* Program support and management for upgrades to SIGINT suites.	0.567	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*TPC: Hardware, Software and Spiral Development Support *FY 2009 Accomplishments:* Hardware, Software and Spiral Development Support to incorporate the Common Data Link (CDL) to support expeditionary operations.	0.318	0.000	0.000	0.000	0.000
*TPC: Contractor Support *FY 2009 Accomplishments:* Contractor Support to participate in Joint Service Testing events.	0.049	0.000	0.000	0.000	0.000
*TEG: Enhanced and TEG-RWS functionality *FY 2009 Accomplishments:* Develop and integrate of the Spiral Upgrade to the TEG-RWS functionality.	0.320	0.000	0.000	0.000	0.000
*TEG: Airborne Imagery Sensor Interface *FY 2009 Accomplishments:* Develop and integrate a required upgrades/interfaces to accommodate emerging Airborne Sensors.	0.227	0.000	0.000	0.000	0.000
*TEG: Program Management and Technical Support *FY 2009 Accomplishments:* Program Management and Technical Support for the next generation TEG-M.	0.339	0.000	0.000	0.000	0.000
*TEG: Video Capture and Exploitation capability *FY 2009 Accomplishments:* Integration efforts of the Video Capture and Exploitation capability.	0.063	0.000	0.000	0.000	0.000
*TEG: Mandated DCGS/DIB interfaces and communication architectures	0.116	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Mandated DCGS/DIB interfaces and communication architectures in support of the merge into DCGS-MC.					
*TEG: Common Data Link (CDL) Capability *FY 2009 Accomplishments:* Continued research and development efforts for the next generation of Common Data Link (CDL) Capability.	0.234	0.000	0.000	0.000	0.000
*TEG: Engineering/Technical Management *FY 2009 Accomplishments:* Engineering/Technical Management in support of the merging TEG capabilities into the DCGS-MC Geographic Intelligence sub-system.	0.329	0.000	0.000	0.000	0.000
*TEG: IPv6, GIG and others mandated integration *FY 2009 Accomplishments:* IPv6, GIG and others mandated integration efforts.	0.156	0.000	0.000	0.000	0.000
*WFVPS (ANGEL FIRE): Engineering and Technical Support *FY 2009 Accomplishments:* Engineering and Technical Support Angel Fire Sensors.	0.106	0.000	0.000	0.000	0.000
*MSIDS: Program Management and Technical Support *FY 2009 Accomplishments:* Program Management and Technical Support to test and evaluate commercial products for use with the MSIDS.	0.216	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*MSIDS: Engineering Support *FY 2009 Accomplishments:* Engineering Support to identify, test and evaluate commercial products for use with the MSIDS.	0.047	0.000	0.000	0.000	0.000
*IER: Program Management and Technical Support *FY 2009 Accomplishments:* Program Management and Technical Support for transition of MLS solution into USMC intelligence systems.	0.203	0.000	0.000	0.000	0.000
*IAS MOD KIT: Software Engineering and Management Support *FY 2009 Accomplishments:* Software Engineering and Management Support for the continuation of the development of software modification to support Joint Operability.	0.434	0.000	0.000	0.000	0.000
*IAS MOD KIT: Program, Logistic and Admin Support *FY 2009 Accomplishments:* Program, Logistic and Admin Support to improve the operability of the USMC and Joint ISR systems.	0.633	0.000	0.000	0.000	0.000
*CIHEP: Engineering, Integration and Technical Support *FY 2009 Accomplishments:* Engineering, Integration and Technical Support of Biometric Capabilities.	0.039	0.000	0.000	0.000	0.000
*CIHEP: Program Management Support *FY 2009 Accomplishments:* Program Management Support to evaluate improvements to CIHEP DPM.	0.091	0.000	0.000	0.000	0.000
*IBR: Engineering and technical service support	0.084	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Engineering and technical service support for the alternative IBR solutions in place of the ENTR.					
*IBR: Test and Evaluation of USB ENTR *FY 2009 Accomplishments:* Test and Evaluation of USB ENTR development effort and CIBS-M.	0.250	0.000	0.000	0.000	0.000
*IBR: Contract and Program Support *FY 2009 Accomplishments:* Contract and Program Support of Common Data Translator Investigation and Analysis.	0.150	0.000	0.000	0.000	0.000
*TENCAP: Program Support and Management *FY 2009 Accomplishments:* Program Support and Management	3.800	0.000	0.000	0.000	0.000
*TENCAP: Technical Assessments *FY 2009 Accomplishments:* Technical Assessments	0.151	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	17.712	0.000	0.000	0.000	0.000

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C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

(U) ACQUISITION STRATEGY TROJAN SPIRIT: Procure and continuously improve USMC TROJAN SPIRIT systems to meet evolving Marine Corps operational needs while maintaining interoperability with the Army TROJAN Network and maintaining, as closely as practical, configuration common to the Army TROJAN SPIRIT systems.

(U) ACQUISITION STRATEGY TCAC: The acquisition of components for the TCAC will maximize the use of existing equipment, NDI/COTS/GFE equipment/ software. The integration effort for TCAC hardware components will be accomplished under the control of the SSA, MCSC. Software integration and support will be accomplished by contractors under the control of the Project Officer. These activities report to and are directed by the Program Manager, Intelligence Systems, Marine Corps Systems Command (MARCORSYSCOM). Maintenance support will be managed by MARCORLOGBASES Albany and MCSC, Albany and through separate contractual agreements.

(U) ACQUISITION STRATEGY JSTARS: JSTARS will utilize ongoing Army JSTARS contracts for continue development of MTI and MTI Sensor capabilities as well as upgrades to the JSTARS Common Software baseline. IPv6 research is being conducted in conjunction with the Army. Post Deployment Software Support (PDSS) will be provided through the Communications-Electronics Command (CECOM), Ft Monmouth, NJ. Surveillance Control Data Link (SCDL) refresh efforts will conducted in conjunction with the Army JSTARS Program Office. Development of a Moving Target Indicator capability for integration into the Distributed Common Ground System-Marine Corps will continue through MTCSC and a Northrup Grumman sub-contract, via SPAWAR, Charleston SC.

(U) ACQUISITION STRATEGY TRSS: The TRSS are typically Non-Developmental Item (NDI) integration efforts, making maximum use of the efforts of hardware and software initially developed by other DoD organizations and programs. The initial phases of each Increments are cost-plus fixed-fee efforts, while the production phase, which encompasses the production, fielding, training and initial support of the systems, are firm-fixed price efforts.

(U) ACQUISITION STRATEGY TPCS: TPCS, the ever-increasing sophistication of target threats and information technology necessitates an evolutionary acquisition approach. TPCS will make incremental improvements through maximum use of COTS, GOTS and NDI. These technology insertions and product improvements will ensure the Radio Battalions maintain cutting edge technologies and collection capabilities.

(U) ACQUISITION STRATEGY TPC: The TPC will refresh and upgrade the existing TPC equipment as technology advances. As new technology emerges, the current fielded systems will need incremental hardware and software refreshes to sustain operational requirements and to meet the ORD requirement of compliancdee with the NGA US Imagery and Geospatial Information System. The TPC program uses existing Government contracts for hardware/software developmet and integration. Full-time contractor support is provided through the Commercial Enterprise Omnibus Support Services (CEOss) contract. Additionall full time engineering and integration support is provided by Northrop Grumman Information Technology TASC through the Information Technology Omnibus Procurement II (ITOP II) contract under the auspices of the MCSC Information Technology Modernization 2000 (ITM2K) Project Office. Maintenance support will be managed by MARCORLOGBASES Albany and MCSC, Albany and through separate contractual agreements.

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(U) ACQUISITION STRATEGY TEG: The TEG Program Office leverages the advantages of its multi-service common software baseline and inherent Joint service interoperability. Development, integration, interoperability, security certification and accreditation and acquisition is divided between three prime contractors: Northrop Grumman Electronic Systems, Baltimore, MD (NGB) (through a classified contract); Space and Naval Warfare Systems Center, Charleston, SC (SSCC), and MTC Services Corporation. An incremental refresh is currently ongoing for the TEG Main.
(U) ACQUISITION STRATEGY WFVPS: MCCDC maintains sponsorship of the Angel Fire UUNS. Marine Corps funds Air Force Research Lab to support the United States Air Force (USAF) in the development of subsequent sensor spirals as a technology demonstration supporting Marines operating in the CENTCOM AOR. In keeping with the Program Decision Memorandum (PDM) of November 2007. Development, integration, interoperability and testing are divided between AFRL, Los Alamos National Laboratory (LANL) and the NRL.
(U) ACQUISITION STRATEGY MSIDS: Full Operational Capability (FOC) in 2QTR FY03. Subsequent "increment refreshes" are under way in order to keep the systems from becoming unreliable and unsupportable. The increment refresh approach will effectively leverage technological advances. Each increment of upgrades will refresh 1/3 of the fielded components.
(U) ACQUISITION STRATEGY IER: This program seeks to support a wide range of technology solutions based on the requests received from the Operating Forces and/or PM Intelligence Program of Record. The request must require solution evaluation beyond merely acquisition to be recommended as an Intelligence Systems Readiness (ISR) candidate. Each request will be validated by the ISR team and approved by the Project Officer and PM Intel before solution evaluation begins. The ISR program will use COTS/GOTS/NDI solutions to the greatest extent possible.
(U) ACQUISITION STRATEGY IAS: The IAS program uses existing Government contracts for hardware and software development and integration. The system is comprised primarily of Commercial Off-the-Shelf (COTS) and Government Off-The-Shelf (GOTS) equipment. The IAS FoS utilizes an evolutionary strategy to ensure periodic incorporation of state-of-the-art technology that meets both current and future Marine Corps intelligence requirements while maintaining system readiness and reliability.
(U) ACQUISITION STRATEGY RREP: Research, test and integrate new technology will keep pace with the evolving Marine Corps operational needs. Acquisition will maximize the use of NDI/COTS hardware and software to ensure the supporting units maintain cutting edge technology and collection capabilities.
(U) ACQUISITION STRATEGY CIHEP: CIHEP will use the Integrated Team Solutions Facility for hardware and software upgrades as necessary. CIHEP will coordinate acquisition of communications equipment with the Program Manager Communications section for planned upgrades to the Communications Module. SPAWAR, Charleston will be utilized for the technology dictates.
(U) ACQUISITION STRATEGY IBR: In house contracts will be used to conduct engineering studies and test and evaluation activities associated with the Marine Corps implementation of the Integrated Broadcast Service, Common Message Format, ENTR integration and test and evaluation.
(U) ACQUISITION STRATEGY TENCAP: Work will be led in-house. Necessary contractor support will be acquired using already existing contracts.

E. Performance Metrics

N/A

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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2273: *Air Ops Cmd & Control (C2) Sys*	47.652	66.108	68.465	0.000	68.465	52.196	38.339	42.132	41.626	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Common Aviation Command and Control System (CAC2S) is a coordinated modernization effort to replace the existing aviation command and control equipment of the Marine Air Command and Control System (MACCS) and to provide the Aviation Combat Element with the necessary hardware, software, equipment, and facilities to effectively command, control, and coordinate aviation operations. The CAC2S system will accomplish the MACCS missions with a suite of operationally scalable modules to support the Marine Air Ground Task Force (MAGTF), Joint, and Coalition Forces. The CAC2S integrates the functions of aviation command and control into an interoperable system that will support the core competencies of all Marine Corps warfighting concepts. The CAC2S, in conjunction with MACCS organic sensors and weapons systems, supports the tenets of Expeditionary Maneuver Warfare and fosters joint interoperability. CAC2S Increment I will replace legacy aviation command and control systems in the following Marine aviation agencies: Direct Air Support Center (DASC), Tactical Air Command Center (TACC), and Tactical Air Operations Center (TAOC).

Theater Battle Management Core Systems (TBMCS) - provides the commander the automated tools necessary to generate, disseminate, and execute the Air Tasking Order (ATO), as mandated by the Chairman, Joint Chiefs of Staff in July 1993. It is an evolutionary acquisition, allowing for the rapid development/fielding of hardware and software to meet today's rapidly advancing technology. It is fielded to all four Marine Tactical Air Command Squadrons (MTACS) and the supporting establishment.

The Composite Tracking Network (CTN) - will provide the Marine Air Ground Task Force (MAGTF) Commander a ground based sensor netting solution that significantly improves situational awareness by correlating sensor measurement data (target position, speed, heading, Identification Friend and Foe (IFF), etc.) from local and remote radars in the Cooperative Engagement Capability (CEC) network, which is then provided to the warfighter in the form of composite, real-time, air surveillance tracks.

The Marine Air Command and Control System (MACCS) Sustainment - consists of various command and control agencies designed to provide the Aviation Combat Element (ACE) commander with the ability to monitor, supervise and influence the application of Marine aviation assets in support of MAGTF operations. The MACCS Sustainment provides funding to keep these fielded systems ready, relevant and capable until their functions are replaced by the Common Aviation Command and Control System (CAC2S).

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Single Integrated Air Picture (SIAP) - is the product of fused, common, continual, unambiguous tracks of airborne objects within the surveillance area. A SIAP will be achieved through the use of a model-based architecture computerized specification (the Integrated Architecture Behavior Model, or IABM). The IABM provides the common architectural standard (Platform-Independent Model, or PIM) for systems that make up the joint SIAP SoS. Each of the Services, through their respective SIAP program offices, develops Platform-Specific Models (PSM) of the IABM that are used to develop SIAP solutions for incorporation into Service-designated platforms.

Battlefield Target Identification Device (BTID) - In FY09 and beyond - will be a cooperative battlefield target identification device that employs encrypted, Ka band, millimeter wave, question and answer technology. It will consist of interrogator and transponder antennae, transceiver, and communications/electrical interface unit. It will be fielded as three variants: interrogaror/transponder system for Expeditionary Fighting Vehicle (EFVs), Light Amphibious Vehicles (LAVs), and M1A1s; interrogator-only for Heavy Machine Gun (HMG), Anti-Tank Guided Missile (ATGM), and Target Location Data Hand-off System (TLDHS); and transponder-only system for combat support and combat service support vehicles. When fielded, mounted weapon systems will have the capability to identify targets as friendly or unknown, at ranges to 6 km, before engaging them. They and all other designated vehicles will also possess the capability to rapidly identify themselves as friendly to weapon systems equipped with comparable systems prior to being engaged. As a result, incidents of fratricide and collateral damage will decline, while the range at which targets may be engaged without fear of misidentification will increase dramatically. The system will be interoperable with Joint, Allied, and Coalition forces' cooperative target identification systems.

Combat Operations Center (COC) AN/TSQ-239 (V)2/3/4 is a deployable, self-contained, modular, scalable and centralized facility which provides digital, shared Command and Control/Situational Awareness functionalities to enhance the Common Operational Picture (COP) for the Command Element, Ground Command Element, Air Combat Element, and Logistics Combat Element. It is a commercial-off-the-shelf integrated hardware solution using unit provided radios, re-hosted tactical data systems, and available Marine Corps prime movers to transport the system. FY10 funds required for H/W refresh for Golf model 2010 upgrades. Funding also supports 2 MEB Urgent Universal Needs Statement (UUNS) (Mar 09) to include OEF supplemental kits of various configurations, Tactical Collaboration Work Station (TCWS) integration (MCCDC) LOC and OIF Force retrograde.

Remote Video Viewing Terminal (RVVT) - Provides warfighter with video connectivity to multiple types of aerial platforms (Pioneer, Dragon Eye, Raven B, Shadow, Predator, Fire Scout, and Litening Pod on P-3, AV8-B, and F/A-18). Data is displayed to Regimental Combat Teams and Forward Air Controller operators who coordinate with higher headquarters for fires. Program Office is pursuing a MS B in FY11.

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Joint Interface Control Office (JICO) Support System (JSS) - will provide net-centric services through a transformational management system to enable internet protocol-based networks of the future to operate efficiently with current tactical networks. It will manage complex tactical networks through an automated toolset and information repository that enables planning, management and analysis of communications before, during and after operations.

GROUP 1 (formerly known as TIER I UAS) - The Program Office is pursuing a rapid acquisition approach to quickly field new technology and capabilities to the warfighter. The strategy is to use evolutionary acquisition with two incremental developments to meet the final desired SURSS requirements. The SURSS Block 0, Dragon Eye, was the first increment and is currently fielded to deployed units. For the Block 1 increment the USMC adopted the USSOCOM Rucksack Portable UAV (RPUAV) ORD, which meets the USMC's requirement and began migrating to the joint materiel solution, the Raven B. The Army Program Manager for Unmanned Aircraft Systems is the program manager of record. By leveraging off of this joint program already in the production phase, the USMC is able to rapidly field systems to deployed warfighters.

TIER II/UAS - This is a combined Navy (PE#0305204N) and Marine Corps (PEs#0206313M/#0206625M) budget submission. The Tier II/UAS is a new start program that will provide persistent, Intelligence, Surveillance, and Reconnaissance (ISR) support for tactical level maneuver decisions and unit level force defense/force protection for Navy ships and Marine Corps land forces. This system will fill the ISR capability shortfalls identified by the Navy Small Tactical Unmanned Aircraft System (STUAS) and Marine Corps Tier II UAS efforts. Consisting of four air vehicles, two ground control stations, multiple payloads, and associated launch, recovery and support equipment, this system will support the Navy missions including building the Recognized Maritime Picture, Maritime Security Operations, Maritime Interdiction Operations, and support of Navy units operating from sea/shore in OCO and the Marine Cops close range (<50 nautical miles (nm)) UAS enabling enhanced decision-making and improved integration with ground schemes of maneuver. This submission is the Marine Corps portion of the program and has been coordinated with the Navy budget submission PE# 0305204N. This program was moved to Program Element 0206625M in FY10 and beyond.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*JICO Support System: Software Sustainment & Integration Support	0.000	0.062	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Funding will be sent to the Joint program office to support production software integration for USMC systems					
*JICO Support System: Engineering and Technical Support Services *FY 2010 Plans:* Funding will be sent to the Joint Program Office to fund for On-Site Engineering Support for our test systems.	0.000	0.028	0.000	0.000	0.000
*JICO Support System: Program Management Support *FY 2010 Plans:* Program Office travel, MCTSSA and MCOTEA support of Multi-Surface Operational Test and Evaluation. *FY 2011 Base Plans:* Program Office travel. MCTSSA support for Increment 2 developement.	0.000	0.402	0.489	0.000	0.489
*BTID: System Product Development *FY 2009 Accomplishments:* Upgraded transponder units, integrated BTID on F/A-18 aircraft, and executed the Bold Quest (BQ) Exercise which demonstrated BTID in the Air-to-Ground Mission area. *FY 2010 Plans:* Per DEPSECDEF guidance, refocus BTID from vehicle-vehicle Cooperative Target ID (CTI) to Fires on Dismounts CTI and Air-Ground CTI to meet the needs of the current fight. To support this direction, efforts will include: Dismount CTI technology development/technology maturation to support a Military	1.262	1.530	12.300	0.000	12.300

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Utility Assessment during an FY10/11 BQ demonstration and technology down-select and preparing acquisition documentation to support an FY12 MS A decision. *FY 2011 Base Plans:* Continue Technology Development and the maturing process with multiple contractors providing systems in support of BQ-11 goals that support DSD guidance and objectives. This effort will require a minimum of six to eight contractors whose products can meet Technology Readiness Assessment goals that will define a maturity level required in a field evaluation under realistic conditions in late FY11.					
*BTID: JCTI-G Joint Product Evaluation *FY 2009 Accomplishments:* Conducted Pre-Milestone B activities and developed MS B documentation for the joint Cooperative Target ID-Ground. *FY 2010 Plans:* Per DEPSECDEF guidance, refocus BTID from vehicle-vehicle Cooperative Target ID (CTI) to Fires on Dismounts CTI and Air-Ground CTI to meet the needs of the current fight. To support this direction, efforts will include: Dismount CTI technology development/technology maturation to support a Military Utility Assessment during an FY10/11 BQ demonstration and technology down-select and preparing acquisition documentation to support an FY12 MS A decision. *FY 2011 Base Plans:* Execute BQ-11 as a Joint/Coalition exercise that will culminate in FY-11 with an MUA supporting DSD guidance and the Milestone Decision Authorities goal for a MS-A/B decision in late FY11 or early FY12.	1.211	0.110	2.000	0.000	2.000
*BTID: SDD Developmental Test Articles	0.000	0.180	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Per DEPSECDEF guidance, refocus BTID from vehicle-vehicle Cooperative Target ID (CTI) to Fires on Dismounts CTI and Air-Ground CTI to meet the needs of the current fight. To support this direction, efforts will include: Dismount CTI technology development/technology maturation to support a Military Utility Assessment during an FY10/11 BQ demonstration and technology down-select and preparing acquisition documentation to support an FY12 MS A decision.					
*BTID: Management Services *FY 2010 Plans:* Per DEPSECDEF guidance, refocus BTID from vehicle-vehicle Cooperative Target ID (CTI) to Fires on Dismounts CTI and Air-Ground CTI to meet the needs of the current fight. To support this direction, efforts will include: Dismount CTI technology development/technology maturation to support a Military Utility Assessment during an FY10/11 BQ demonstration and technology down-select and preparing acquisition documentation to support an FY12 MS A decision. *FY 2011 Base Plans:* Complete Joint AoA. Provide Management oversight to product development efforts. Complete all documentation to support MDD at MS-A/B with associated Requests for Proposals and Source Selection. Provide resources to an established Component Lead Joint Program management team at Aberdeen Proving Grounds, MD to support Technology development/Engineering and Manufacturing Development based on MDA direction for a SI Program in anticipation of 1st Qtr FY-12 contact awards.	0.000	0.814	6.074	0.000	6.074
*COC: Continued Capability Solution *FY 2009 Accomplishments:* Model G ECP analysis initiated. Transition Switch Module integration analysis and Operations Trailer Ease-of-Use preliminary ECP initiated.	2.029	6.982	1.047	0.000	1.047

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Complete Model G design, documentation, and testing *FY 2011 Base Plans:* Complete Model G design, documentation, and testing					
*COC: Support of Systems Integration *FY 2009 Accomplishments:* Funded support services for analyzing technology insertion and integration of MAGTF C2 requirements into the COC baseline.	0.200	0.000	0.000	0.000	0.000
*COC: Test and Evaluation *FY 2009 Accomplishments:* Funded MCOTEA for initial planning of Model G testing. *FY 2010 Plans:* N/A	0.038	0.100	0.000	0.000	0.000
*COC: Program Management Support *FY 2009 Accomplishments:* Provided continued support to PM MC2S.	0.057	0.000	0.000	0.000	0.000
*TIER I: Mini digital data-Link development for small aircraft systems. *FY 2009 Accomplishments:* Funded Tactical Network Sensor Suite (TNS2) program. This initiative supports the experimentation, integration and product enhancement of the Marine Corps UAS program, communications hardware and C2 software.	0.163	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*TIER I: ACTD, OEF/OIF, CONOPS, TTP. *FY 2009 Accomplishments:* Funded Tactical Network Sensor Suite (TNS2) program. This initiative supports the experimentation, integration and product enhancement of the Marine Corps UAS program, communications hardware and C2 software.	0.200	0.000	0.000	0.000	0.000
*CTN: Engineering Development Model (EDM). *FY 2009 Accomplishments:* Refurbished test assets for IOT&E, MBIT SW, OS SW update. *FY 2010 Plans:* Funds to be used for USG 4B HW development. *FY 2011 Base Plans:* Funds to be used for USG 4B development, IFC kernel.	0.437	0.665	0.370	0.000	0.370
*CTN: CAC2S, AN/TPS-59 long range radar, G/ATOR and FoS upgrades interfaces. Program was incorrectly decremented $5M for FY10, controls were locked before adjustments were made, adjustments will be made during execution. *FY 2009 Accomplishments:* Developed AC2, AN TPS-59 Mode 5, and G/ATOR IDD, begin SW development of a G/ATOR and AC2 adaptive layer. *FY 2010 Plans:* Continue SW development of GATOR and AC2 adaptive layer, SW engineering load for integration testing.	1.212	5.884	1.000	0.000	1.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Final SW release for development testing.					
*CTN: Certification of Interfaces *FY 2009 Accomplishments:* Certified Software CEC Baseline 2.1.9.3 *FY 2010 Plans:* Certification of CEC Baseline 2.1.9.5, Functional Quality Test of Air Control 2 adaptive layer. *FY 2011 Base Plans:* Certification of Baseline 2.1.10	1.000	1.530	1.365	0.000	1.365
*CTN: Program Management Support. *FY 2009 Accomplishments:* Used for system engineering support, Testing & Evaluation support, Information Analysis support, CM support, and Logistics. *FY 2010 Plans:* To be used for system engineering support, Testing & Evaluation support, Information Analysis support, CM support, and Logistics. *FY 2011 Base Plans:* To be used for system engineering support, Testing & Evaluation support, Information Analysis support, CM support, and Logistics.	0.327	0.160	1.457	0.000	1.457
*MACCS SUSTAINMENT: TAOM, ADCP and CDLS.	1.164	1.204	1.158	0.000	1.158

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Developed and implemented radio mount and transport pallet modifications for TAOM. Developed and Tested Joint Range Extension software version 5.0 *FY 2010 Plans:* Design and prototype modification kits for Commercial Item Technology Refresh for TAOM, SAAWF, TIU and MCIU. *FY 2011 Base Plans:* Design and prototype modification kits for Commercial Item Technology Refresh for TAOM, SAAWF, TIU and MCIU.					
*MACCS SUSTAINMENT: TAOM, SAAWF, TIU, MCIU, ADCP, CIS and CDLS *FY 2009 Accomplishments:* Funded TAOC Life Cycle Support contract for engineering investigations. Funded TAOC Software PDSS contract. Funded USMC portion of JICO Support System JPO R&D costs. Funded NSWC Crane for ADCP PDSS efforts.	2.154	0.000	0.000	0.000	0.000
*MACCS SUSTAINMENT: Program Management Support *FY 2009 Accomplishments:* Funded MCSC Project Office internal and external travel requirements in support of test events.	0.115	0.000	0.000	0.000	0.000
*TIER II UAS: Marine Corps C4I network Integration. *FY 2009 Accomplishments:* STUAS RFP released 3 April. First small tactical UAS program to go through a formal DoD 5000 Acquisition Process. In June to July 2009, conducted successful Flight Demonstrations of proposed STUAS systems at YUMA Training Center (YTC) Yuma. AZ as part of the solicitaion effort. Innovative	0.080	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
and "first of its kind" solicitation approach to help mitigate proposal risk and evaluate a best value solution to the government for rapidly maturing UAV technologies.					
*TIER II UAS: MCCDC Support *FY 2009 Accomplishments:* STUAS RFP released 3 April. First small tactical UAS program to go through a formal DoD 5000 Acquisition Process.	0.620	0.000	0.000	0.000	0.000
*TIER II UAS: Operational Testing (OT) *FY 2009 Accomplishments:* STUAS RFP released 3 April. First small tactical UAS program to go through a formal DoD 5000 Acquisition Process. In June to July 2009, conducted successful Flight Demonstrations of proposed STUAS systems at YUMA Training Center (YTC) Yuma. AZ as part of the solicitaion effort. Innovative and "first of its kind" solicitation approach to help mitigate proposal risk and evaluate a best value solution to the government for rapidly maturing UAV technologies.	0.214	0.000	0.000	0.000	0.000
*TIER II UAS: Navy Program Management Support. *FY 2009 Accomplishments:* STUAS RFP released 3 April. First small tactical UAS program to go through a formal DoD 5000 Acquisition Process. In June to July 2009, conducted successful Flight Demonstrations of proposed STUAS systems at YUMA Training Center (YTC) Yuma. AZ as part of the solicitaion effort. Innovative and "first of its kind" solicitation approach to help mitigate proposal risk and evaluate a best value solution to the government for rapidly maturing UAV technologies.	11.057	0.000	0.000	0.000	0.000
*TIER II UAS: Program Management Support .	1.212	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: STUAS RFP released 3 April. First small tactical UAS program to go through a formal DoD 5000 Acquisition Process. In June to July 2009, conducted successful Flight Demonstrations of proposed STUAS systems at YUMA Training Center (YTC) Yuma. AZ as part of the solicitaion effort. Innovative and "first of its kind" solicitation approach to help mitigate proposal risk and evaluate a best value solution to the government for rapidly maturing UAV technologies.					
*RVVT: Preparation of MS C and Full Rate Production and Fielding activities *FY 2010 Plans:* Continue Pre-Milestone B activities (Acquisition Plan, Source Selection Plan, RFP). Material Development Decision (AOA Study Plan and Statement of Need). *FY 2011 Base Plans:* Preparation of Milestone C and Full Rate Production and Fielding activities.	0.000	0.663	0.467	0.000	0.467
*TBMCS: USMC TBMCS development. *FY 2009 Accomplishments:* USMC TBMCS development. *FY 2010 Plans:* USMC TBMCS development. *FY 2011 Base Plans:* USMC TBMCS development.	0.242	0.221	0.150	0.000	0.150
*TBMCS: MCTSSA TBMCS software support.	0.203	0.180	0.047	0.000	0.047

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: MCTSSA TBMCS software support. *FY 2010 Plans:* MCTSSA TBMCS software support. *FY 2011 Base Plans:* MCTSSA TBMCS software support.					
*TBMCS: Program management support. *FY 2009 Accomplishments:* Program Management support. *FY 2010 Plans:* Program Management support. *FY 2011 Base Plans:* Program Management support.	0.260	0.366	0.274	0.000	0.274
*TBMCS: Test and Evaluation for TBMCS Upgrades Joint Interoperability. *FY 2009 Accomplishments:* Test and Evaluation for TBMCS Upgrades Joint Interoperability. *FY 2010 Plans:* Test and Evaluation for TBMCS Upgrades Joint Interoperability. *FY 2011 Base Plans:* Test and Evaluation for TBMCS Upgrades Joint Interoperability.	0.077	0.081	0.083	0.000	0.083

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*CAC2S: Program Management Support. *FY 2009 Accomplishments:* Program management support. *FY 2010 Plans:* Program management support. *FY 2011 Base Plans:* Program management support.	3.607	3.900	4.200	0.000	4.200
*CAC2S: Test and Evaluation Testing and Information Assurance Certification. *FY 2009 Accomplishments:* CAC2S: System development testing, operational assessment, and live interface testing in accordance with continued sensor interface/integration, communications interface/interoperability validation. Additionally, regression testing following DT & OT system corrections; as well as, Information Assurance certification test scans. *FY 2010 Plans:* CAC2S: System development testing, operational assessment, and live interface testing in accordance with continued sensor interface/integration, communications interface/interoperability validation. Additionally, regression testing following DT & OT system corrections; as well as, Information Assurance certification test scans. *FY 2011 Base Plans:* CAC2S: System development testing, operational assessment, and live interface testing in accordance with continued sensor interface/integration, communications interface/interoperability validation. Additionally, regression testing following DT & OT system corrections; as well as, Information Assurance certification test scans.	1.456	2.320	1.950	0.000	1.950

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*CAC2S: EDM, TR, Gov't DT, MROC ECP	5.443	13.056	12.542	0.000	12.542
FY 2009 Accomplishments: Design, Development and Testing of Engineering Developmental Models (EDM). Contract activities to complete Phase I integration to include Trouble Reports (TR) corrections following Gov't DT. Additionally, MROC directed Engineering Change Proposals (ECP) development and implementation. *FY 2010 Plans:* Design, Development and Testing of Engineering Developmental Models (EDM). Funding to be used to fund MCOTEA and IOT&E. *FY 2011 Base Plans:* Design, Development and Testing of Engineering Developmental Models (EDM). Support integration testing and DT with G/ATOR and AC2.					
*CAC2S: Operational Assessments.	6.864	19.771	18.170	0.000	18.170
FY 2009 Accomplishments: Data and information fusion componet hardware and software development and support, including developmental testing, field user evaluations and operational assessments. *FY 2010 Plans:* Data and information fusion componet hardware and software development and support, including developmental testing, field user evaluations and operational assessments. *FY 2011 Base Plans:* Data and information fusion componet hardware and software development and support, including developmental testing, field user evaluations and operational assessments.					
*CAC2S: Engineering, Management and Logistics Support	1.352	2.750	3.322	0.000	3.322

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Engineering, Management & Logistics Support *FY 2010 Plans:* Engineering, Management & Logistics Support *FY 2011 Base Plans:* Engineering, Management & Logistics Support					
*SIAP: Develop Joint SIAP capability. *FY 2009 Accomplishments:* Develop Joint SIAP capability. *FY 2010 Plans:* Develop Joint SIAP capability.	3.396	3.149	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	47.652	66.108	68.465	0.000	68.465

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/4640001: *CTN*	14.467	24.751	15.808	0.000	15.808	0.516	0.000	0.000	0.000	Continuing	Continuing
• PMC/4640002: *MACCS Sustainment*	2.474	6.422	1.226	35.661	36.887	1.201	1.164	1.201	1.219	Continuing	Continuing
• PMC/4640003: *TBMCS*	3.889	3.455	2.216	3.770	5.986	3.580	3.659	5.215	5.681	Continuing	Continuing
• PMC/4747004: *TIER I UAS*	15.348	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• PMC/4757005: *TIER I UAS*	0.000	41.492	6.189	0.000	6.189	5.445	4.529	4.787	4.576	Continuing	Continuing
	0.000	0.551	0.512	0.000	0.512	1.021	1.052	1.076	1.099	Continuing	Continuing

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDT&E,N/PE #0305232M: *TIER I UAS*											
• RDT&E,N/PE #0305234M: *TIER II UAS*	0.000	18.685	26.209	0.000	26.209	16.864	22.764	11.546	9.657	Continuing	Continuing
• PMC/4757003: *TIER II UAS*	0.000	0.000	26.301	0.000	26.301	39.343	67.893	65.071	67.106	Continuing	Continuing
• PMC/464: *BTID*	6.235	0.000	0.000	1.600	1.600	1.600	0.000	0.000	0.000	Continuing	Continuing
• PMC/4190005: *COC*	92.468	19.771	10.776	112.424	123.200	17.966	21.739	18.224	18.722	Continuing	Continuing
• APN/0444006: *STUAS*	0.000	10.099	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• PMC/4640007: *RVVT*	0.000	6.305	5.643	0.000	5.643	2.942	3.076	0.000	0.000	Continuing	Continuing
• PMC/4640008: *CAC2S*	0.000	4.086	42.675	0.000	42.675	39.417	62.854	46.285	65.299	Continuing	Continuing

D. Acquisition Strategy

CAC2S will employ an evolutionary acquisition strategy utilizing an incremental and phased approach for development and fielding of the CAC2S. The CPD identifies two increments to achieve the full requirements of CAC2S. This acquisition strategy addresses Increment I of the CAC2S development process and focuses on the requirements that will modernize the assault and air support, air defense and control, and ACE battle management capabilities of the MACCS. Increment I of the CAC2S will be accomplished through a two phased approach. Phase 1 will address the requirements to establish the baseline CAC2S capabilities for the MACCS and improve AC2 performance and effectiveness. Phase 2 will address the requirements for remaining ACE BMC2 requirements

Theater Battle Management Core Systems (TBMCS) - TBMCS is an ACAT 1AC, USAF Program with joint interest/oversight. It was mandated by the Chairman, Joint Chiefs of Staff in July 93 for Air Tasking Order (ATO) Interoperability among all services. The USMC will not be letting any competitive contracts for TBMCS, but following the USAF lead, utilizing USAF TBMCS contracts and fielding only the joint modules of TBMCS. As USMC unique requirements are identified and funded, they will be provided to the USAF (to include funding) for inclusion within TBMCS utilizing the USAF delivery order (fixed price) contract. Over the course of the FYDP, the USMC will leverage USAF software support activities vice funding strictly USMC software support.

MACCS SUSTAINMENT - The family of systems that comprise the MACCS Sustainment program include all of the currently fielded Air Command and Control assets. These include the Tactical Air Operations Module (TAOM), Communications Data Link System (CDLS), Sector Anti-Air Warfare Facility (SAAWF), Air Defense Communication Platform (ADCP), Direct Air Support Central Airborne (DASCA), Direct Air Support Central Airborne System (DASCAS), TAOM Interface Unit (TIU), Multi-Channel Interface Unit (MCIU), Communication Interface System (CIS), Joint Tactical Information Distribution System (JTIDS), and Joint Range Extension (JRE).

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CTN - The USMC's CTN acquisition strategy is to participate in the USN's program procurement and testing, making necessary modifications to support the Marine Corps' requirement.

BTID - Economy of scales dictate a strategy that highly leverages Joint/coalition evolutionary development and acquisition efforts. The Coalition Combat ID Advanced Concept Technology Demonstration (CCID ACTD) completed in October 2005 resulted in a process that evaluated the Military Utility of a Standard NATO Agreement (STANAG) 4579 Compliant millimeter wave (mmW) Target Identification system and other technologies with the objective of identifying the best system to satisfy the Marine Corps requirement. The resultant analysis and action by the Army Marine Corps Board in March 2006 directed a combined Service program with the Army (PD TIMS) as the Component Lead Program. During FY07 the JFCOM sponsored Bold Quest exercise refined the BTID Ground-to-Ground requirement. In July 2008 the Army and the Marine Corps signed a Memorandum of Agreement which outlines the path to execute the program. The Army will be the lead for the Combined Program. The USMC will resource unique Marine Corps integration and programmatic requirements through the System Development and Demonstration (SDD) Program Phase. In Jan 2009, USD AT&L designated BTID as a Special Interest program.

RVVT - Program initiation in FY10 with entrance into the acquisition process at MS B. Anticipate MS B and intial contract award in early FY11. The program office expects to utilize a competitive acquisition approach to quickly field a capability with limited development.

COC - The Combat Operations Center (COC) AN/TSQ-239 (V)2/3/4 is the foundation of USMC C2, meeting near term communications and network requirements in OEF, OIF and RWOT. There is a continuing developmental effort to evolve the COC into a fully integrated MAGTF C2 capability.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CAC2S	WR	NSWC Crane, IN	6.379	11.024	Oct 2009	7.922	Oct 2010	0.000		7.922	0.000	25.325	Continuing
CTN	WR	NSWC Crane, IN	0.907	2.829	Oct 2009	0.680	Dec 2010	0.000		0.680	0.000	4.416	Continuing
CTN	WR	NAVSEA PEO IWS Not Specified	1.273	1.000	Oct 2009	0.690	Dec 2010	0.000		0.690	0.000	2.963	Continuing
Tier II	WR	MCTSSA San Diego, CA	0.157	0.000		0.000		0.000		0.000	0.000	0.157	Continuing
Tier II	C/TBD	Navy PMA-263	6.670	0.000		0.000		0.000		0.000	0.000	6.670	Continuing
Tier I	MIPR	Wright Patterson AFB OH	0.219	0.000		0.000		0.000		0.000	0.000	0.219	Continuing
Tier I	WR	NASW Dahlgren, VA	0.270	0.000		0.000		0.000		0.000	0.000	0.270	Continuing
Tier I	MIPR	NATICK Redstone, AL	2.000	0.000		0.000		0.000		0.000	0.000	2.000	Continuing
RVVT	C/FP	OEM Not Specified	0.000	0.000		0.250	Mar 2011	0.000		0.250	0.000	0.250	Continuing
MACCS Sustainment	Reqn	NGES Woodland Hills, CA	15.232	1.204	Jun 2010	1.158	Jun 2011	0.000		1.158	Continuing	Continuing	Continuing
MACCS Sustainment	MIPR	NSWC Crane, IN	1.648	0.000		0.000		0.000		0.000	0.000	1.648	Continuing
MACCS Sustainment	Reqn	L-3 Comm	0.381	0.000		0.000		0.000		0.000	0.000	0.381	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Stafford, VA											
MACCS Sustainment	Reqn	NAVSEA PEO IWS 6	1.500	0.000		0.000		0.000		0.000	0.000	1.500	Continuing
JSS	MIPR	NSWC Crane, IN	0.000	0.062	Oct 2009	0.000		0.000		0.000	0.000	0.062	Continuing
COC	WR	SPAWAR Charleston, SC	7.483	4.796	Jan 2010	0.593	Jan 2011	0.000		0.593	Continuing	Continuing	Continuing
COC	Reqn	General Dynamics Not Specified	24.852	2.186	Jan 2010	0.454	Jan 2011	0.000		0.454	Continuing	Continuing	Continuing
COC	Reqn	Coherent Johnstown, PA	0.299	0.000		0.000		0.000		0.000	0.000	0.299	Continuing
COC	WR	NSWC Crane, IN	0.220	0.000		0.000		0.000		0.000	0.000	0.220	Continuing
BTID	WR	NSWC Crane, IN	4.346	1.530	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
BTID	WR	USMC/Army Contractor Not Specified	0.000	0.000		12.300	Jan 2011	0.000		12.300	Continuing	Continuing	Continuing
BTID1	WR	NAVAIR Pax River, MD	0.145	0.000		0.000		0.000		0.000	0.000	0.145	Continuing
BTID2	Reqn	NAVAIR Pax River, MD	1.830	0.000		0.000		0.000		0.000	0.000	1.830	Continuing
CAC2S	C/CPIF	General Dynamics Quantico, VA	3.000	3.200	Dec 2009	4.475	May 2010	0.000		4.475	0.000	10.675	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2273: *Air Ops Cmd & Control (C2) Sys*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CAC2S	C/CPIF	MCSC Quantico, VA	11.121	10.875	Aug 2010	10.472	Jan 2011	0.000		10.472	0.000	32.468	Continuing
CAC2S	WR	NSWC Dahlgren, VA	8.293	6.650	Jan 2010	6.460	Jan 2011	0.000		6.460	0.000	21.403	Continuing
TBMCS	MIPR	ESC Hanscom AFB	1.204	0.239	Jan 2010	0.100	Jan 2011	0.000		0.100	0.000	1.543	Continuing
TBMCS	MIPR	Greater Hampton Hampton VA	0.552	0.167	Mar 2010	0.075	Mar 2011	0.000		0.075	0.000	0.794	Continuing
Need Item Text	C/FP	Not Specified Not Specified	0.000	0.000		0.000		0.000		0.000	0.000	0.000	Continuing
		Subtotal	99.981	45.762		45.629		0.000		45.629			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Tier I	C/FP	MCSC Quantico, VA	0.108	0.000		0.000		0.000		0.000	0.000	0.108	Continuing
Tier II	C/FP	Eagan Mcallister Lexington	1.240	0.000		0.000		0.000		0.000	0.000	1.240	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2273: *Air Ops Cmd & Control (C2) Sys*	

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CTN	WR	NSWC Dahlgren, VA	0.015	0.570	Nov 2009	0.120	Nov 2010	0.000		0.120	0.000	0.705	Continuing
CTN	WR	NSWC PHD	0.068	0.050	Nov 2009	0.000		0.000		0.000	0.000	0.118	Continuing
CTN	C/FP	Lockheed Martin Syracuse, NY	0.100	0.000		0.000		0.000		0.000	0.000	0.100	Continuing
MACCS Sustainment	WR	NGES Woodland Hills, CA	3.186	0.000		0.000		0.000		0.000	0.000	3.186	Continuing
MACCS Sustainment	Reqn	CRI Van Nuys, CA	3.184	0.000		0.000		0.000		0.000	0.000	3.184	Continuing
MACCS Sustainment	Reqn	KATMAI Van Nuys, CA	2.256	0.000		0.000		0.000		0.000	0.000	2.256	Continuing
MACCS Sustainment	MIPR	Hanscome AFB Not Specified	0.092	0.000		0.000		0.000		0.000	0.000	0.092	Continuing
MACCS Sustainment	WR	NSWC Crane, IN	4.437	0.000		0.000		0.000		0.000	0.000	4.437	Continuing
JSS	WR	MCTSSA Camp Pendelton, CA	0.000	0.028	Oct 2009	0.000		0.000		0.000	0.000	0.028	Continuing
BTID	Reqn	MCSC Quantico, VA	1.832	0.110	Mar 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
COC	MIPR	NUWC Newport, RI	0.200	0.000		0.000		0.000		0.000	0.000	0.200	Continuing
CTN	WR	SPAWAR Charleston, SC	0.375	0.000		0.000		0.000		0.000	0.000	0.375	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2273: *Air Ops Cmd & Control (C2) Sys*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CAC2S	C/Various	Travel-TAD Not Specified	0.000	0.500	Oct 2009	0.500	Oct 2010	0.000		0.500	0.000	1.000	Continuing
CAC2S	WR	NSWC Carderock Carderock, MD	0.000	0.250	Dec 2009	0.260	Dec 2010	0.000		0.260	0.000	0.510	Continuing
CAC2S	WR	JITC Fort Huachuca, AZ	0.471	0.200	Jan 2010	0.200	Jan 2011	0.000		0.200	0.000	0.871	Continuing
CAC2S	MIPR	MITRE Boston, MA	3.163	0.900	Nov 2010	1.400	Nov 2011	0.000		1.400	0.000	5.463	Continuing
CAC2S	WR	MACCS-X Camp Pendleton	0.964	0.500	Jan 2010	0.500	Jan 2011	0.000		0.500	0.000	1.964	Continuing
CAC2S	WR	MCTSSA Camp Pendleton	1.356	0.750	Jan 2010	0.750	Jan 2011	0.000		0.750	0.000	2.856	Continuing
CAC2S	WR	NSWC Corona Corona, CA	0.907	1.048	Jan 2010	1.145	Jan 2011	0.000		1.145	0.000	3.100	Continuing
CAC2S	C/FP	BAH Stafford, VA	1.503	0.500	Sep 2010	0.500	Sep 2011	0.000		0.500	0.000	2.503	Continuing
TBMCS	WR	MCTSSA Camp Pendleton	0.533	0.180	Jan 2010	0.140	Jan 2011	0.000		0.140	0.000	0.853	Continuing
BTID	WR	USMC/Army Contractor Not Specified	0.000	0.000		2.000	Dec 2010	0.000		2.000	0.000	2.000	Continuing
SIAP	C/FP	RNB Technologies Stafford VA	2.225	3.149	Feb 2010	0.000		0.000		0.000	0.000	5.374	Continuing
		Subtotal	28.215	8.735		7.515		0.000		7.515			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2273: *Air Ops Cmd & Control (C2) Sys*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CTN	WR	NWAS Corona, CA	0.633	0.470	Nov 2009	0.400	Nov 2010	0.000		0.400	0.000	1.503	Continuing
CTN	WR	John Hopkins APL Not Specified	0.278	0.150	Feb 2010	0.000		0.000		0.000	0.000	0.428	Continuing
CTN	WR	JTIC Not Specified	0.042	0.050	Feb 2010	0.000		0.000		0.000	0.000	0.092	Continuing
CTN	WR	MCTSSA Not Specified	0.080	0.040	Feb 2010	0.040	Feb 2011	0.000		0.040	0.000	0.160	Continuing
CTN	WR	NSWC Crane, IN	0.000	0.300	Feb 2010	0.000		0.000		0.000	0.000	0.300	Continuing
CTN	WR	NAVSEA PEO IWS Not Specified	0.300	0.200	Feb 2010	0.000		0.000		0.000	0.000	0.500	Continuing
CTN	WR	DT/OT Not Specified	0.430	1.228	Feb 2010	2.037	Feb 2011	0.000		2.037	0.000	3.695	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2273: *Air Ops Cmd & Control (C2) Sys*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CTN	WR	MACS-24 Not Specified	0.064	0.100	Feb 2010	0.000		0.000		0.000	0.000	0.164	Continuing
CTN	WR	MCOTEA Testing Not Specified	1.322	0.370	Jul 2010	0.225	Jul 2011	0.000		0.225	0.000	1.917	Continuing
Tier II	WR	MCOTEA Testing Not Specified	0.214	0.000		0.000		0.000		0.000	0.000	0.214	Continuing
Tier I	WR	NSWC Carderock, MD	0.033	0.000		0.000		0.000		0.000	0.000	0.033	Continuing
RVVT	MIPR	MCOTEA Testing Not Specified	0.000	0.269	Nov 2009	0.217	Nov 2010	0.000		0.217	0.000	0.486	Continuing
COC	MIPR	MCOTEA Quantico, VA	0.628	0.100	Jan 2010	0.000		0.000		0.000	0.000	0.728	Continuing
BTID	WR	MCOTEA Quantico, VA	0.000	0.180	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
MACCS Sustainment	WR	NSWC Crane, IN	0.198	0.000		0.000		0.000		0.000	0.000	0.198	Continuing
CAC2S	WR	MCOTEA Quantico, VA	3.550	1.400	Jan 2010	1.400	Jan 2011	0.000		1.400	0.000	6.350	Continuing
TBMCS	WR	MCOTEA Quantico, VA	0.378	0.082	Jan 2010	0.063	Jan 2011	0.000		0.063	0.000	0.523	Continuing
		Subtotal	8.150	4.939		4.382		0.000		4.382			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2273: *Air Ops Cmd & Control (C2) Sys*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CTN	WR	MCSC Quantico, VA	0.000	0.882	Oct 2009	0.000		0.000		0.000	0.000	0.882	Continuing
Tier II	Various/ Various	QNA Stafford, VA	1.000	0.000		0.000		0.000		0.000	0.000	1.000	Continuing
Tier II	WR	MCSC Quantico, VA	0.030	0.000		0.000		0.000		0.000	0.000	0.030	Continuing
Tier II	WR	NSWC Dahlgren, VA	0.182	0.000		0.000		0.000		0.000	0.000	0.182	Continuing
Tier II-1	WR	Navy PMA-263	3.725	0.000		0.000		0.000		0.000	0.000	3.725	Continuing
Tier II-2	WR	Navy PMA-263	0.662	0.000		0.000		0.000		0.000	0.000	0.662	Continuing
RVVT	Various/ Various	QNA Stafford, VA	0.000	0.394	Mar 2010	0.000		0.000		0.000	0.000	0.394	Continuing
BTID	C/FFP	QNA Stafford, VA	0.000	0.479	Mar 2010	0.524	Mar 2011	0.000		0.524	Continuing	Continuing	Continuing
BTID	WR	MCSC Quantico, VA	0.000	0.335	Oct 2009	0.335	Oct 2010	0.000		0.335	Continuing	Continuing	Continuing
MACCS Sustainment	C/FFP	MCSC Quantico, VA	0.115	0.000		0.000		0.000		0.000	0.000	0.115	Continuing
MACCS Sustainment	C/FFP	QNA Stafford, VA	0.514	0.000		0.000		0.000		0.000	0.000	0.514	Continuing
JSS	WR	MCSC Quantico, VA	0.000	0.102	Oct 2009	0.089	Oct 2010	0.000		0.089	Continuing	Continuing	Continuing
JSS	Reqn	TBD	0.000	0.300	Mar 2010	0.400	Mar 2011	0.000		0.400	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2273: *Air Ops Cmd & Control (C2) Sys*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Not Specified											
COC	Reqn	MCSC Quantico, VA	0.057	0.000		0.000		0.000		0.000	0.000	0.057	Continuing
COC	Reqn	NGMS Stafford, VA	4.053	0.000		0.000		0.000		0.000	0.000	4.053	Continuing
CAC2S	C/FFP	QNA Stafford, VA	5.596	4.000	Nov 2009	4.200	Nov 2010	0.000		4.200	0.000	13.796	Continuing
TBMCS	C/FFP	QNA Stafford VA	1.455	0.180	Nov 2009	0.176	Nov 2010	0.000		0.176	0.000	1.811	Continuing
BTID	WR	USMC/Army Contractor Not Specified	0.000	0.000		5.215	Jan 2011	0.000		5.215	0.000	5.215	Continuing
		Subtotal	17.389	6.672		10.939		0.000		10.939			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	153.735	66.108		68.465		0.000		68.465			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2273: *Air Ops Cmd & Control (C2) Sys*

Composite Tracking Network (CTN) Program Schedule

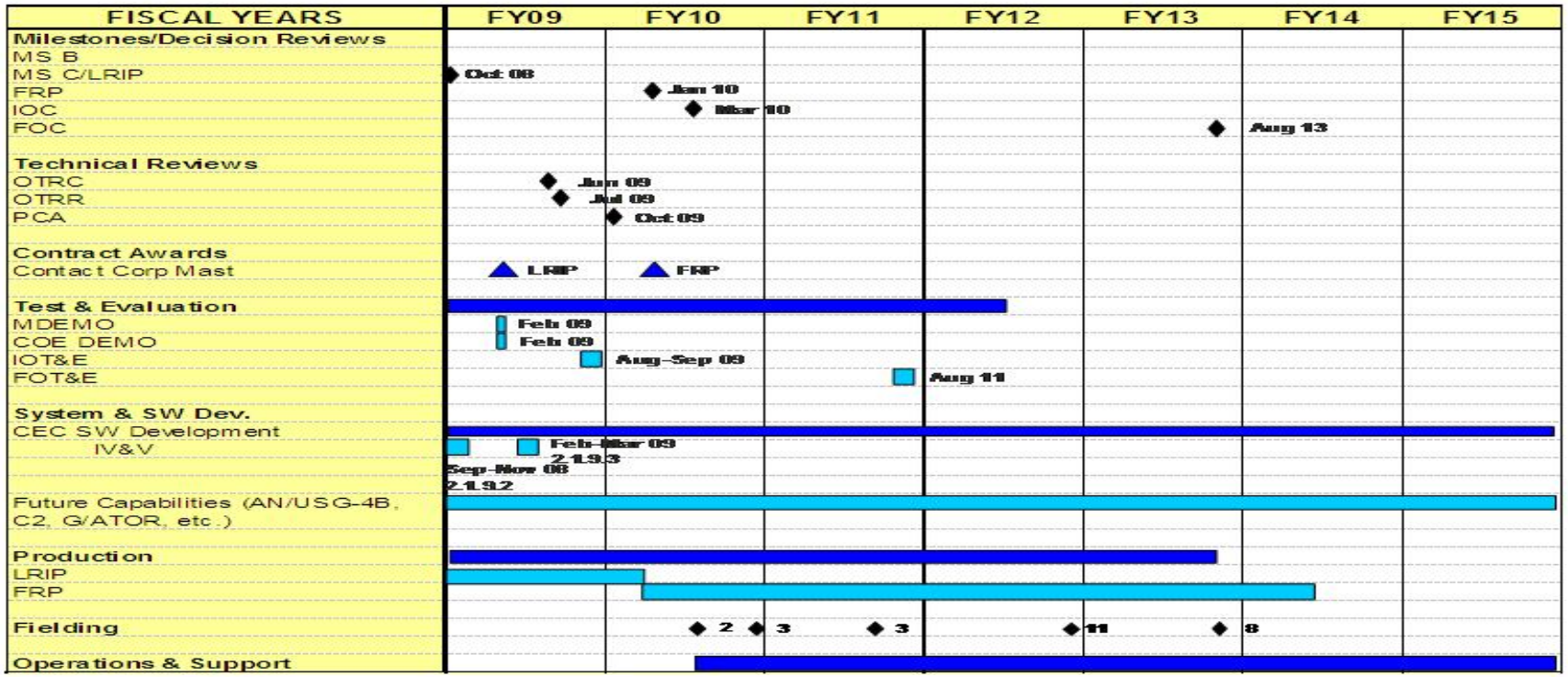

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2273: *Air Ops Cmd & Control (C2) Sys*

Remote Video Viewing Terminal (RVVT) Program Schedule

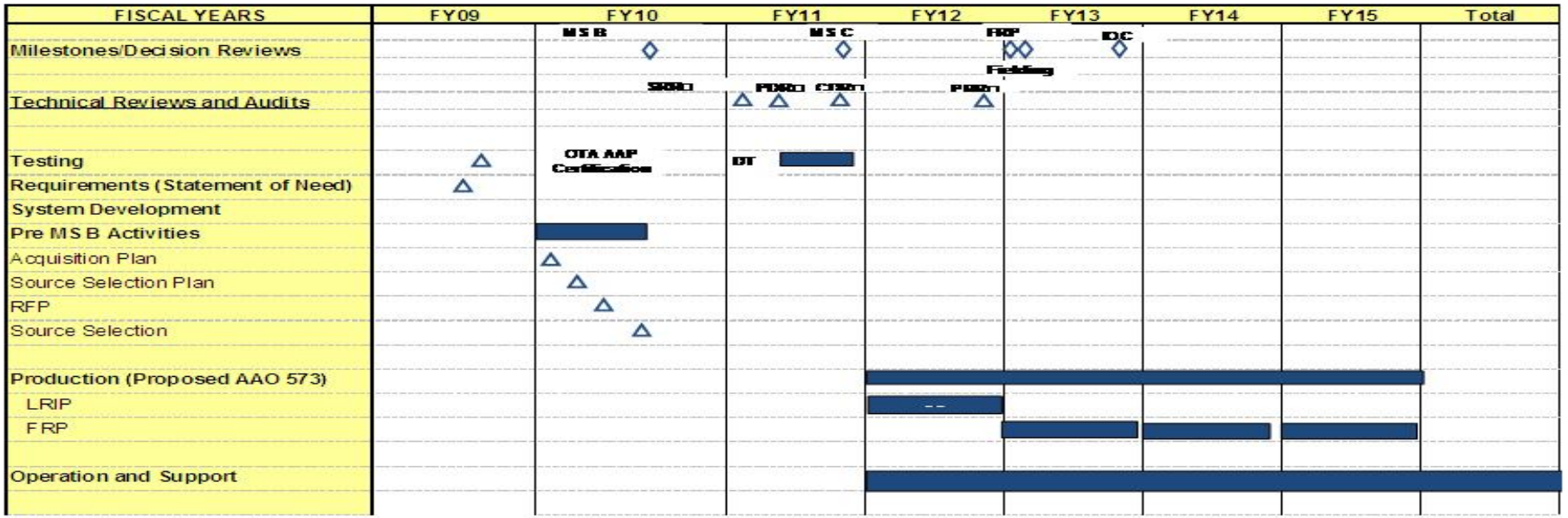

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2273: *Air Ops Cmd & Control (C2) Sys*

BATTLEFIELD TARGET IDENTIFICATION DEVICE (BTID) PROGRAM SCHEDULE

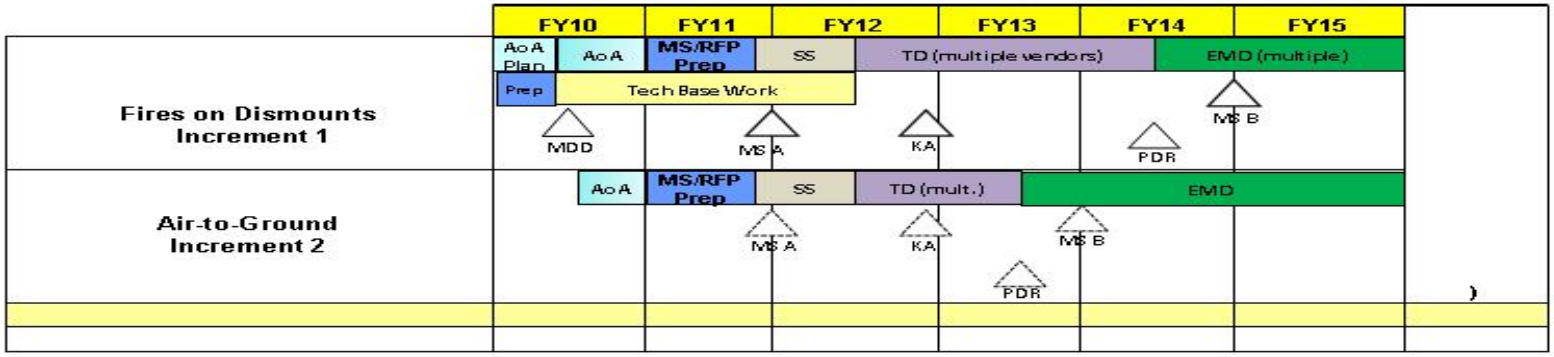

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2273: *Air Ops Cmd & Control (C2) Sys*

COC Program Schedule

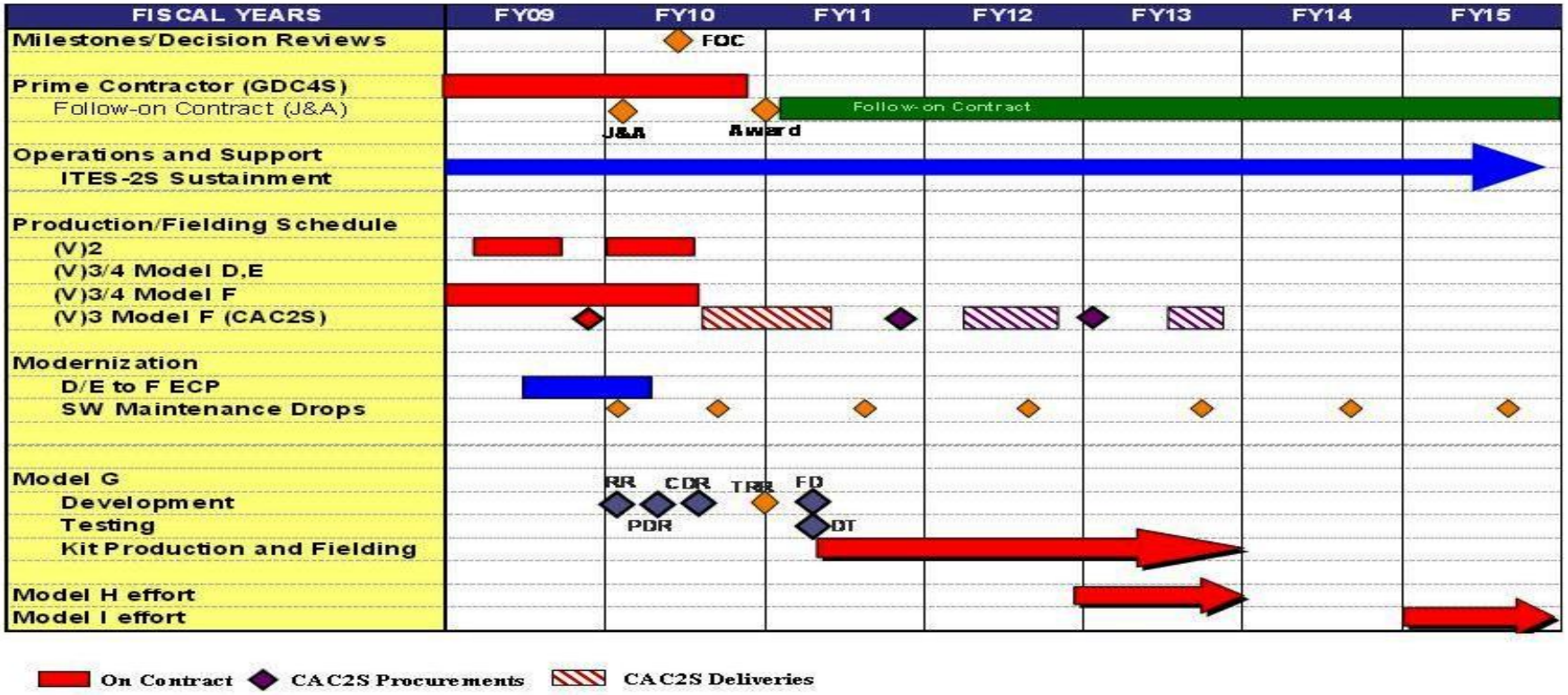

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2273: *Air Ops Cmd & Control (C2) Sys*

CAC2S Program Schedule

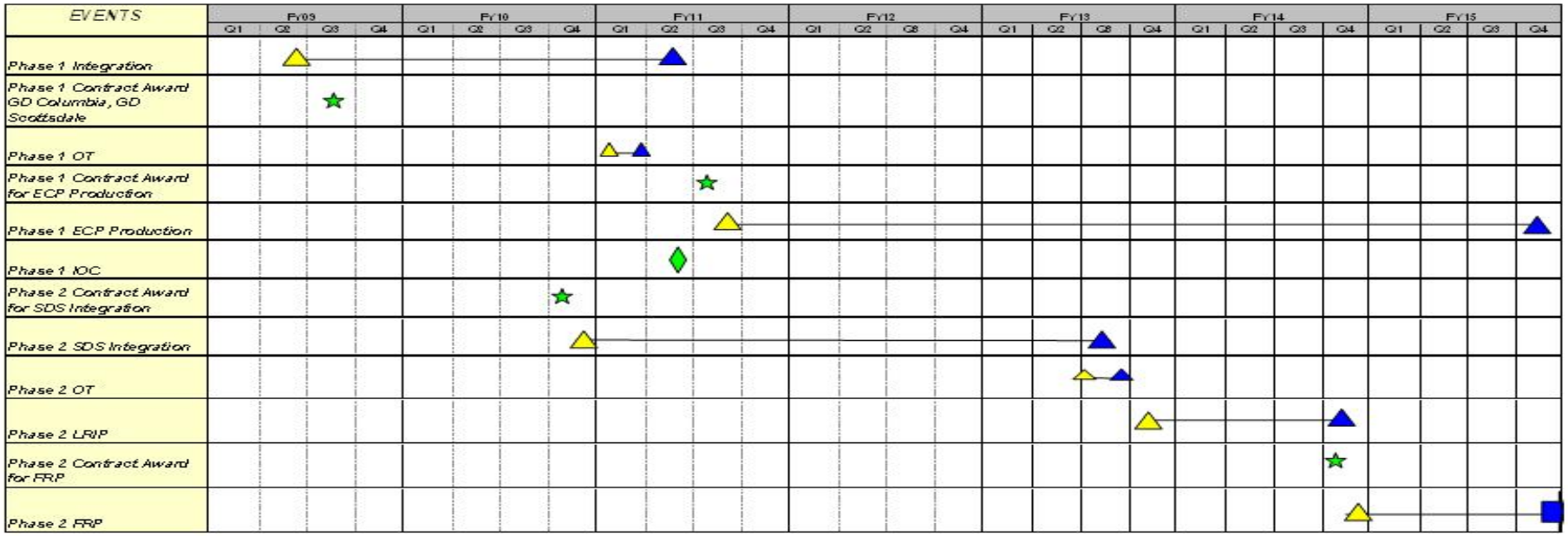

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2273: *Air Ops Cmd & Control (C2) Sys*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
CTN Milestone B	1	2009	1	2009
CTN IOT&E	4	2009	4	2009
CTN Production	1	2009	2	2014
CTN Delivery	3	2009	2	2014
CTN IOC	2	2010	2	2010
CTN FOC	4	2013	4	2013
CAC2S Milestone C (completed 1st Qtr FY08; rescinded as of Dec 2009)	1	2009	1	2009
CAC2S Phase 1 OT	1	2011	1	2011
CAC2S Phase 1 IOC	2	2011	2	2011
CAC2S Phase 2 OT	3	2013	3	2013
CAC2S Phase 2 LRIP	4	2013	4	2013
CAC2S Phase 2 FRP	4	2014	4	2014
RVVT MS B	3	2010	3	2010
Developmental Test	2	2011	4	2011
RVVT MS C	4	2011	4	2011
RVVT Full Rate Production	1	2013	4	2013
RVVT Initial Operational Capability	4	2013	4	2013
BTID Fires on Dismount Increment I MS A	1	2012	1	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2273: *Air Ops Cmd & Control (C2) Sys*

	Start		End	
Event	Quarter	Year	Quarter	Year
BTID Fires on Dismount Increment I MS B	1	2015	1	2015
BTID Air to Ground Increment II MS A	1	2012	1	2012
BTID Air to Ground Increment II MS B	1	2014	1	2014
COC FOC	3	2010	3	2010
COC Operational Sustainment	1	2009	4	2015
COC Version 2	2	2009	3	2010
COC Version 3/4 Model F	1	2009	3	2010
COC Model G Developmental testing	2	2011	2	2011
COC Model G Production/Fielding	2	2011	4	2013
COC Model H Production/Fielding	4	2012	4	2013
COC Model I Production/Fielding	1	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2274: *Command & Control Warfare Sys*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2274: *Command & Control Warfare Sys*	6.319	11.801	19.633	0.000	19.633	14.655	14.393	15.407	17.019	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Command and Control (C2) Warfare Project includes the following tactical electronic intercept, direction finding, and electronic attack systems. RREP moves to PE 0206625M, C2272, Intelligence C2 Systems in FY10 and out.

A. Mission Description and Budget Item Justification

COUNTER RCIED ELECTRONIC WARFARE (USMC CREW) provides full spectrum protection against high and low power threats. USMC CREW systems are capable of being integrated in all Marine Corps Tactical Ground Vehicles. This program is an ongoing effort to develop new techniques, improve capabilities, enhance software and develop upgrades to counter evolving threat and prevent technology obsolenscence.

RADIO RECONNAISSANCE EQUIPMENT PROGRAM (RREP) provides the Radio Battalions, Radio Reconnaissance Platoons (RRP) and the Marine Corps Forces Special Operations Command (MARSOC) Direct Support Team with mission unique Signals Intelligence/Ground Electronic Warfare (SIGINT/EW) Equipment suites. The latest suite of equipment, the SIGINT Suite 3 (SS-3) is comprised of technology and equipment necessary to prosecute advanced wireless signals. The RRP Marines are trained and equipped to support the full spectrum of Marine Expeditionary Unit Special Operations Capable (MEU SOC) mission profiles as well as provide real time, imbedded support to any special operations scenario. This provides the supported commander greater flexibility in employing his SIGINT assets when the use of conventional Radio Battalion assets are not feasible. RREP is currently maintaining the SS-3 using a spiral development approach that inserts the latest technology into the suite as it becomes mature and MARSOC. This enables the SS-3 to remain a current platform against emerging threats.

COMMUNICATION EMMITTER SENSING AND ATTACKING SYSTEM (CESAS)/(FLAMES). The AN/ULQ-30 CESAS is an advanced Electronic Attack (EA) system that can be mounted in a variety of platforms including High Mobility Multi-Purpose Wheeled Vehicles (HMMWV), waterborne platforms, helipcopters, and the MV-22. The system provides Marine Air-Ground Task Forces (MAGTFs) with the capability to detect, disrupt and deny enemy radio communications during amphibious assaultsand subsequent operations ashore. The system is being integrated into existing armored vehicle assets, currently M1151s and into an MRAP vehicle by FY10.

GROUND-BASED OPERATIONAL SURVEILLANCE SYSTEM (GBOSS). This program provides persistent (24/7) tracking of objects of interest through the use of a unique, 360-degree, high resolution, day/night surveillance capability for enhanced target recognition and situational awareness, which enables timely and appropriate

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response options (direct air attack, indirect fire, and ground patrol/attack). Each system can operate independently and consists of five main components: elevated platform, multi-spectral sensor suite, radar sensor systems suite, as well as a ground control system (GCS) and a remote ground station (RGS). The elevated platform is a 106-foot tower. The optical sensor consists of an Electro-Optic color daytime camera, an Infrared black and white day or night camera, spotter scope, a laser range finder (LRF) and a laser pointer (LP). The radar sensor systems are modular and composed of tailorable sensor groups using multiple ground-sensing technologies (doppler, thermal, seismic, acoustic, audio) consisting of multimode sensors for detection, location and classification to perform mission tasks such as perimeter defense, surveillance and situational awareness.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*USMC CREW - Product Development	0.292	3.080	3.379	0.000	3.379
FY 2009 Accomplishments: Accomplished Waveform/loadset development for CREW 2.0 and 2.1 systems; developed vehicle installation kits to integrate and mount CREW 2.1 CVRJ systems into Marine Corps Vehicle Platforms *FY 2010 Plans:* Planned Development of Waveform/loadsets to support CREW 2.1 CVRJ (mounted) and CREW 3.1 THOR III (dismounted) systems and vehicle installation kits for additional platform variants. *FY 2011 Base Plans:* Planned Development of Waveform/loadsets to support CREW 2.1 CVRJ (mounted) and CREW 3.1 THOR III (dismounted) systems and vehicle installation kits for additional platform variants.					
*USMC CREW - Support	4.497	1.909	1.951	0.000	1.951
FY 2009 Accomplishments: Accomplished the systems engineering and integration support required to support transition to Increment 2.1 CVRJ *FY 2010 Plans:* Planned systems engineering and integration support required for continued system enhancements, the planned Band C Upgrade and transition to JCREW 3.3					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Planned systems engineering and integration support required for continued system enhancements, the planned Band C Upgrade and transition to JCREW 3.3					
*USMC CREW - Test and Evaluation *FY 2009 Accomplishments:* Accomplished the testing required to transition to CREW 2.1 CVRJ *FY 2010 Plans:* Planned Testing required to support enhancements to CREW 2.1 *FY 2011 Base Plans:* Planned Testing required to support enhancements to CREW 2.1 and transition to JCREW 3.3	0.197	2.377	2.628	0.000	2.628
*USMC CREW - Management *FY 2009 Accomplishments:* Accomplished radio frequency mapping and engineering support. *FY 2010 Plans:* Planned CO site mitigation for fielded assets and test support. Logistics support for radio frequency mapping and systems integration and test support. *FY 2011 Base Plans:* Planned CO site mitigation for fielded assets and test support. Logistics support for radio frequency mapping and systems integration and test support.	0.082	0.646	0.692	0.000	0.692
*RREP - Program management and upgrade support services	0.859	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Accomplished upgrade support services					
*CESAS - Engineering and Program Management Support services *FY 2009 Accomplishments:* Accomplished Research and Development of techniques, tactics and procedures. Provide engineering and prototype hardware support	0.392	0.000	0.000	0.000	0.000
*GBOSS - Product Development *FY 2010 Plans:* Planned system integration test support and prototype hardware support. *FY 2011 Base Plans:* Planned system integration test support, prototype hardware support, CO site mitigation for expeditionary systems integration.	0.000	2.100	5.000	0.000	5.000
*GBOSS - Support *FY 2010 Plans:* Planned logistics support *FY 2011 Base Plans:* Planned logistics support	0.000	0.652	2.000	0.000	2.000
*GBOSS - Test and Evaluation. *FY 2010 Plans:* Planned system integration and test support	0.000	0.370	0.900	0.000	0.900

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Planned system integration and test support					
*GBOSS - Management. *FY 2010 Plans:* Planned CO Site mitigation and system integration support. *FY 2011 Base Plans:* Planned CO Site mitigation and system integration support.	0.000	0.667	3.083	0.000	3.083
Accomplishments/Planned Programs Subtotals	6.319	11.801	19.633	0.000	19.633

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC 6520: *USMC CREW*	213.845	11.181	12.199	173.250	185.449	11.237	115.877	116.823	120.187	0.000	957.959
• PMC 6438: *GBOSS*	50.854	2.720	0.000	0.000	0.000	16.492	26.107	26.045	19.256	0.000	141.474

D. Acquisition Strategy

Counter RCIED Electronic Warfare (USMC CREW). Continue to develop new techniques, improve capabilities, enhance software and develop upgrades to counter evolving threat and prevent technology obsolenscence. Activities include waveform development, non-recurring engineering for system enhancements and capability upgrades, integration of the enhancements and the tests/ government studies required to support these changes. This will upgrade of existing systems to the next technology sprial (CREW 2.1).

CESAS: Designated an ACAT IV (T) Program (December 2006) and represents the state-of-the-art available in a tactical Electronic Warfare (EW) platform. Its components are suitable for integration into multiple ground and air platforms. It is designed to operate with other CESAS platforms to detect and attack threat emitters, as well as, being mission configured to work cooperatively with multiple ground and airborne platforms to attack target emitters. CESAS also leverages previous integration experience conducted under the Team Portable Collection System (TPCS) program for commonality of equipment and cooperative communications

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capabilities. The September 2007 DT indicates that CESAS is currently exceeding the performance required by the Capability Development Document. Therefore, the CESAS M1165 PIK will continue to complete all required program testing necessary to move into Operational Testing and Evaluation during 3QFY08 with projected IOT&E during 4QFY08. Program plan is to move into a Fielding Decision with FRP in 1QFY09. Field Testing and Operational Assessment of the M1165 Armored PIK will begin in 1QFY 09.

RREP: The Radio Reconnaissance Equipment Program (RREP) SIGINT Suite-3 (SS-3) is the fourth generation of Radio Reconnaissance Equipment. Previously the systems were developed as repackaged and hardened Commercial Off-The-Shelf (COTS) items. The Radio Reconnaissance Teams (RRT) would use systems for three years and replace the entire suite with the next generation of equipment. An equipment refresh every three years allowed the RRTs to take advantage of the newest commercial single channel scanner technology when the previous generation of equipment wore out. The SS-3 deviates from this approach and will focus on the use of the technology and equipment necessary to prosecute advanced wireless communications devices and begin a sprial development approach. RREP will incorporate and integrate cutting edge technologies through the use of COTS/Government off the Shelf (GOTS) and Non-Development Items (NDI) components.

GBOSS: The acquisition approach has been to use existing government contracts (U.S Army/U.S. Air Force) for Commercial-Off-the-Shelf (COTS) and Government-Off-the-Shelf (GOTS) material and services that meet the basic requirements of the UUNS and give priority to materials and services already integrated into an existing or similar architecture. This approach is the most expeditious to deliver equipment and services to the forces in theater.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
USMC CREW	Various/ Various	NAVSEA BALTIMORE, MD	0.292	2.580	Mar 2010	2.625	Jan 2011	0.000		2.625	0.000	5.497	Continuing
USMC CREW	Various/ Various	MCSC QUANTICO, VA	0.000	0.500	Aug 2010	0.754	Aug 2011	0.000		0.754	0.000	1.254	Continuing
GBOSS	WR	NSWC CRANE, IN	0.000	2.115	Feb 2010	5.000	Jan 2011	0.000		5.000	0.000	7.115	Continuing
		Subtotal	0.292	5.195		8.379		0.000		8.379	0.000	13.866	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
USMC CREW	Various/ Various	MCSC QUANTICO, VA	3.256	0.000		0.000		0.000		0.000	0.000	3.256	Continuing
GBOSS	Various/ Various	NSWC CRANE, IN	0.000	0.652	Feb 2010	2.000	Jan 2011	0.000		2.000	0.000	2.652	Continuing
RREP	Various/ CPFF	NSMA STAFFORD, VA	0.350	0.000		0.000		0.000		0.000	0.000	0.350	Continuing
RREP	Various/ Various	NSWC CRANE, IN	0.503	0.000		0.000		0.000		0.000	0.000	0.503	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CESAS	Various/ Various	DMEA VAR	0.262	0.000		0.000		0.000		0.000	0.000	0.262	Continuing
CESAS	Various/ Various	VAR VAR	0.130	0.000		0.000		0.000		0.000	0.000	0.130	Continuing
USMC CREW	Various/ Various	NSMA STAFFORD, VA	1.241	0.000		0.000		0.000		0.000	0.000	1.241	Continuing
USMC CREW	Various/ Various	SPAWAR CHARLESTON, SC	0.000	0.674	Feb 2010	0.689	Dec 2010	0.000		0.689	0.000	1.363	Continuing
USMC CREW	Various/ Various	NSWC CRANE, IN	0.000	1.235	Feb 2010	1.262	Dec 2010	0.000		1.262	0.000	2.497	Continuing
		Subtotal	5.742	2.561		3.951		0.000		3.951	0.000	12.254	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
USMC CREW	Various/ Various	VAR VAR	0.100	0.100	Apr 2010	0.100	Apr 2011	0.000		0.100	0.000	0.300	Continuing
GBOSS	Various/ Various	MCOTEA QUANTICO, VA	0.000	0.370	Feb 2010	0.900	Jan 2011	0.000		0.900	0.000	1.270	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
USMC CREW	Various/ Various	MCOTEA QUANTICO VA	0.097	0.351	Mar 2010	0.576	Oct 2010	0.000		0.576	0.000	1.024	Continuing
USMC CREW	Various/ Various	YPG YUMA, AZ	0.000	0.750	May 2010	0.767	Oct 2010	0.000		0.767	0.000	1.517	Continuing
USMC CREW	Various/ Various	SPAWAR CHARLESTON, SC	0.000	0.750	May 2010	0.750	May 2011	0.000		0.750	0.000	1.500	Continuing
USMC CREW	Various/ Various	NSWC DAHLGREN, VA	0.000	0.426	Jan 2010	0.435	Jan 2011	0.000		0.435	0.000	0.861	Continuing
		Subtotal	0.197	2.747		3.528		0.000		3.528	0.000	6.472	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
USMC CREW	Various/ Various	VAR VAR	0.082	0.646	Jan 2010	0.692	Oct 2010	0.000		0.692	0.000	1.420	Continuing
GBOSS	Various/ Various	NSWC CRANE, IN	0.000	0.652	Feb 2011	3.083	Jan 2012	0.000		3.083	0.000	3.735	Continuing
		Subtotal	0.082	1.298		3.775		0.000		3.775	0.000	5.155	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks													

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.313	11.801		19.633		0.000		19.633	0.000	37.747	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
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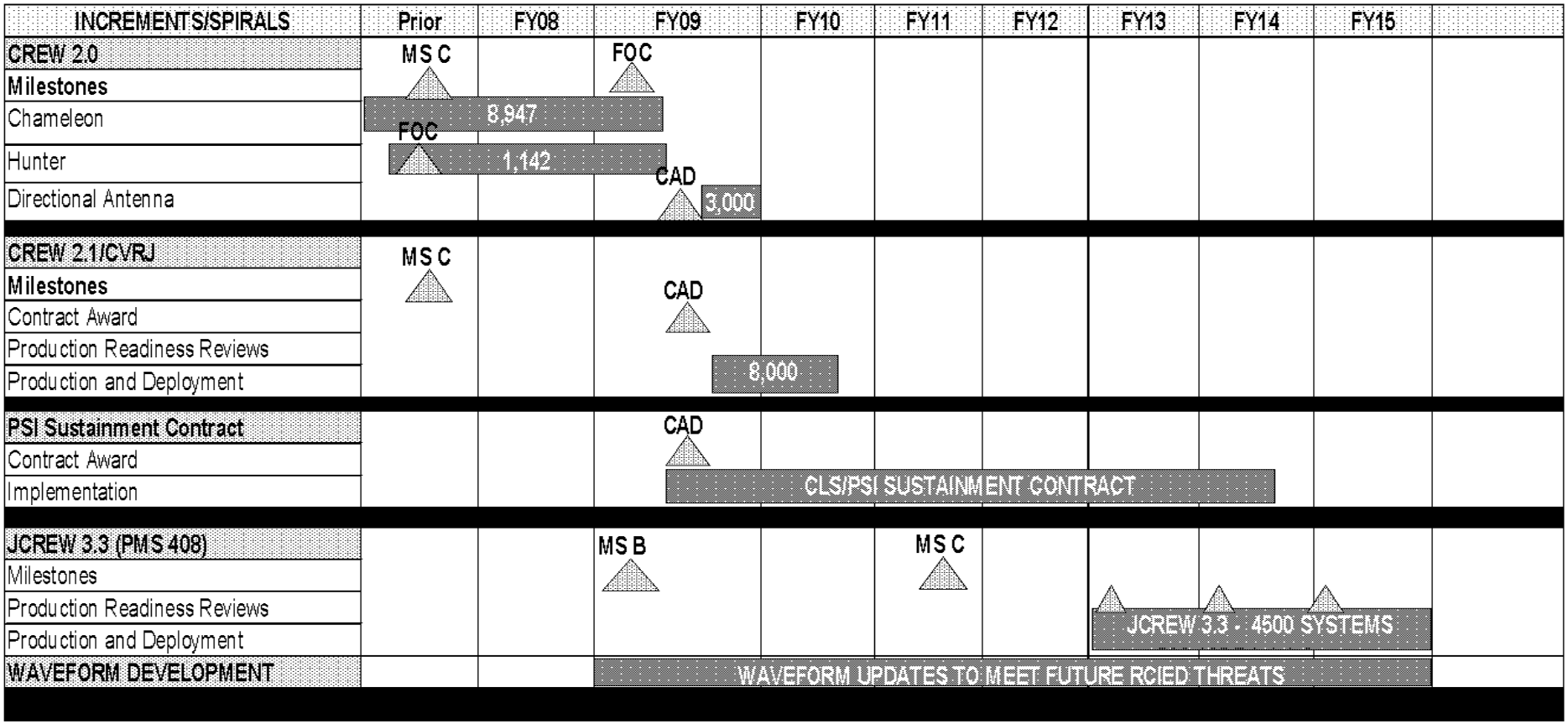

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2274: *Command & Control Warfare Sys*

GBOSS

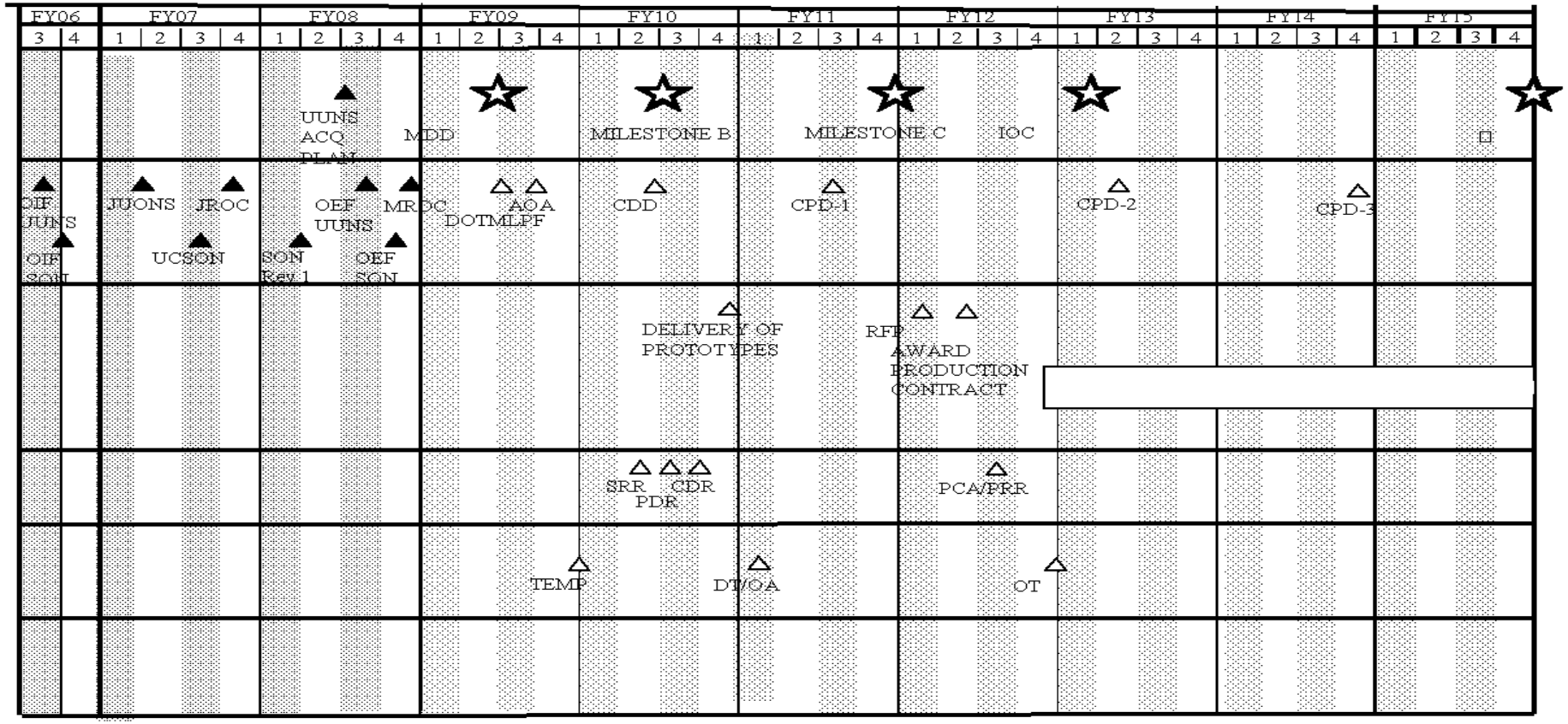

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2274: *Command & Control Warfare Sys*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
USMC CREW 2.0 WAVEFORM DEVELOPME NT	1	2009	4	2009
CREW 2.1-3.3 WAVEFORM DEVELOPMENT	1	2009	4	2013
USMC CREW JCREW 3.3 MILESTONE B	4	2009	4	2009
USMC CREW JCREW MILESTONE C	3	2011	3	2011
GBOSS MILESTONE B	3	2010	3	2010
GBOSS MILESTON C	1	2012	1	2012
GBOSS IOC	1	2013	1	2013
GBOSS PRODUCTION	4	2012	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2275: *Joint Tactical Radio System*	10.954	8.713	2.038	0.000	2.038	2.030	4.371	1.546	1.579	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
(U) Tactical Satellite Comm Terminal (TSCT) - LIGHTWEIGHT MULTIBAND SATELLITE TERMINAL (LMST)/PHOENIX are quad-band Super High Frequency (SHF) satellite terminals mounted in transit cases and High Mobility Multipurpose Wheeled Vehicle (HMMWVs). The LMST and Phoenix terminals will be the primary provider of SHF connectivity to Marine Air-Ground Task Forces (MAGTF) operations. Existing Ground Mobile Force (GMF) satellite terminals will continue to augment SHF requirements.

(U) High Capacity Communications Capability (HC3): replaces Super High Frequency (SHF) wideband. HC3 will be the Marine Air Ground Task Force (MAGTF) commanders' primary Satellite Communication (SATCOM) method of transmitting and receiving wideband voice, video, and data. The HC3 will be used at all levels of the MAGTF to support the commanders' critical communication requirements. At the Regiment and below, the focus will be on Comm-on-the-Move (COTM) and Comm-on-the Pause (COTP) communications, while at the Division/FSSG/Wing and above, the transportable version will be incorporated as well. HC3 will be embedded in tactical vehicles such as the Expeditionary Fighting Vehicle (EFV) and the Light Armored Vehicle (LAV). As a result, it will play a vital role in command and control in all phases of an operation.

(U) Legacy Communications/Electronics Modifications and Sustainment (LEGACY): encompass post production sustainment of fielded tactical communication and networking systems and Service Life Extension Programs (SLEP) of aging communications equipment reaching the end of their life cycle. The post production sustainment provides necessary engineering and logistic support to maintain the existing operational capability above threshold operational readiness. The support provides equipment specialists, configuration management, supply support coordination and control, depot maintenance control and warranty administration. The AN/TSQ-227 Digital Technical Control (DTC) in udergoing a major refresh driven by Department of Defense (DoD) / Joint Interoperability Test Command (JITC) mandated interoperability and security requirements, which includes technology insertion and evolutionary equipment improvements as part of the SLEP effort.

(U) Command & Control On-the-move Network, Digital Over-the-horizon Relay (CONDOR): CONDOR Capabilities material solution will be a coordinated effort with the Army's WIN-T program. We are currently developing a Marine Corps Spiral called WIN-X. The CONDOR funding line is funding the capability to allow tactical forces extended Beyond Line-of-Sight (BLOS) to maintain situational awareness by extending data network connectivity regardless of distance while on-the-move (OTM).

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WIN-X will integrate commercially available routers, encryption devices, and an OTM satellite terminal to provide high-bandwidth line-of-sight and SATCOM connectivity across the battlefield. By interfacing with fielded tactical data radios, the CONDOR Gateway extends existing tactical data radio networks to maintain connectivity for United States Marine Corps (USMC) Command and Control (C2) and fires applications. Production variants will be integrated as a kit into existing armored tactical wheeled vehicles without degrading their inherent protection.

(U) Very Small Apperture Terminal (VSAT) - VSAT provides beyond line-of-sight (BLOS), low-cost satellite communications up to speeds of 4 Megabytes per second (Mbps) full duplex. VSAT fills a void of BLOS, high bandwidth capability throughout the Marine Air-Ground Task Force (MAGTF). The VSATs are currently Ku-band only which requires commercial satellite connectivity. Future upgrades will utilize the military's Wideband Global Satellites to save on long term O&M costs. R&D work will need to be done to ensure that VSAT can transition from Ku to Ka-band. Additional R&D dollars will be used to further develop the current Linkway modem to provide higher capacity throughout and TRANSEC (Transition Security).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*CONDOR: Warfighter Information Network - Expeditionary (WIN-X) Development *FY 2009 Accomplishments:* Warfighter Information Network - Expeditionary (WIN-X) Development efforts *FY 2010 Plans:* Continued Warfighter Information Network - Expeditionary (WIN-X) Development efforts	0.339	2.136	0.000	0.000	0.000
*CONDOR: Technical, Engineering Support and Contract Advisory, Assistance Services *FY 2009 Accomplishments:* Technical, Engineering Support and Contract Advisory, Assistance Services *FY 2010 Plans:* Continued Technical, Engineering Support and Contract Advisory, Assistance Services *FY 2011 Base Plans:* Technical, Engineering Support and Contract Advisory, Assistance Services	4.330	1.055	0.224	0.000	0.224
*CONDOR: Legacy Interoperability Development	1.145	0.500	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Interoperability Development of on-the-move capabilities and at-the-halt network and legacy communications equipment. *FY 2010 Plans:* Continued Interoperability Development of on-the-move capabilities and at-the-halt network and legacy communications equipment.					
*Very Small Apperture Terminal (VSAT): Development and integration *FY 2009 Accomplishments:* VSAT Development and integration efforts toward the successful transition from Ku to Ka-band. *FY 2010 Plans:* Continued development and integration efforts. *FY 2011 Base Plans:* Continued Development and integration efforts.	1.619	0.424	0.043	0.000	0.043
*Very Small Apperture Terminal (VSAT): D-KET Study *FY 2009 Accomplishments:* VSAT Deployable KU-Band Earth Terminal (D-KET) study to ensure successful transition from Ku to Ka-band. *FY 2010 Plans:* Continued efforts, VSAT Deployable KU-Band Earth Terminal (D-KET) study.	1.879	0.190	0.000	0.000	0.000
*High Capacity Communications Capability (HC3): Navy/MC Crypto Development	0.000	0.500	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2275: *Joint Tactical Radio System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Navy/Marine Corps Crypto Development efforts					
*High Capacity Communications Capability (HC3): Support *FY 2009 Accomplishments:* Program and management support of HC3 efforts. *FY 2010 Plans:* Continued program, management, and engineering support.	0.129	0.930	0.000	0.000	0.000
*High Capacity Communications Capability (HC3): USMC Integration efforts. *FY 2010 Plans:* USMC Integration efforts for the HC3 Satellite Communication (SATCOM) primary method of transmitting and receiving wideband voice, video, and data.	0.000	1.184	0.000	0.000	0.000
*TSCT (LMST): Contract Support Cost *FY 2009 Accomplishments:* LMST Contract Support. *FY 2010 Plans:* Continued Contract Support. *FY 2011 Base Plans:* Continued Contract Support.	0.011	0.045	0.030	0.000	0.030
*TSCT (LMST): CATQH research and test	0.000	0.250	0.235	0.000	0.235

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2275: *Joint Tactical Radio System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: LMST Comm At-The-Quick-Halt (CATQH) research and test. *FY 2011 Base Plans:* Continued Comm At-The-Quick-Halt (CATQH) research and test.					
*Legacy Comm/Elec (Networks): Engineering Support for DTC *FY 2009 Accomplishments:* Engineering Support for Digital Technical Control. *FY 2010 Plans:* Continued Engineering Support for Digital Technical Control. *FY 2011 Base Plans:* Continued Engineering Support for Digital Technical Control.	1.172	0.474	0.460	0.000	0.460
*Legacy Comm/Elec (Networks): Operational Support Test/Support for DTC *FY 2009 Accomplishments:* Operational Support Test/Support for DTC. *FY 2010 Plans:* Continued Operational Support Test/Support for DTC. *FY 2011 Base Plans:* Continued Operational Support Test/Support for DTC.	0.200	0.285	0.296	0.000	0.296
*Legacy Comm/Elec (Wireless): Development	0.130	0.740	0.750	0.000	0.750

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Legacy Comm/Elec Wireless Development. *FY 2010 Plans:* Continued Legacy Comm/Elec Wireless Development. *FY 2011 Base Plans:* Continued Legacy Comm/Elec Wireless Development.					
Accomplishments/Planned Programs Subtotals	10.954	8.713	2.038	0.000	2.038

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/46331: *Command-Control On-the-move Network*	8.348	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.748
• PMC/46332: *Tactical Satellite LMST*	1.413	1.350	1.464	3.167	4.631	1.389	1.423	1.448	1.476	0.000	13.130
• PMC/46333: *Legacy Communications Electronics (LEGACY)*	4.036	4.006	3.703	27.505	31.208	0.269	0.275	0.283	0.291	0.000	40.368
• PMC/46334: *Very Small Apperture Terminal (VSAT)*	0.000	9.507	0.000	24.778	24.778	0.000	0.000	0.000	0.000	0.000	34.285

D. Acquisition Strategy

(U) D. ACQUISITION STRATEGY:

(U) Tactical Satellite Comm Terminal (TSCT) - LIGHTWEIGHT MULTIBAND SATELLITE TERMINAL (LMST)/PHOENIX: The acquisition strategy for the Lightweight Multiband Satellite Terminal (LMST) and Phoenix program is to procure the necessary amount of quad-band Super High Frequency (SHF) terminals for the Fleet

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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Marine Force (FMF). These terminals will satisfy the requirement for a quad-band SHF satellite terminal. The LMST upgrade program leverages off the current efforts and integrates emerging technologies into existing terminals to allow continued SHF operations.
(U) Legacy Communications/Electronics Modifications and Sustainment (LEGACY): Provide continuous sustainment support to fielded equipment and implemented Service Life Extension Programs for equipment reaching its end of life/supportability.
(U) Command & Control On-the-move Network, Digital Over-the-horizon Relay (CONDOR): Evaluate prototype hardware. Develop on-the-move capabilities and integrate with at-the-halt network and legacy communications equipment.

(U) Very Small Apperture Terminal (VSAT): provides beyond line-of-sight (BLOS) satellite communications throughout the MAGTF. Multiple VSAT configurations provide the capability to tailor satellite communications to the lowest echelon. The VSATs are currently Ku-band only which requires commercial satellite connectivity. Future upgrades will utilize the military's Wideband Global Satellites Ka-band capability to reduce long term O&M costs associated with commercial bandwidth. R&D work is necessary to ensure the successful transition from Ku to Ka-band. Additional R&D funding will allow for further development of more capable modems which will provide higher capacity throughput and TRANSEC.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
LMST DISA/IA Certification	MIPR	CECOM Ft. Monmouth, NJ	0.661	0.000		0.000		0.000		0.000	0.000	0.661	Continuing
HC3 USMC Integration Efforts	MIPR	CECOM Ft. Monmouth, NJ	3.035	1.184	Mar 2010	0.000		0.000		0.000	0.000	4.219	Continuing
HC3 Navy/MC Crypto Development	MIPR	CECOM Ft. Monmouth, NJ	2.785	0.500	Mar 2010	0.000		0.000		0.000	0.000	3.285	Continuing
LCE (Networks) Development	Various/ FFP	MITRE CECOM Ft. Monmouth, NJ	5.672	0.740	Mar 2010	0.750	Jan 2011	0.000		0.750	0.000	7.162	Continuing
CONDOR Legacy Interoperability Development	Various/ FFP	MCTSSA Camp Pendleton, CA	1.344	0.500	Feb 2010	0.000		0.000		0.000	0.000	1.844	Continuing
CONDOR Development	Various/ FFP	CECOM Ft. Monmouth, NJ	6.246	2.136	Mar 2010	0.000		0.000		0.000	0.000	8.382	Continuing
VSAT D-Ket Study	MIPR	CECOM Ft. Monmouth, NJ	2.060	0.190	Mar 2010	0.000		0.000		0.000	0.000	2.250	Continuing
VSAT Development and Integration	MIPR	CECOM Ft. Monmouth, NJ	3.919	0.424	Mar 2010	0.043	Mar 2011	0.000		0.043	0.000	4.386	Continuing
		Subtotal	25.722	5.674		0.793		0.000		0.793	0.000	32.189	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
LMST Contractor Support	Various/ FFP	NGIT Stafford, VA	0.638	0.045	Feb 2010	0.030	Feb 2011	0.000		0.030	0.000	0.713	Continuing
HC3 Contractor Support	Various/ FFP	Titan Stafford, VA	0.129	0.930	Feb 2010	0.000		0.000		0.000	0.000	1.059	Continuing
LCE (Networks) Support	Various/ FFP	Titan Stafford, VA	1.442	0.474	Feb 2010	0.296	Feb 2011	0.000		0.296	0.000	2.212	Continuing
CONDOR Contract Support	Various/ FFP	Titan Stafford, VA	5.278	1.055	Feb 2010	0.224	Feb 2011	0.000		0.224	0.000	6.557	Continuing
		Subtotal	7.487	2.504		0.550		0.000		0.550	0.000	10.541	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
LMST CATQH Testing	Various/ Various	Harris Corp Florida	0.000	0.250	Mar 2010	0.235	Mar 2011	0.000		0.235	0.000	0.485	Continuing
LCE (Networks) OA	WR	MCOTEA Quantico, VA	0.400	0.285	Jan 2010	0.460	Jan 2011	0.000		0.460	0.000	1.145	Continuing
LCE Interoperbilty	MIPR	JTC FT Huachuca, AZ	0.590	0.000		0.000		0.000		0.000	0.000	0.590	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CONDOR IOT&E	WR	MCOTEA Quantico, VA	0.740	0.000		0.000		0.000		0.000	0.000	0.740	Continuing
CONDOR DT	WR	MCOTEA Quantico, VA	0.500	0.000		0.000		0.000		0.000	0.000	0.500	Continuing
		Subtotal	2.230	0.535		0.695		0.000		0.695	0.000	3.460	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	35.439	8.713		2.038		0.000		2.038	0.000	46.190	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
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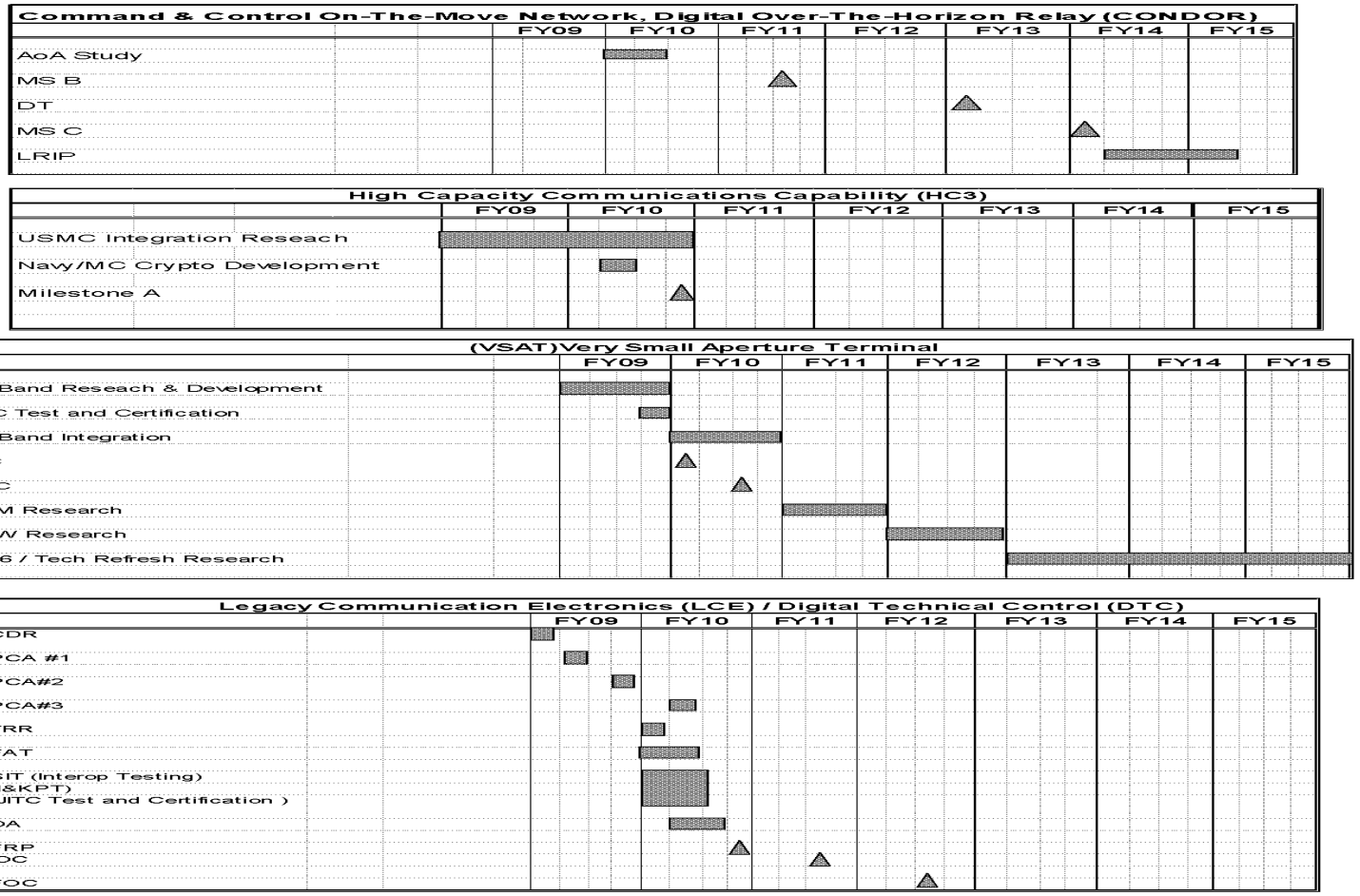

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
HC3 USMC Integration Research	1	2009	4	2010
HC3 Navy/MC Crypto Development	2	2010	2	2010
HC3 Milestone A	4	2010	4	2010
VSAT Ka-band Research & Develop	1	2009	4	2009
VSAT JITC Test and Certification	4	2009	4	2009
VSAT Ka-band Integration	1	2010	4	2010
VSAT IOC	1	2010	1	2010
VSAT FOC	3	2010	3	2010
VSAT JIPM Research	1	2011	4	2011
VSAT NCW Research	1	2012	4	2012
VSAT IPV6 / Tech Refresh Research	1	2013	4	2015
LCE/DTC CDR	1	2009	1	2009
LCE/DTC PCA #1	2	2009	2	2009
LCE/DTC PCA #2	4	2009	4	2009
LCE/DTC PCA#3	2	2010	2	2010
LCE/DTC TRR	1	2010	1	2010
LCE/DTC FAT	1	2010	2	2010
LCE/DTC SIT	1	2010	2	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	Quarter	Year	Quarter	Year
LCE/DTC JITC Test & Certification (MCTSSA SIT & JITC DICE)	1	2010	2	2010
LCE/DTC SIT- I&KP	1	2010	2	2010
LCE/DTC OA	2	2010	3	2010
LCE/DTC FRP	4	2010	4	2010
LCE/DTC IOC	3	2011	3	2011
LCE/DTC FOC	3	2012	3	2012
CONDOR AoA Study	1	2010	2	2010
CONDOR MS B	3	2011	3	2011
CONDOR MS C	1	2014	1	2014
CONDOR LRIP	2	2014	2	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2276: *Comms Switching and Control Sys*	2.385	2.927	4.293	0.000	4.293	4.118	4.405	3.733	2.687	Continuing	Continuing
Quantity of RDT&E Articles	6	4	4	0	4	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) Joint Network Management Systems (JNMS) or Network Planning & Mangement (NPM) is a portfolio of communications planning and Network Management applications for use throughout the Marine Air Ground Task Force (MAGTF). JNMS includes Systems Planning Engineering and Evaluation Device (SPEED). JNMS provides the MARFOR (Marine Forces) component planners with the ability to conduct high-level planning; detailed planning and engineering; monitoring; control and reconfiguration; and spectrum planning and management in support of Combatant Commander (COCOM) and Commander, Joint Task Force (CJTF) operations. SPEED provides High Frequency (HF) predictions, Line of Site (LOS) propogation, Radio Coverage Analysis (RCA), Satellite planning, C2PC track interface, interference and de-confliction analysis, spectrum management, Radio Guard Charts, Comm-On-The-Move (COTM), and T/E (training & education) and force structure management.

(U) Transition Switch Module (TSM): consists of three systems that provide a flexible Unit Level Switch that bridges legacy Tri-Tac switches with current commercial technology, providing maneuver elements with improved voice/data switching, data transport and bandwidth management capabilities. This program maintains USMC joint interoperability as all Services transition to Commercial Off-The-Shelf (COTS) switching technologies.

(U) Expeditionary Command and Control Suite (ECCS): is a small footprint data and voice satellite communications system capable of deploying on commercial or military air-based and land-based platforms providing a multi-mission, mobile reach-back connection into existing networks until larger command and control systems are operational. It is a transit case solution that provides SIPRNET email and web access, secure video teleommunications (VTC), Command Control Personal Computer/Common Operational Picture (C2PC/COP) and collaborative planning Defense Collaborative Tool Sets (DCTS) - Defense Information Systems Agency (DISA) Standard.

(U) Tactical Data Network (TDN): augments the existing Marine Air Ground Task Force (MAGTF) communications infrastructure to provide the commander an integrated data network, forming the communications backbone for Tactical Data Systems (TDS) and the Defense Messaging System (DMS). TDN consists of Gateways (AN/TSQ-222) and Data Distribution Systems (AN/TSQ-228), interconnected with one another and their subscribers via a combination of common user long-haul transmission systems, local area networks (LAN), and switched telephone systems. The TDN Data Distribution System - Modular (DDS-M) provides a smaller and more mobile variant DDS that increases the capabilities of legacy TDN systems through major refresh.

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(U) Warfighter Network Tactical (WFN-T): Starting in FY10, WFN-T merges existing systems into a new portfolio of tactical network programs. WFN-T merges the capabilities of the Tactical Data Network (TDN), First In Command and Control Systems (FICCS), Digital Technical Control (DTC) and other communications - switch network infrastructure which provides voice, SIPR, NIPR, coalition, data, and video services. WFN-T will provide a standard data and voice architecture for the deployed warfighter that is interoperable with Joint and other Services communications systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*TSM: Engineering and Program Support *FY 2009 Accomplishments:* Provide for engineering and program support to ensure successful integration of proven commercial switching technologies and seek commercial solutions compatible and interoperable across all Communications and Networking programs. *FY 2010 Plans:* Continue FY09 effort of engineering and program support. *FY 2011 Base Plans:* Continue FY10 effort of engineering and program support.	0.137	0.093	0.100	0.000	0.100
*TSM: Development VoIP & Promina 800 (P800) Transmission Resource Controller upgrade *FY 2009 Accomplishments:* Voice over Internet Protocol (VoIP) capability development and Promina 800 upgrade	0.733	0.000	0.000	0.000	0.000
*TSM: Technology Insertion *FY 2010 Plans:* Technology insertion development initial increment.	0.000	0.207	0.215	0.000	0.215

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Technology insertion continued development, increment II.					
*WFN-T: Engineering Support and Prototype Development *FY 2010 Plans:* Provide for engineering support and prototype development to modify existing programs to add emerging capabilities for interoperability, increments I and II; TDN developmental efforts continue under the WFN-T program. *FY 2011 Base Plans:* Continue FY10 efforts, increments III and IV.	0.000	2.136	2.146	0.000	2.146
*JNMS: SPEED, CEOI development and CJMTK enhancements. *FY 2009 Accomplishments:* Developmental work for SPEED Communications Electronics Operation Instructions (CEOI) function & Commercial Joint Mapping Tool Kit (CJMTK) enhancements. SPEED 10.2-10.3 development and integration testing *FY 2011 Base Plans:* Continue FY09 efforts through SPEED v11.0 release, fielding and award.	0.017	0.000	1.403	0.000	1.403
*ECCS: Prototype, Engineering Developmental Model (EDM), and Program Support *FY 2009 Accomplishments:* ECCS Program Support, Prototype Specification Development, and devlopment and test of ECCS consolidated base stations.	0.787	0.000	0.000	0.000	0.000
*ECCS: Test and Evaluation and Program Support	0.133	0.491	0.429	0.000	0.429

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: ECCS program support for Test and Evaluation (T&E) efforts. *FY 2010 Plans:* Continued program support for T&E efforts. *FY 2011 Base Plans:* Continued program support for T&E efforts.					
*TDN: Test and Evaluation and Program Support *FY 2009 Accomplishments:* TDN Data Distribution System-Modular (DDS-M) engineering and program support of refresh efforts.	0.578	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	2.385	2.927	4.293	0.000	4.293

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/463421: *TSM*	18.294	33.676	1.850	0.000	1.850	0.000	0.000	0.000	0.000	0.000	321.308
• PMC/463423: *ECCS*	6.925	9.864	8.308	0.000	8.308	0.000	0.000	0.000	0.000	0.000	25.097
• PMC/463405: *TDN*	12.793	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	54.987
• PMC/4634S9: *WFN-T*	22.400	49.222	20.884	10.500	31.384	8.526	24.932	47.886	40.217	0.000	224.567

D. Acquisition Strategy

(U) Transition Switch Module (TSM) : calls for the use and integration of proven commercial switching technologies of sufficient maturity for production with level of effort RDT&E at this stage of the program for developmental efforts related to option year engineering. Seeks commercial solutions that are fully compatible and interoperable with other Communication Networking Systems (CNS) programs that are fielded and/or being fielded e.g., DTC, TDN, Joint Enhanced Core Communication System (JECCS) etc.

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(U) Joint Network Management Systems (JNMS) or Network Planning and Management (NPM): uses the Joint Army-led acquisition strategy for JNMS. The JNMS contract method is competitive with a Cost Plus contract for development that is centrally funded by the Army, except for any unique Service requirements. Services are responsible for procurement, fielding and support costs. The production contract is Fixed Price and the fielding and support is Time and Material (T&M) based. The JNMS acquisition strategy emphasizes the use of Commercial Off-The-Shelf (COTS) and Government-Off-The-Shelf (GOTS) products. The USMC GOTS SPEED acquisition strategy is for spiral development. Five EDMs will be procured in FY11 in support of new software releases and utilized for acceptance testing. The SPEED contract method is through a sole source Basic Purchase Agreement (BPA) using Fixed Price Task Orders based on the developers GSA schedule for manhours.

(U) Expeditionary Command and Control Suite (ECCS): will use the evolutionary acquisition strategy and pursue a competitive firm fixed price contract. Major concerns will be interoperability and compatibility with existing systems and components. R&D effort will focus on developing and integrating "miniaturized" versions of existing components. Emerging technologies such as VoIP and Secure Wireless will also be addressed in the out year R&D effort. R&D funding drops as system goes into production.

(U) Tactical Data Network (TDN): is an evolutionary acquisition strategy. As new products and industry standards are produced, they are to be tested and integrated into TDN equipment. RDTE funding in FY09 is to be used to test and evaluate Commercial Off-The-Shelf (COTS) items which will be integrated into TDN Gateways and Data Distribution Systems (DDS) to fulfill Operational Requirments Documents (ORD) requirements. In FY10 the funding for TDN rolls under the WFN-T line.

(U) Warfighter Network Tactical (WFN-T): is an evolutionary acquisition strategy that will modify existing and legacy programs to add emerging capabilities for interoperability. The tenets of the WFN-T acquisition strategy are Commercial Off-The-Shelf (COTS) and Government Off-The-Shelf (GOTS), firm fixed-price competitive contracts for material solutions to meet emerging requirements. Capability related EDMs will be procured in FY10. WFN-T may reuse other Services development and ride external contracts that satisfy requirements and analysis of alternatives.

(U) E. Major Performers:
FY11 (JNMS SPEED) - Northrop Grumman, Winter Park FL. New SPEED releases
FY09 - (TSM) EDO/Darlington, Wando, SC. Develop training documentation and test package
FY11 (WFN-T) Development efforts continue under WFN-T line for the TDN program. TDN performer is General Dynamics, Taunton MA

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JNMS/NPM (SPEED)	Various/ FFP	MCSC, Northrup Grumman VA, FL	5.926	0.000		1.403	Jan 2011	0.000		1.403	0.000	7.329	Continuing
TSM	Various/ FFP	MCSC, EDO VA, SC	0.733	0.205	Jun 2010	0.215	Jan 2011	0.000		0.215	0.000	1.153	Continuing
ECCS	Various/ FFP	MCSC, Dataline VA, FL	0.244	0.000		0.000		0.000		0.000	0.000	0.244	Continuing
ECCS EDM	Various/ FFP	MCSC VA	787.000	0.000		0.000		0.000		0.000	0.000	787.000	Continuing
WFN-T	Various/ FFP	MCSC VA	0.000	1.500	Mar 2010	2.146	Jan 2011	0.000		2.146	0.000	3.646	Continuing
		Subtotal	793.903	1.705		3.764		0.000		3.764	0.000	799.372	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TSM Support	Various/ FFP	MCSC VA	0.035	0.000		0.000		0.000		0.000	0.000	0.035	Continuing
TSM Engineering Support	Various/ FFP	MCSC, MITRE VA	0.331	0.095	Jan 2010	0.100	Jan 2011	0.000		0.100	0.000	0.526	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2276: *Comms Switching and Control Sys*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ECCS Support	Various/ FFP	MCSC, QinetiQ VA	0.200	0.491	Jan 2010	0.429	Jan 2011	0.000		0.429	0.000	1.120	Continuing
TDN Engineering Support	Various/ FFP	US Army, MITRE VA, MA	0.500	0.000		0.000		0.000		0.000	0.000	0.500	Continuing
WFN-T Engineering Support	Various/ FFP	US Army, MITRE VA, MA	0.000	0.636	Jan 2010	0.000		0.000		0.000	0.000	0.636	Continuing
		Subtotal	1.066	1.222		0.529		0.000		0.529	0.000	2.817	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TSM T&E	MIPR	JITC VA	0.780	0.000		0.000		0.000		0.000	0.000	0.780	Continuing
ECCS T&E	WR	MCOTEA VA	0.434	0.000		0.000		0.000		0.000	0.000	0.434	Continuing
TDN T&E	WR	MCOTEA VA	0.108	0.000		0.000		0.000		0.000	0.000	0.108	Continuing
		Subtotal	1.322	0.000		0.000		0.000		0.000	0.000	1.322	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2276: *Comms Switching and Control Sys*

Management Services ($ in Millions)

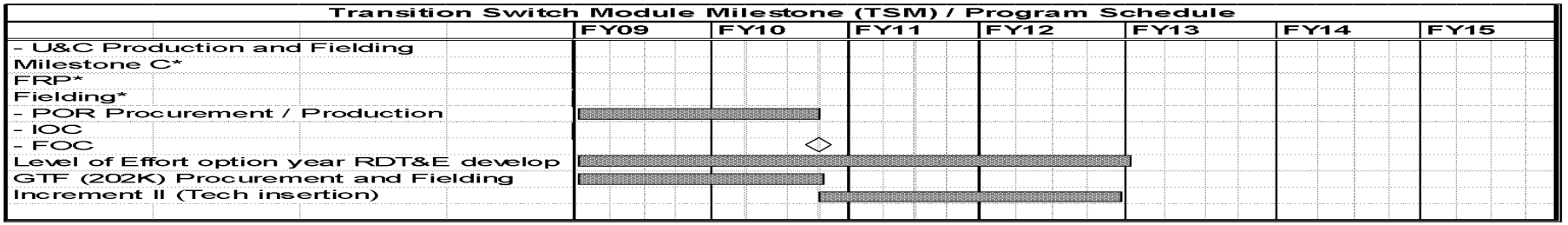
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TSM Program Support	Various/ FFP	MCSC VA	0.063	0.000		0.000		0.000		0.000	0.000	0.063	Continuing
ECCS Program Support	Various/ FFP	MCSC VA	0.075	0.000		0.000		0.000		0.000	0.000	0.075	Continuing
TDN Program Support	Various/ FFP	MCSC VA	0.130	0.000		0.000		0.000		0.000	0.000	0.130	Continuing
		Subtotal	0.268	0.000		0.000		0.000		0.000	0.000	0.268	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	796.559	2.927		4.293		0.000		4.293	0.000	803.779	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2276: *Comms Switching and Control Sys*



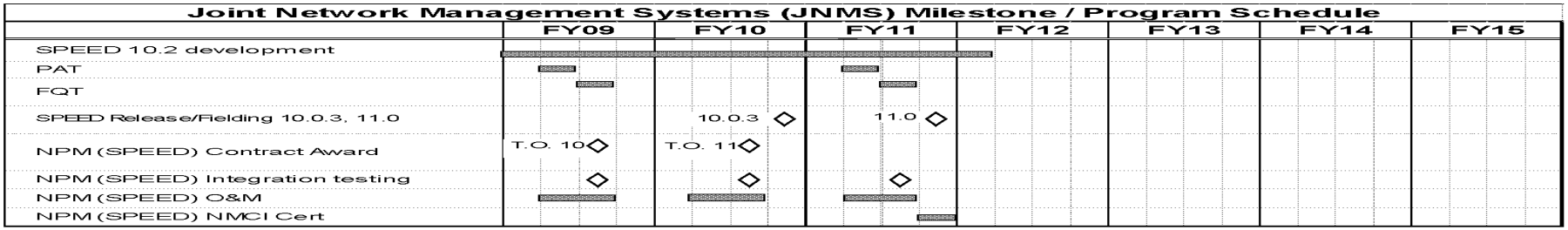
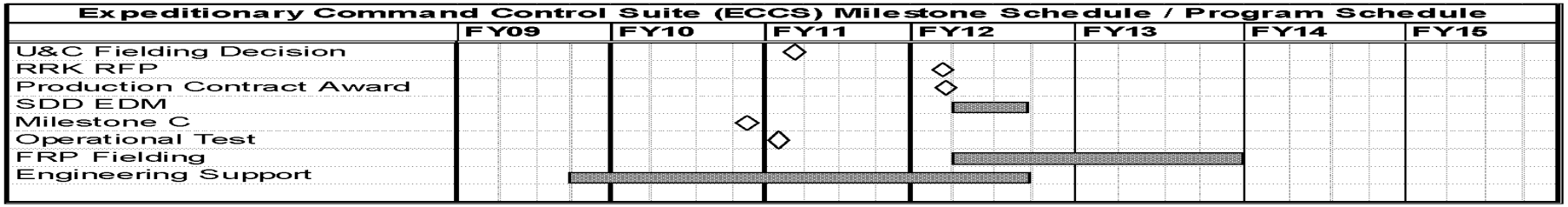


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2276: *Comms Switching and Control Sys*



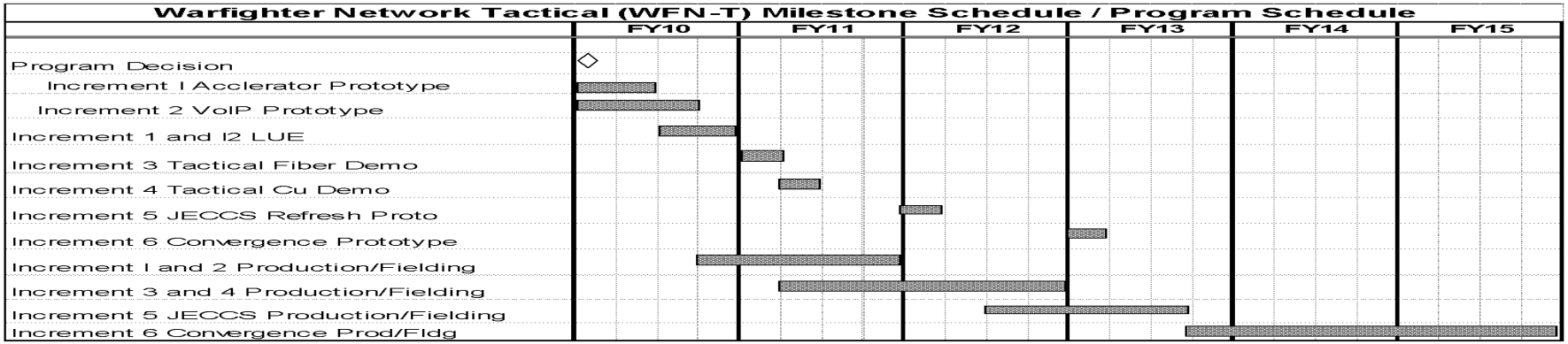


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2276: *Comms Switching and Control Sys*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
TSM POR Procurement/Production	1	2009	3	2010
TSM Level of Effort option year RDTE development	1	2009	4	2012
TSM GTF Procurement and fielding	1	2009	3	2010
TSM Technology Insertion (increment II)	4	2010	4	2012
TSM FOC	3	2010	4	2010
SPEED 10.2 Development	1	2009	1	2012
SPEED PAT	2	2009	2	2011
SPEED FQT	3	2009	3	2011
SPEED 10.0.3 Release/Fielding	4	2010	4	2010
SPEED 11.0 Release/Fielding	4	2011	4	2011
SPEED TO 10 Award	3	2009	3	2009
SPEED TO 11 Award	3	2010	3	2010
SPEED Integration testing	3	2009	3	2011
SPEED O&M	2	2009	3	2011
ECCS U&C Fielding Decision	1	2011	1	2011
ECCS RRK RFP	1	2012	1	2012
ECCS Production Contract Award	1	2012	1	2012
ECCS SDD EDM	2	2012	3	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2276: *Comms Switching and Control Sys*

	Start		End	
Event	Quarter	Year	Quarter	Year
ECCS Milestone C	4	2010	4	2010
ECCS Operational test	1	2011	1	2011
ECCS FRP Fielding	2	2012	4	2013
ECCS Engineering Support	4	2009	3	2012
WFN-T Program Decision	1	2010	1	2010
WFN-T Incr I, Accelerator Prototype	1	2010	2	2010
WFN-T Incr 2, VoIP Prototype	1	2010	3	2010
WFN-T Incr 1 & 2 LUE	3	2010	4	2010
WFN-T Increment 3 Tactical Fiber Demo	1	2011	1	2011
WFN-T Increment 4 Tactical Cu Demo	2	2011	2	2011
WFN-T Increment 5 JECCS Refresh Prototype	1	2012	1	2012
WFN-T Increment 6 Convergence Prototype	1	2013	1	2013
WFN-T Increment 1 & 2 Production Fielding	4	2010	4	2011
WFN-T Increment 3 & 4 Production Fielding	2	2011	4	2012
WFN-T Increment 5 JECCS Production/Fielding	2	2012	3	2013
WFN-T Increment 6 Convergence Fielding	4	2013	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2277: *System Engineering and Integration*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2277: *System Engineering and Integration*	7.184	6.887	5.580	0.000	5.580	8.640	8.817	8.979	9.205	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 provides funds for engineering, test, and evaluation activity, which ensures that the systems being developed within the Program Element (PE) employ consistent standards for interoperability and, to the maximum extent feasible, use hardware and software which is uniform and standard across programs. Marine Air-Ground Task Force Command, Control, Communications, Computers, and Intelligence Systems Engineering and Integration, and Coordination. (MAGTF C4I SEI&C) provides for the centralized planning and execution of Marine Corps Enterprise Information Technology and National Security Systems. It develops, certifies, and manages the configurations of the Marine Corps Enterprise
Systems and Technical Architecture products and uses these to support enterprise-level systems engineering. It supports unified technical representation to joint and coalition communities for Marine Corps Systems and provides top-tier system engineering support to address system of systems technical issues. It is used to conduct direct Marine Expeditionary Unit/Marine Expeditionary Force (MEU/MEF) support in system integration testing with USN. This is part of Deploying Group Systems Integration Testing (DGSIT)) and workups supporting Marine Expeditionary Force (MEF) deployments. It is also used to support Marine Corps systems coordination and involvement in DoD initiatives to include ForceNet, Global Information Grid Enterprise Services (GIGES), and other Deployable Information Systems Architecture DISA/NETWARCOM efforts.

Joint Distributed Engineering Plant (JDEP) directly supports DoD mandated directive CJCSI 6212.01F, to evaluate the interoperability of the holistic Marine Air Ground Task Force (MAGTF) Command Control Communications Intelligence (C4I) Capability produced by Marine Corps Systems Command (MARCORSYSCOM). This evaluation will be accomplished via the MAGTF C4I Capability Certification (MC3) process. Using MC3, composite capabilities are evaluated for their collective interoperability with joint forces; support integration of emmergent systems with systems aleady fielded, and to conduct
critical engineering analysis capable of isolating and correcting capability deficiencies and optimize system of systems performance.

Joint Interoperability of Tactical Command and Control Systems (JINTACCS) is a Joint Chiefs-of-Staff (JCS)/DoD-mandated program for joint development, implementation, and testing of tactical datalinks and US Message Text Format (MTF) under the direction of the Defense Information Systems Agency (DISA) and Office of the Secretary of Defense/Networks and Information Integration (OASD/NII) per the Commander Joint Chiefs of Staff (CJCSI) 6610.01C and CJCS16241.04 for US Military Tactical Forces (USMTF).

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2277: *System Engineering and Integration*

Coalition Warrior Interoperability Demonstration (CWID) (a.k.a. Joint Warrior InterOperability Demonstration (JWID)) is a Joint Chiefs-of-Staff (JCS) and a Chairman of the Joint Chiefs annual event. CWID remains the premier event to investigate interagency and coalition interoperability problems. CWID defines solutions that can be applied in the operational community. CWID's mission is to conduct military operations to deter, prevent, and defeat threats and aggressions aimed at the US its territories and assigned areas of responsibilities as directed by the President or Secretary of Defense.

Marine Air-Ground Task Force Command, Control, Communications, Computers, and Intelligence Systems Engineering and Integration, and Coordination. (MAGTF C4I SEI&C) provides for the centralized planning and execution of Marine Corps Enterprise Information Technology and National Security Systems. It develops, certifies, and manages the configurations of the Marine Corps Enterprise Systems and Technical Architecture products and uses these to support enterprise-level systems engineering. It supports unified technical representation to joint and coalition communities for Marine Corps
Systems and provides top-tier system engineering support to address system of systems technical issues. It is used to conduct direct Marine Expeditionary Unit/Marine Expeditionary Force (MEU/MEF) support in system integration testing with USN. This is part of Deploying Group Systems Integration Testing (DGSIT)) and workups supporting Marine Expeditionary Force (MEF) deployments. It is also used to support Marine Corps systems coordination and involvement in DoD initiatives to include ForceNet, Global Information Grid Enterprise Services (GIGES), and other Deployable Information Systems Architecture DISA/NETWARCOM efforts.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*JWID: Deter, prevent, and defeat threats and aggressions aimed at the US.	1.268	1.303	0.000	0.000	0.000
Coalition Warrior Interoperability Demonstration (CWID) (a.k.a. Joint Warrior InterOperability Demonstration (JWID)) is a Joint Chiefs-of-Staff (JCS) and a Chairman of the Joint Chiefs annual event. CWID remains the premier event to investigate interagency and coalition interoperability problems. CWID defines solutions that can be applied in the operational community. CWID's mission is to conduct military operations to deter, prevent, and defeat threats and aggressions aimed at the US its territories and assigned areas of responsibilities as directed by the President or Secretary of Defense. *FY 2009 Accomplishments:* JWID: Deter, prevent, and defeat threats and aggressions aimed at the US. *FY 2010 Plans:* JWID: Deter, prevent, and defeat threats and aggressions aimed at the US.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2277: *System Engineering and Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*JINTACCS: JCS and OASD/NII Data Links Testing. Joint Interoperability of Tactical Command and Control Systems (JINTACCS) is a Joint Chiefs-of-Staff (JCS)/DoD-mandated program for joint development, implementation, and testing of tactical data links and US Message Text Format (MTF) under the direction of the Defense Information Systems Agency (DISA) and Office of the Secretary of Defense/Networks and Information Integration (OASD/NII) per the Commander Joint Chiefs of Staff (CJCSI) 6610.01C and CJCS16241.04 for US Military Tactical Forces (USMTF). *FY 2009 Accomplishments:* JINTACCS: Joint development, implementation, and testing of data links under the direction of the JCS and OASD/NII. *FY 2010 Plans:* JINTACCS: Joint development, implementation, and testing of data links under the direction of the JCS and OASD/NII. *FY 2011 Base Plans:* JINTACCS: Joint development, implementation, and testing of data links under the direction of the JCS and OASD/NII.	1.926	1.604	1.611	0.000	1.611
*SEIC: Engineering and Technical Support Marine Air-Ground Task Force Command, Control, Communications, Computers, and Intelligence Systems Engineering and Integration, and Coordination. (MAGTF C4I SEI&C) provides for the centralized planning and execution of Marine Corps Enterprise Information Technology and National Security Systems. It develops, certifies, and manages the configurations of the Marine Corps Enterprise Systems and Technical Architecture products and uses these to support enterprise-level systems engineering. It supports unified technical representation to joint and coalition communities for Marine Corps Systems and provides top-tier system engineering support to address system of systems	2.521	2.423	2.492	0.000	2.492

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2277: *System Engineering and Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
technical issues. It is used to conduct direct Marine Expeditionary Unit/Marine Expeditionary Force (MEU/MEF) support in system integration testing with USN. This is part of Deploying Group Systems Integration Testing (DGSIT)) and workups supporting Marine Expeditionary Force (MEF) deployments. It is also used to support Marine Corps systems coordination and involvement in DoD initiatives to include ForceNet, Global Information Grid Enterprise Services (GIGES), and other Deployable Information Systems Architecture DISA/NETWARCOM efforts. *FY 2009 Accomplishments:* MAGTF SEI&C: Engineering and technical support for configuration management of MAGTF C4I systems. Review and submittal of multiple Integration Support Plans (ISPs) and Tactical ISPs (TISPs). Pre-deployment assistance to I MEF and multiple MEUs. Participation in ForceNet, NCES, GIGES and other Joint DoD initiatives. Plans are for continued activities to support the interoperability and jointness of the USMC Enterprise IT/NSS systems. *FY 2010 Plans:* MAGTF SEI&C: Engineering and technical support for configuration management of MAGTF C4I systems. Review and submittal of multiple Integration Support Plans (ISPs) and Tactical ISPs (TISPs). Pre-deployment assistance to I MEF and multiple MEUs. Participation in ForceNet, NCES, GIGES and other Joint DoD initiatives. Plans are for continued activities to support the interoperability and jointness of the USMC Enterprise IT/NSS systems. *FY 2011 Base Plans:* MAGTF SEI&C: Engineering and technical support for configuration management of MAGTF C4I systems. Review and submittal of multiple Integration Support Plans (ISPs) and Tactical ISPs (TISPs). Pre-deployment assistance to I MEF and multiple MEUs. Participation in ForceNet, NCES, GIGES and other Joint DoD initiatives. Plans are for continued activities to support the interoperability and jointness of the USMC Enterprise IT/NSS systems.					
*JDEP: Develop Certifications and Conduct MAGTF C4I Capability	1.469	1.557	1.477	0.000	1.477

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2277: *System Engineering and Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Joint Distributed Engineering Plant (JDEP) directly supports DoD mandated directive CJCSI 6212.01F, to evaluate the interoperability of the holistic Marine Air Ground Task Force (MAGTF) Command Control Communications Intelligence (C4I) Capability produced by Marine Corps Systems Command (MARCORSYSCOM). This evaluation will be accomplished via the MAGTF C4I Capability Certification (MC3) process. Using MC3, composite capabilities are evaluated for their collective interoperability with joint forces; support integration of emmergent systems with systems aleady fielded, and to conduct critical engineering analysis capable of isolating and correcting capability deficiencies and optimize system of systems performance. *FY 2009 Accomplishments:* JDEP: Conduct development of the MAGTF C4I Capability Certification process which involved the creation of capability based test threads. Additionally create Joint Test Threads and participate in a JFCOM sponsored joint distributed test event. *FY 2010 Plans:* JDEP: Conduct development of the MAGTF C4I Capability Certification process which involved the creation of capability based test threads. Additionally create Joint Test Threads and participate in a JFCOM sponsored joint distributed test event. *FY 2011 Base Plans:* JDEP: Conduct development of the MAGTF C4I Capability Certification process which involved the creation of capability based test threads. Additionally create Joint Test Threads and participate in a JFCOM sponsored joint distributed test event.					
Accomplishments/Planned Programs Subtotals	7.184	6.887	5.580	0.000	5.580

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2277: *System Engineering and Integration*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2277: *System Engineering and Integration*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CWID1	C/FP	NSWC Dahlgren, VA	0.716	0.730	Jan 2010	0.730	Dec 2010	0.000		0.730	0.000	2.176	Continuing
CWID2	WR	NSWC Dahlgren, VA	0.100	0.100	Nov 2009	0.100	Dec 2010	0.000		0.100	0.000	0.300	Continuing
CWID	C/FP	MCSC Quantico, VA	0.000	0.130	Jan 2010	0.130	Dec 2010	0.000		0.130	0.000	0.260	Continuing
CWID	C/FP	JTIC Indian Head, MD	0.038	0.038	Jan 2010	0.038	Dec 2010	0.000		0.038	0.000	0.114	Continuing
JINTACCS	C/FP	NSWC Dahlgren, VA	0.070	0.000		0.000		0.000		0.000	0.000	0.070	Continuing
		Subtotal	0.924	0.998		0.998		0.000		0.998	0.000	2.920	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CWID	C/FP	OSEC Stafford, VA	0.362	0.362	Apr 2010	0.360	Apr 2011	0.000		0.360	0.000	1.084	Continuing
MAGTF SEI&C	C/FP	OSEC Stafford, VA	2.210	0.900	Apr 2010	0.461	Apr 2011	0.000		0.461	0.000	3.571	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2277: *System Engineering and Integration*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MAGTF SEI&C	C/FP	MCSC Quantico, VA	0.145	0.000		0.000		0.000		0.000	0.000	0.145	Continuing
MAGTF SEI&C	WR	NSWC Dahlgren, VA	0.008	0.445	Nov 2009	0.445	Nov 2010	0.000		0.445	0.000	0.898	Continuing
JDEP	C/FP	NSWC Dahlgren, VA	0.560	0.560	Jan 2010	0.540	Dec 2010	0.000		0.540	0.000	1.660	Continuing
JDEP	C/FP	OSEC Carlsbad, CA	0.472	0.472	Jan 2010	0.460	Oct 2011	0.000		0.460	0.000	1.404	Continuing
JINTACCS	C/FP	OSEC Stafford, VA	0.581	0.581	Apr 2010	0.582	Apr 2011	0.000		0.582	0.000	1.744	Continuing
JINTACCS	C/FP	MCTSSA Cmp Pendlton CA	1.000	1.000	Jan 2010	1.000	Jan 2011	0.000		1.000	0.000	3.000	Continuing
		Subtotal	5.338	4.320		3.848		0.000		3.848	0.000	13.506	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JDEP	WR	SSCC Charleston, SC	0.444	0.575	Mar 2010	0.575	Nov 2010	0.000		0.575	0.000	1.594	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2277: *System Engineering and Integration*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MAGTF SEI&C	MIPR	MITRE Ft Monmouth NJ	0.085	0.994	Dec 2009	0.159	Dec 2010	0.000		0.159	0.000	1.238	Continuing
		Subtotal	0.529	1.569		0.734		0.000		0.734	0.000	2.832	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.791	6.887		5.580		0.000		5.580	0.000	19.258	

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2278: *Air Defense Weapons System*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2278: *Air Defense Weapons System*	5.700	7.715	5.938	0.000	5.938	8.212	8.432	3.443	3.558	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 encompasses two sub-element programs which are part of the Integrated Air Defense System for the Marine Corps.

Ground Based Air Defense Transformation (GBAD-T) - Based upon the deployment of the Low Altitude Air Defense (LAAD) Battalions and their employment of the Stinger Missile, GBAD-T transforms Air Defense equipment through technology insertion and equipment repackaging to address capability gaps as the result of equipment obsolescence and the emergent and evolving threats to the Marine Air Ground Task Force (MAGTF). GBAD-T consist of three efforts: 1) sustainment of currently fielded LAAD equipment/assets; 2) fielding and support of the Advanced Man-Portable Air Defense System (A-MANPADS) that replaces the Avenger Weapon System and existing MANPADS vehicles; 3) replacing the Remote Terminal Unit (RTU), an effort that replaces an 18 pound laptop computer that provides Situational Awareness and Command and Control to the Stinger and A-MANPAD teams. The RTU replacement will interface with and be capable of receiving a Common Aviation Command and Control Systems (CAC2S) broadcasted link. It will also be capable of interfacing with legacy MACCS.

The Joint Fires Integration and Interoperability Team (JFIIT), formerly known as Joint Combat Identification Evaluation Team (JCIET) - is an opportunity to conduct quality assurance testing of services' systems operating in a joint environment. It conducts assessments in a number of venues including: Military Operations in Urban Terrain (MOUT) exercises, Advanced Concept Technology Demos (ACTD), Joint Training exercises, Combined Armed Training Exercises (CAXs), and Weapons Tactics Instruction (WTI) events. Its mission is to improve Tactics, Techniques and Procedures (TTP) across all Combat Identification mission areas. (It is not an acquisition program; therefore, it does not have specific milestone dates.)

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*GBAD TRANSFORMATION: Test and Evaluation (Remote Terminal Unit Replacement)	1.026	0.357	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2278: *Air Defense Weapons System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Initiated and successfully completed A-MANPADS Increment I developmental Testing. This testing was conducted with one Section Leader Vehicle and 10 Fire unit Vehicles. *FY 2010 Plans:* GBAD-T will continue to support Stinger live-fire exercises at the LAAD Battalions and the Stinger School house, ensuring LAAD gunners obtain and retain military occupational specialty proficiency. Conduct field user evaluation of A-MANPADS Increment I C4 Suite enhancements.					
*GBAD TRANSFORMATION: Program Management Services	0.122	0.122	0.107	0.000	0.107
FY 2009 Accomplishments: Initiated and successfully completed A-MANPADS Increment I developmental Testing. This testing was conducted with one Section Leader Vehicle and 10 Fire unit Vehicles. *FY 2010 Plans:* GBAD-T will continue to support Stinger live-fire exercises at the LAAD Battalions and the Stinger School house, ensuring LAAD gunners obtain and retain military occupational specialty proficiency. *FY 2011 Base Plans:* GBAD-T will continue to support Stinger live-fire exercises at the LAAD Battalions and the Stinger School house, ensuring LAAD gunners obtain and retain military occupational specialty proficiency.					
*GBAD TRANSFORMATION: Product Development (CAC2S Integration)	1.526	0.282	0.473	0.000	0.473
FY 2009 Accomplishments: Developmental testing to include Transportability Qualification Testing, Electromagnetic Interface Testing, and Environmental Qualification Testing. Integration of hardware and software for a C2 interface solution.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2278: *Air Defense Weapons System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Developmental Testing to include field user evaluation. Integration of hardware and software for a C2 interface Solution. *FY 2011 Base Plans:* Testing to include hardware and software certification and information assurance certification.					
*GBAD TRANSFORMATION: Product Development (Remote Terminal Unit Replacement) *FY 2009 Accomplishments:* Initiated and successfully completed A-MANPADS Increment I developmental Testing. This testing was conducted with one Section Leader Vehicle and 10 Fire unit Vehicles. *FY 2010 Plans:* Integration of Commerical-off-the-shelf and Nondevelopmental Item Remote Terminal Unit replacement components into A-MANPADS Increment I.	0.242	0.352	0.000	0.000	0.000
*GBAD TRANSFORMATION: Integration Development (Missile Integration) *FY 2009 Accomplishments:* Single participation in a Government sponsored GBAD capabilities demonstration. *FY 2010 Plans:* Multiple vendor and Government participation in a Governement sponsored GBAD capabilities demonstration. *FY 2011 Base Plans:* Multiple vendor and Government participation in a Governement sponsored GBAD capabilities demonstration.	1.036	6.070	4.991	0.000	4.991

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2278: *Air Defense Weapons System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*GBAD TRANSFORMATION: Support Costs (MCTSSA/MCCDC/Crane support) *FY 2009 Accomplishments:* Initiated and successfully completed A-MANPADS Increment I developmental Testing. This testing was conducted with one Section Leader Vehicle and 10 Fire unit Vehicles. *FY 2010 Plans:* GBAD-T will continue to support Stinger live-fire exercises at the LAAD Battalions and the Stinger School house, ensuring LAAD gunners obtain and retain military occupational specialty proficiency. *FY 2011 Base Plans:* GBAD-T will continue to support Stinger live-fire exercises at the LAAD Battalions and the Stinger School house, ensuring LAAD gunners obtain and retain military occupational specialty proficiency.	0.561	0.532	0.367	0.000	0.367
*JFIIT: Program Management. *FY 2009 Accomplishments:* Logistics/Maintenance for ARORA and MSIT assets at MACS-24 and YUMA Az. Technical and Analysis support from R&B Technology. Participation in the Southern Fury Test event and Bold Quest Test event. Begin Certification Process for ARORA. Supported Joint Army/Marine Corp JTCW/CPOF JTIC Test.	0.291	0.000	0.000	0.000	0.000
*JFIIT: Data and analysis for exercise. *FY 2009 Accomplishments:* Logistics/Maintenance for ARORA and MSIT assets at MACS-24 and YUMA Az. Technical and Analysis support from R&B Technology. Participation in the Southern Fury Test event and Bold Quest Test event. Begin Certification Process for ARORA.	0.765	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2278: *Air Defense Weapons System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Supported Joint Army/Marine Corp JTCW/CPOF JTIC Test.					
*JFIIT: Logistical Support for exercises. *FY 2009 Accomplishments:* Logistics/Maintenance for ARORA and MSIT assets at MACS-24 and YUMA Az. Technical and Analysis support from R&B Technology. Participation in the Southern Fury Test event and Bold Quest Test event. Begin Certification Process for ARORA. Supported Joint Army/Marine Corp JTCW/CPOF JTIC Test.	0.131	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	5.700	7.715	5.938	0.000	5.938

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/300600: *GBAD-T*	8.780	11.352	5.175	0.000	5.175	6.370	9.738	5.586	5.860	Continuing	Continuing

D. Acquisition Strategy

GBAD- TRANSFORMATION: Designated an Abbreviated Acquisition Program (AAP), GBAD-T effects the rapid transition from the Avenger/MANPADS weapon system to the more mobile, flexible, and maintainable Advanced MANPADS. The AAP is principally comprised of integrating Government Off The Shelf (GOTS) equipment and Non-developmental Items (NDI).

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2278: *Air Defense Weapons System*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GBAD-T	WR	NSWC Crane.IN	2.583	0.321	Jan 2010	0.520	Jan 2011	0.000		0.520	0.000	3.424	Continuing
GBAD-T	MIPR	Army Not Specified	1.414	1.461	Mar 2010	1.591	Mar 2010	0.000		1.591	0.000	4.466	Continuing
GBAD-T	WR	NSWC Crane,IN (PAS-13 HW)	1.469	0.000		0.000		0.000		0.000	0.000	1.469	Continuing
GBAD-T	C/FP	EG&G Stafford, VA	0.489	0.000		0.000		0.000		0.000	0.000	0.489	Continuing
GBAD-T	C/FP	DRS Tech Palm Bay, FL	0.215	0.000		0.000		0.000		0.000	0.000	0.215	Continuing
GBAD-T	C/FP	Raytheon San Diego, CA	3.700	0.000		0.000		0.000		0.000	0.000	3.700	Continuing
GBAD-T	C/FP	MCSC Quantico, VA	0.464	0.000		0.000		0.000		0.000	0.000	0.464	Continuing
GBAD-T	C/FP	L3 San Diego, CA	1.121	0.352	Feb 2010	0.000		0.000		0.000	0.000	1.473	Continuing
GBAD-T	MIPR	PMA-259 China Lake	0.000	1.500	Feb 2010	0.875	Feb 2011	0.000		0.875	0.000	2.375	Continuing
GBAD-T	Various/ Various	TBD Not Specified	0.000	3.070	Apr 2010	2.478	Feb 2011	0.000		2.478	0.000	5.548	Continuing
		Subtotal	11.455	6.704		5.464		0.000		5.464	0.000	23.623	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2278: *Air Defense Weapons System*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GBAD-T	WR	NSWC Crane, IN	0.526	0.000		0.000		0.000		0.000	0.000	0.526	Continuing
GBAD-T	C/FP	MCCDC Quantico, VA	1.435	0.225	Feb 2010	0.250	Feb 2011	0.000		0.250	0.000	1.910	Continuing
GBAD-T	WR	MCTSSA Camp Pendleton, CA	0.120	0.050	Feb 2010	0.050	Feb 2011	0.000		0.050	0.000	0.220	Continuing
GBAD-T	WR	MCSC Quantico, VA	0.061	0.000		0.067	Jan 2011	0.000		0.067	0.000	0.128	Continuing
GBAD-T	C/FP	MCOTEA Quantico, VA	0.000	0.257	Feb 2010	0.000		0.000		0.000	0.000	0.257	Continuing
JFIIT	SS/FP	RNB Stafford, VA	1.425	0.000		0.000		0.000		0.000	0.000	1.425	Continuing
JFIIT	WR	MCSC Quantico, VA	0.130	0.000		0.000		0.000		0.000	0.000	0.130	Continuing
		Subtotal	3.697	0.532		0.367		0.000		0.367	0.000	4.596	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2278: *Air Defense Weapons System*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GBAD-T	MIPR	WSMR NM	0.872	0.000		0.000		0.000		0.000	0.000	0.872	Continuing
GBAD-T	MIPR	Not Specified Aberdeen, MD	0.047	0.000		0.000		0.000		0.000	0.000	0.047	Continuing
GBAD-T	C/FP	MCOTEA Quantico, VA	0.315	0.357	Feb 2010	0.000		0.000		0.000	0.000	0.672	Continuing
GBAD-T	MIPR	NATC NM	0.710	0.000		0.000		0.000		0.000	0.000	0.710	Continuing
JFIIT1	Reqn	MCSC Quantico, VA	0.318	0.000		0.000		0.000		0.000	0.000	0.318	Continuing
JFIIT2	WR	4th MAW Not Specified	0.085	0.000		0.000		0.000		0.000	0.000	0.085	Continuing
JFIIT3	WR	MCTSSA Camp Pendelton, CA	0.127	0.000		0.000		0.000		0.000	0.000	0.127	Continuing
JFIIT4	WR	MCSC Quantico, VA	0.047	0.000		0.000		0.000		0.000	0.000	0.047	Continuing
		Subtotal	2.521	0.357		0.000		0.000		0.000	0.000	2.878	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2278: *Air Defense Weapons System*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GBAD-T	C/FP	MCSC Quantico, VA	0.295	0.122	Feb 2010	0.107	Feb 2010	0.000		0.107	0.000	0.524	Continuing
JFIIT	Reqn	MCSC Quantico, VA	0.194	0.000		0.000		0.000		0.000	0.000	0.194	Continuing
		Subtotal	0.489	0.122		0.107		0.000		0.107	0.000	0.718	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	18.162	7.715		5.938		0.000		5.938	0.000	31.815	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2278: *Air Defense Weapons System*

Ground Based Air Defense Transformation (GBAD-T) Program Schedule

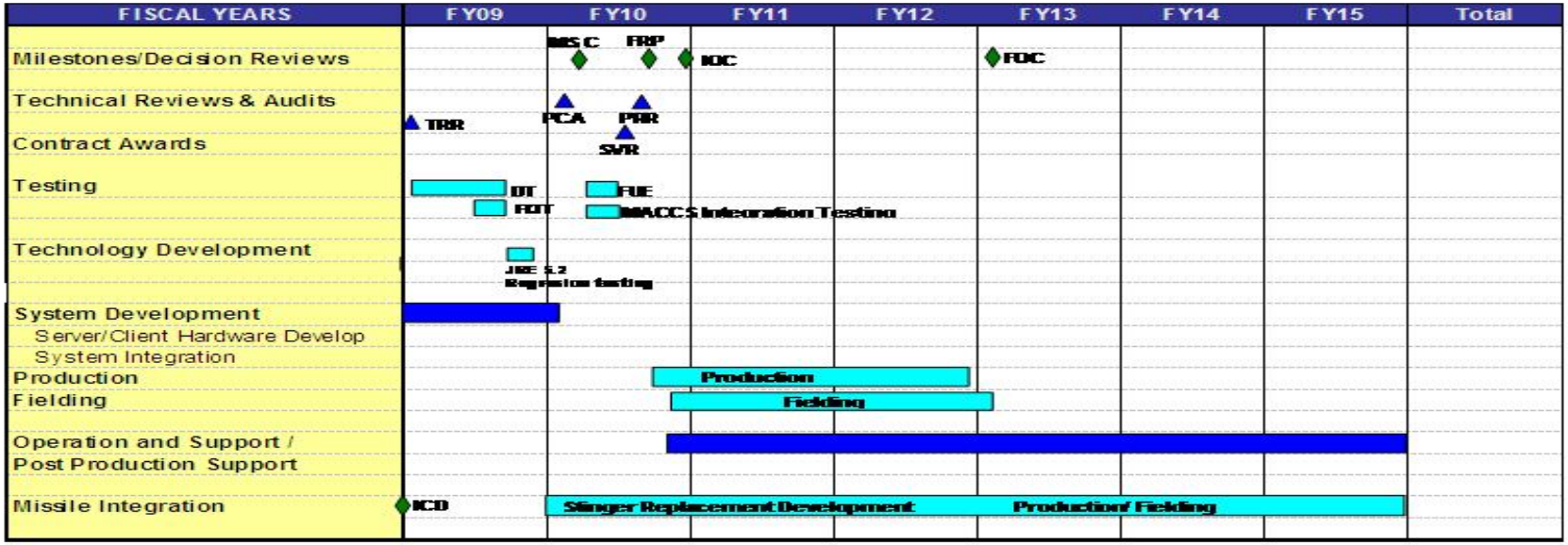


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2278: *Air Defense Weapons System*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
GBAD-T Milestone C	2	2010	2	2010
GBAD-T Full Rate Production	4	2010	4	2010
GBAD-T Fielding Decision	4	2010	4	2010
GBAD_T IOC	4	2010	4	2010

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2510: *MAGTF CSSE & SE*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2510: *MAGTF CSSE & SE*	48.221	61.806	33.538	0.000	33.538	26.696	21.368	21.657	22.230	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) The Marine Air Ground Task Force (MAGTF) Combat Service Support Element & Supporting Establishment (CSSE & SE) consists of mutually supporting Logistics Information Technology (IT) programs that support force deployment, planning, and execution; sustainment and distribution; and contributes to the Combatant Commander's Common Operating Picture to support rapid accurate decision making.

MARINE CORPS COMMON HARDWARE SUITE (MCHS) provides Commercial-Off-The-Shelf (COTS) workstations (desktop/laptop), servers and other IT hardware to support the Operating Force and other non-Navy Marine Corps Intranet (NMCI) Marine Corps customers. MCHS provides support for two principal groups: 1) Approximately 50 United States Marine Corps (USMC) Tactical and Functional Programs of Record that use COTS IT hardware as part of their fielded systems; and 2) Tactical and other Marine Corps customers not supported by NMCI such as Marine Corps Forces, Europe/Marine Corps Forces, Korea and stand-alone Marine Corps units and schoolhouses. The goal of the program is to enhance overall IT system interoperability and lower the total cost of ownership by centralizing procurement of COTS IT hardware, reducing the number of different configurations of computers, and providing worldwide integrated logistics support for all fielded MCHS hardware. Rapid Technology Insertion provides ability to develop, test, and evaluate COTS hardware and software configurations for rapid fielding purposes.

GLOBAL COMBAT SUPPORT SYSTEM-MARINE CORPS (GCSS-MC) is pursuing an Evolutionary Acquisition (EA) strategy in order to field operationally suitable and supportable capabilities in the shortest time possible that meets the Logistics Advocate goals. EA offers the fastest method to field this highest of advocate priorities and allows for requirements to be time-phased as the users become more familiar with the strengths and weaknesses of the fielded system. In addition to quicker fielding, an EA approach is particularly well suitable for software intensive programs and offers these benefits: rapid delivery of an initial capability with the explicit intent of delivering continuously improving capabilities in the future and a reduction in the "cycle time" from identification of emergent user requirements, priorities and fielding. The GCSS-MC acquisition strategy will deliver capabilities in block increments. Each "Block" capability will follow a complete acquisition process in accordance with the DOD 5000 publications and OSD's Enterprise Integration roadmap. Blocks will include emergent user priorities, advanced technology improvements and expanded functionality. Each Block will repeat the complete acquisition program cycle going through a milestone (MS) C Full Rate Production Decision Review for each Block. Block 1 is divided into two major independent releases: Enterprise Release 1.1 and Deployed Access Release 1.2. Each release will have Initial Operational Capability (IOC) and Full Operational Capability (FOC) and is divided into two main phases: Planning/Blueprinting and Realization/Transition. More substantial software improvement/system upgrades will be fielded with each Block as required and prioritized by the user community. This approach differs from the original plan of delivering one release due to the technical complexities related to the overall scope of the solution. GCSS-MC was designated an Acquisition Category (ACAT) IAM program in March 2004 and successfully completed a MS B review on June 8, 2007. MS C review is slated for the 1st Quarter FY10 with fielding beginning in 2nd Quarter FY12.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2510: *MAGTF CSSE & SE*

In June 2008, Headquarters Marine Corps Command, Control, Communications and Computers was briefed on the Block 1 architectural approach and validated the approach as technically sound and essential to support deployed forces. FOC is validated when all Marine Corps ground components are using capabilities provided by GCSS-MC to include formal schools, and selected Marine Reserve Components and the following systems are no longer used operationally: Supported Activities Supply System, Marine Corps Integrated Maintenance Management System (MIMMS), PC MIMMS, and Asset Tracking Logistics Automated Support System I.

TRANSPORTATION SYSTEMS PORTFOLIO (TSP) RDT&E funding supports the various ongoing and continuing efforts to modernize legacy USMC logistics systems including joint interoperability testing and certification, information assurance testing and certification, and updating old hardware in need of replacement. Legacy systems include joint programs supporting deployment and sustainment of theater assets as well as existing USMC legacy systems. Joint interoperability testing and certification is an ongoing and continuous requirement that is critical to ensuring all TSP applications are interoperable with other Department of Defense and Joint Services systems. There are also ongoing and continuing efforts to ensure that the legacy TSP applications comply with the latest information assurance requirements. TSP applications are continually updating their security posture through software enhancements based upon the latest cyber threats. Also, mandatory DOD compliance with software patches ensure TSP systems are in compliance with new information assurance vulnerability assessments and ensure data integrity, confidentiality and availability.

JOINT FORCE REQUIREMENTS GENERATOR II (JFRG II) is a Global Command and Control System (GCCS) segmented software application designed to provide DOD with a Joint Services, state-of-the-art, integrated, and deployable Automated Information System that supports strategic force movements. The JFRG II software application is based on the Marine Corps' MAGTF II software application. MAGTF II has been in existence since 1991 and is used for task planning, Time Phased Force Deployment Data (TPFDD) editing, and Joint Operational Planning and Execution System (JOPES) interfacing. JFRG II assists in the notional planning process, permits the assignment of actual units to fill notional slots, and generates TPFDD for use in executing Joint Operation Plans. JFRG II provides rapid force list creation and interfaces with the Transportation Coordinators' Automated Information for Movement System (TC-AIMS II) and JOPES. It includes a Joint Deployment Data Library containing reference data required to produce a JOPES-compatible TPFDD extract file. JFRG II also contains modules that include the Unit Line Number (ULN) summary for rapid force list creation and the Force Module Summary for rapid ULN grouping. JFRG II can generate standard, executive, and ad hoc reports, perform database queries, and export or import data from TC-AIMS II, MDSS II and JOPES. JFRG II operates and functions in either a classified or unclassified environment.

PUBLIC KEY INFRASTRUCTURE (PKI) provides security objects and mechanisms used by (PK)-enabled systems and applications. The primary products of PKI are PK certificates and other certified objects used in conjunction with PK certificates. In addition to PK certificates, PKI provides on-line services (e.g. on-line certificate status checking), and supplies authenticated attributes in PK certificates and/or attribute certificates. PKI is one of a number of security solutions used to protect information and provide attributes to enable critical resources in the Global Information Grid, and is used concurrently with other solutions (e.g. in-line network encryptors to implement the defense-in-depth concept.) In conjunction with PK-enabled applications, PKI is used for identification, authentication, data confidentiality and integrity, and non-repudiation security services. Additionally, PKI functionally will be expanded to the Secret Internet Protocol Router Network (SIPRNET).

AUTOMATED IDENTIFICATION TECHNOLOGY (AIT) conducts research and development of new technologies and assists in technology insertion into applications. RDT&E enhances the Marine Corps' capability to quickly assimilate emerging technologies and leverage them to support more efficient, accurate business processes and data capture. AIT supports Active Radio Frequency Identification (RFID), passive RFID (pRFID), Unique Identification (UID) and the Operating Forces in the implementation of AIT solutions. AIT evaluates emerging technologies, new equipment, and performs integration analysis and testing.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2510: *MAGTF CSSE & SE*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*MARINE CORPS COMMON HARDWARE SUITE (MCHS)	1.453	1.558	1.508	0.000	1.508
FY 2009 Accomplishments: FY09 funding is being used to track vendor performance in providing COTS hardware to Marine Corps users as well as conducting environmental and stress testing on new COTS products proposed for use by MCHS customers. Tracking vendor performance includes verifying vendor compliance with Marine Corps specifications and conducting root cause analysis on failures reported from the Operating Forces in order to prevent future failures. *FY 2010 Plans:* In FY10, in addition to root cause analysis of failures of fielded gear, MCHS is using RDT&E funding to verify vendor specs for new products and to evaluate the applicability of both current and new products for procurement under the revised MCHS Indefinite Delivery, Indefinite Quantity contract with selected vendors. Environmental and stress testing includes rigorous environmental testing IAW applicable MILSPECs to evaluate performance of COTS hardware under field conditions. Software loading is also performed by MCHS to verify compatibility with various hardware configurations. *FY 2011 Base Plans:* In FY11, RDT&E will continue to be used to conduct trend analysis on reported failures of fielded COTS hardware and to evaluate the ability of new products to meet Marine Corps needs.					
*GCSS-MC LOGISTICS CHAIN MANAGEMENT (GCSS-MC)	40.063	55.244	27.759	0.000	27.759
FY 2009 Accomplishments: FY09 activities include systems integration testing, the preparation for government testing, and the actual conducting of Government, Development, Test & Evaluation (GDT&E).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2510: *MAGTF CSSE & SE*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY10 will include Field User Evaluations, Operational Testing and initial fielding of Block 1, For release 1.1 and the initial design, build and test activities for Release 1.2. *FY 2011 Base Plans:* FY11 completes the Block I, Release 1.1 rollout fielding and training to III Marine Expeditionary Force (MEF), and begins the I & II MEF rollout fielding and training. Release 1.2 activities include the preparation and execution of GDT&E, Follow-on Operational Test & Evaluation and the procurement of hardware for the MEFs					
*TRANSPORTATION SYSTEMS PORTFOLIO (TSP) *FY 2009 Accomplishments:* FY09 TSP will conduct Active RFID upgrades and Joint Interoperability Testing & Certification (JITC) for all application upgrades and releases for all the programs within the portfolio. *FY 2010 Plans:* FY10 TSP will conduct Active RFID upgrades and Joint Interoperability Testing & Certification (JITC) for all application upgrades and releases for all the programs within the portfolio. *FY 2011 Base Plans:* FY11 TSP will conduct Active RFID upgrades and Joint Interoperability Testing & Certification (JITC) for all application upgrades and releases for all the programs within the portfolio.	0.552	0.617	0.558	0.000	0.558
*JOINT FORCES REQUIREMENT GENERATION II (JFRG II) *FY 2009 Accomplishments:* FY09 funding is being utilized to develop the enhanced version of JFRG II, and funding for FY10 and FY11 will decrease as focus shifts from program development to program maintenance.	1.577	0.555	0.360	0.000	0.360

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY10 funding is being utilized to continue development of the enhanced version of JFRG II, and funding for FY10 and FY11 will decrease as focus shifts from program development to program maintenance. *FY 2011 Base Plans:* FY11 funds will continue to fund software development and integration into GCCS 4.X and legacy systems from all services to pass deployment data to GCCS.					
*PUBLIC KEY INFRASTRUCTURE (PKI) *FY 2009 Accomplishments:* FY09 accomplishments include program, integration, planning and coordination efforts. Continuing FY09 efforts include DOD mandated Increment II implementation which encompasses SIPRNET PKI enablement, testing and continued program planning and coordination. *FY 2010 Plans:* FY10 funding will support continued testing, correction of deficiencies, and implementation of PKI requirements for tactical applications and SIPRNET capabilities. *FY 2011 Base Plans:* FY11 funding will support continued testing, correction of deficiencies, and implementation of PKI requirements for tactical applications and SIPRNET capabilities.	1.723	1.743	1.312	0.000	1.312
*AUTOMATED IDENTIFICATION TECHNOLOGY (AIT) *FY 2009 Accomplishments:* AIT will upgrade the pRFID infrastructure and continue to modify and develop pRFID capabilities as well as bring the active and pRFID together during FY09 - FY11.	2.853	2.089	2.041	0.000	2.041

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: AIT will upgrade the pRFID infrastructure and continue to modify and develop pRFID capabilities as well as bring the active and pRFID together during FY09 - FY11. *FY 2011 Base Plans:* AIT will upgrade the pRFID infrastructure and continue to modify and develop pRFID capabilities as well as bring the active and pRFID together during FY09 - FY11.					
Accomplishments/Planned Programs Subtotals	48.221	61.806	33.538	0.000	33.538

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• BLI 463000 2: *CCR: MCHS Svrs/ Wkstns*	39.996	17.574	0.548	17.850	18.398	1.889	1.831	1.640	1.666	Continuing	Continuing
• BLI 461700 1: *Combat Spt Sys: GCSS-MC*	0.000	4.570	27.158	0.000	27.158	11.267	0.000	9.996	9.335	Continuing	Continuing
• BLI 463500: *Comm & Elec Infra Spt: PKI*	0.799	0.930	0.998	0.000	0.998	1.184	1.450	1.489	1.529	Continuing	Continuing
• BLI 461700 2: *Combat Spt Sys: AIT*	5.777	5.496	4.753	0.000	4.753	7.490	7.131	4.127	3.998	Continuing	Continuing
• BLI 463000 1: *CCR:GCSS-MC*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.800	5.656	0.000	15.456

D. Acquisition Strategy

MARINE CORPS HARDWARE SUITE (MCHS) ensures computer hardware in the Operating Forces keeps pace with industry computer hardware technical improvements. Analyses of technical alternatives are periodically required in order to determine how to best meet emerging customer requirements.
GLOBAL COMBAT SUPPORT SYSTEM-MARINE CORPS (GCSS-MC) is pursuing an Evolutionary Acquisition (EA) strategy in order to field operationally suitable and supportable capabilities in the shortest time possible that meets the Logistics Advocate goals. EA offers the fastest method to field this highest of advocate priorities

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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and allows for requirements to be time-phased as the users become more familiar with the strengths and weaknesses of the fielded system. In addition to quicker fielding, an EA approach is particularly well suitable for software intensive programs and offers these benefits: rapid delivery of an initial capability with the explicit intent of delivering continuously improving capabilities in the future and a reduction in the "cycle time" from identification of emergent user requirements, priorities and fielding. The GCSS-MC acquisition strategy will deliver capabilities in block increments. Each "Block" capability will follow a complete acquisition process in accordance with the DOD 5000 publications and OSD's Enterprise Integration roadmap. Blocks will include emergent user priorities, advanced technology improvements and expanded functionality. Each Block will repeat the complete acquisition program cycle going through a milestone (MS) C Full Rate Production Decision Review for each Block. Block 1 is divided into two major independent releases: Enterprise Release 1.1 and Deployed Access Release 1.2. Each release will have Initial Operational Capability (IOC) and Full Operational Capability (FOC) and is divided into two main phases: Planning/Blueprinting and Realization/Transition. More substantial software improvement/system upgrades will be fielded with each Block as required and prioritized by the user community. This approach differs from the original plan of delivering one release due to the technical complexities related to the overall scope of the solution. GCSS-MC was designated an Acquisition Category (ACAT) IAM program in March 2004 and successfully completed a MS B review on June 8, 2007. MS C review is slated for the 2nd Quarter FY10 with fielding beginning in 4th Quarter FY12.

In June 2008, Headquarters Marine Corps Command, Control, Communications and Computers was briefed on the Block 1 architectural approach and validated the approach as technically sound and essential to support deployed forces. FOC is validated when all Marine Corps ground components are using capabilities provided by GCSS-MC to include formal schools, and selected Marine Reserve Components and the following systems are no longer used operationally: Supported Activities Supply System, Marine Corps Integrated Maintenance Management System (MIMMS), PC MIMMS, and Asset Tracking Logistics Automated Support System I.
TRANSPORTATION SYSTEMS PORTFOLIO (TSP) conducts research and development currently executed under multiple contracts ending at various times across the FYDP. These contracts support the testing of the joint deployment and sustainment systems along with the USMC legacy systems.
JOINT FORCES REQUIREMENT GENERATOR II (JFRG II) conducts research and development currently executed under a five-year contract ending Dec 2011. This contract supports the testing of software for functionality with service users then passed on to Defense Information Systems Agency (DISA) for security & interoperability testing and released as a Global Command and Control Systems (GCCS) mission application. This is conducted based on a six-month release schedule of GCCS, with a six-month lead time for each JFRG II version release.
PUBLIC KEY INFRASTRUCTURE (PKI) is a DOD ACAT IAM Program. At the service level, the USMC PKI program is being managed as an Abbreviated Acquisition Program. Based on an Assistant Secretary of Defense Acquisition Decision Memorandum, DOD PKI development will be conducted through a series of block upgrades. The functional enhancement, changes will result in increased capability and functionality for PKI and increase the levels of security and assurance which affects mitigation of identified risks. There are thirteen functional and five assurance enhancements. Additionally, PKI functionality will be expanded to the SIPRNET.
AUTOMATED IDENTIFICATION TECHNOLOGY (AIT) hardware in the Operating Forces keeps pace with industry computer hardware technical improvements. AIT will support all aspects of Active RFID, pRFID, and UID. AIT evaluates emerging technologies, new equipment, and performs integration analysis and testing.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GCSS Logistics Chain Man-Block 1	Various/FP	Oracle USA Reston, VA	122.241	34.344	Jan 2010	18.500	Jan 2011	0.000		18.500	Continuing	Continuing	Continuing
GCSS LCM Block 1 Release 1.2	C/FP	OSEC Stafford, VA	0.000	4.000	Sep 2010	0.000		0.000		0.000	0.000	4.000	Continuing
GCSS LCM Block 1 Release 1.1	C/FP	EDO Stafford, VA	0.000	2.500	Mar 2010	0.000		0.000		0.000	0.000	2.500	Continuing
PKI	C/FFP	Various Various	3.760	1.743	May 2010	1.312	May 2011	0.000		1.312	Continuing	Continuing	Continuing
AIT	C/FFP	Stanley Dumfries, VA	2.853	2.089	Dec 2009	2.041	Dec 2010	0.000		2.041	Continuing	Continuing	Continuing
VAR	Various/ Various	Various Various	17.201	0.400		0.262		0.000		0.262	Continuing	Continuing	Continuing
		Subtotal	146.055	45.076		22.115		0.000		22.115			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
VAR	Various/ Various	Various Various	1.213	0.000		0.000		0.000		0.000	0.000	1.213	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	1.213	0.000		0.000		0.000		0.000	0.000	1.213	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MCHS	WR	SPAWAR Charleston, SC	8.075	1.558	Jan 2010	1.508	Jan 2011	0.000		1.508	Continuing	Continuing	Continuing
GCSS Logistics Chain Man	WR	Various Various	2.549	4.700		1.000	Dec 2011	0.000		1.000	Continuing	Continuing	Continuing
Various	Various/ Various	Various Various	11.754	1.127		0.921		0.000		0.921	Continuing	Continuing	Continuing
		Subtotal	22.378	7.385		3.429		0.000		3.429			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2510: *MAGTF CSSE & SE*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GCSS Log C2 Systems	C/FFP	Northrop Grumman Stafford, VA	8.000	6.745	Jan 2010	6.735	Jan 2011	0.000		6.735	Continuing	Continuing	Continuing
GCSS Log C2 Systems	C/FFP	Various Various	7.784	2.600	Mar 2010	1.259	Dec 2010	0.000		1.259	Continuing	Continuing	Continuing
Various	Various/ Various	Various Various	3.980	0.000		0.000		0.000		0.000	0.000	3.980	Continuing
		Subtotal	19.764	9.345		7.994		0.000		7.994			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	189.410	61.806		33.538		0.000		33.538			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 2510: *MAGTF CSSE & SE*

GCSS-MC Program Schedule

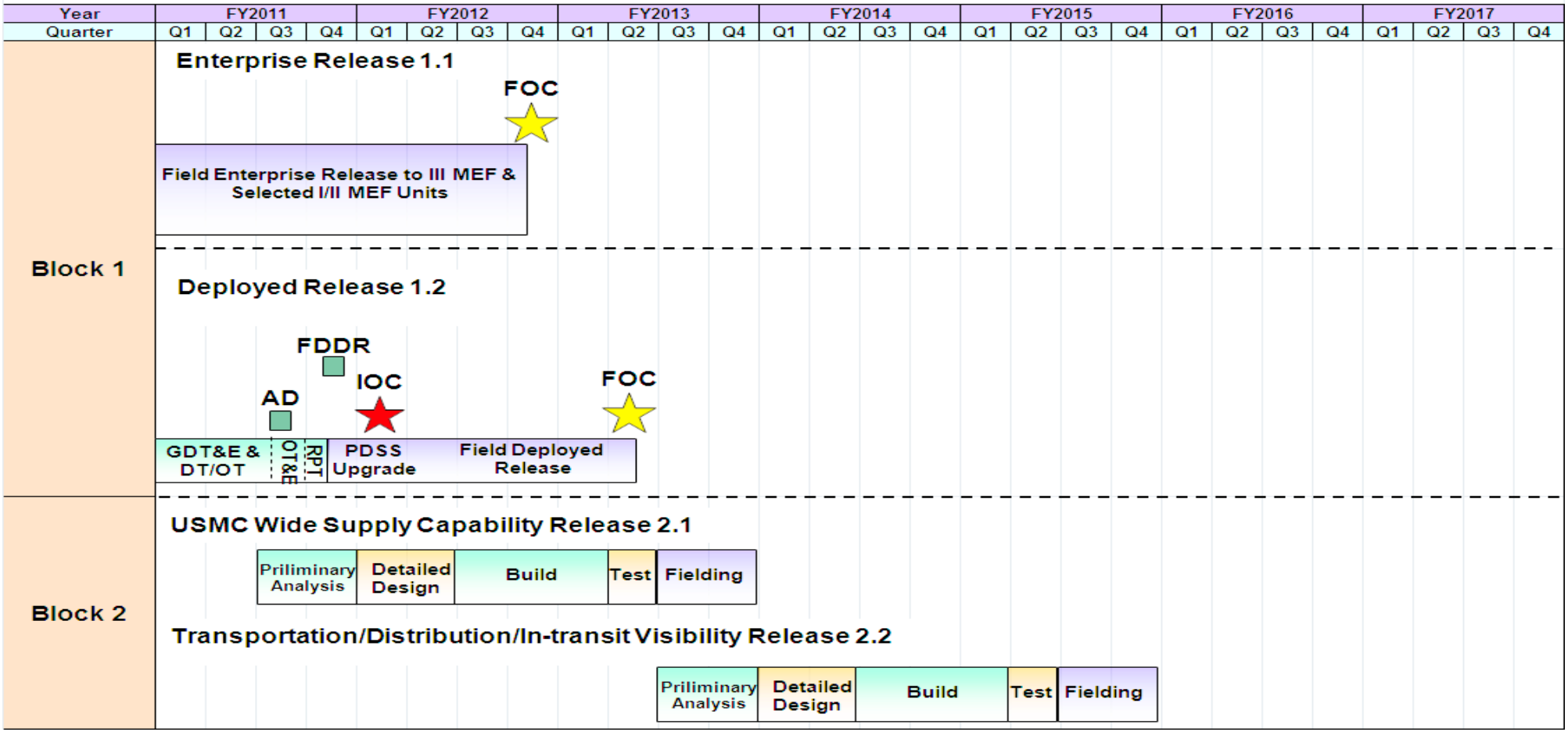

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206313M: *Marine Corps Comms Systems*	**PROJECT** 2510: *MAGTF CSSE & SE*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
GCSS-MC Logistics Chain Mgt Block 1 Release 1.1 FOC	4	2012	4	2012
GCSS-MC Logistics Chain Mgt Block 1 Release 1.2 IOC	1	2012	1	2012
GCSS-MC Logistics Chain Mgt Block 1 Release 1.2 AD	3	2011	3	2011
GCSS-MC Logistics Chain Mgt Block 1 Release 1.2 FOC	2	2013	2	2013

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3099: *Radar System*	108.928	17.566	24.893	0.000	24.893	34.317	34.344	8.216	8.834	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

G/ATOR FY2009 funding is resides in two (2) seperate Project Codes, FY2009 C3009D and C9C89B. All current and future funding from FY2010 through out the FYDP will reside in C9C89B.

A. Mission Description and Budget Item Justification

Ground/Air Task Oriented Radar (G/ATOR) (formerly known as the Multi-Role Radar System (MRRS)) is an expeditionary, 3-dimensional, high-mobility, multi-purpose wheeled vehicle, short/medium range multi-role radar designed to detect cruise missiles, air breathing targets, rockets, mortars, and artillery. MRRS and GWLR (Ground Weapons Locating Radar) merged into a single requirement/capability (G/ATOR) and will replace an aging fleet of single mission legacy radar systems. G/ATOR will support air defense, air surveillance, counter-battery/target acquisition, aviation radar tactical enhancements and the final evolution will also support the Air Traffic Control mission. (This project was funded under project C3099 prior to FY2010)

Long Range Radar (AN/TPS-59(V)3) - is a three dimensional ground-based sensor that can detect and track long range Air Breathing Targets (ABT) at ranges of 300 nautical miles and Tactical Ballistic Missiles (TBM) at ranges of 400 nautical miles. The system is beset with increasing obsolescence and Diminishing Manufacturing Sources (DMS) issues. The program will use a Post Production Support (PPS) contract to develop engineering changes to resolve DMS. A Product Improvement Program (PIP) will upgrade the system to enhance system capabilities and ensure continued viability against emerging threats.

Family of Target Acquistion Systems (FTAS) - The FTAS provides the MAGTF the capability to locate, identify and attack enemy indirect fire weapons systems and observe and direct friendly artillery fire. The FTAS consists of the AN/TPQ-46 Firefinder radar, the AN/TPQ-48 Lightweight Counter Mortar Radar and the Target Processing Set. The FTAS is critical in the execution of counterfire and the integration of target acquisition information enabling attack by MAGTF assets. The FTAS also provides artillery firing units the ability to conduct artillery registration and other firendly fire missions. The FTAS encompasses the equipment required to support target acquisition within the target acquisition platoon and is resident in the headquarters battery of each artillery regiment. FY09-FY15 funds will be used to address engineering issues that arise due to DMS items within the Family of Target Acquisition Systems.

Short/Medium Range Air Defense Radar (SHORAD) - The Short/Medium Range Air Defense Radar AN/TPS-63B is a two-dimensional, medium-range, medium altitude, transportable radar system which is doctrinally employed as a tactical gap-filler or as an early warning system for early deployment into the operational area. It

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has a 360-degree air surveillance capability at a range of 160 miles and complements the co-employed AN/TPS-59(V)3 three-dimensional, long-range, air surveillance radar system. The Short/Medium Range Air Defense Radar will develop engineering change proposals related to improved system performance with the specific purpose of meeting increased fleet operational requirements. AN/TPS-63 modifications and system improvements will be researched and analyzed to determine which complement existing components to preclude an expensive USMC investment in solid-state radar technology.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*GWLR/FTAS: Program office management/travel. GWLR is a sustainment and upgrade program for the current AN/TPQ-46A radar. The upgrade will be accomplished through a series of engineering change proposals (antenna transceiver group re-cap, Radar Processor re-host, and the lightweight computer unit replacement). Engineering Change Proposals (ECPs) will be conducted by the equipment Primary Inventory Control Agent (PICA) (Army PM Firefinder) with USMC participation. Joint procurement of hardware will realize economy of scale savings and ensure common configuration. Army and Marine Corps Depot facilities will be utilized to perform hardware installation. Purpose of the upgrade is to enhance performance and availability. *FY 2009 Accomplishments:* MCSC ALBANY - Supported the Tech Manual validation, pre-audit on the AN/TPQ-46B preparing for the Physical Configuratoin Audit. *FY 2010 Plans:* Travel funding for the ALBANY MARCORSYSCOM support for conferences and site visits.	0.080	0.050	0.000	0.000	0.000
*GWLR/FTAS: Contractor GWLR is a sustainment and upgrade program for the current AN/TPQ-46A radar. The upgrade will be accomplished through a series of engineering change proposals (antenna transceiver group re-cap, Radar Processor re-host, and the lightweight computer unit replacement). Engineering Change Proposals (ECPs) will be conducted by the equipment Primary Inventory Control Agent (PICA) (Army PM Firefinder) with USMC participation. Joint procurement of hardware will realize economy of scale	0.718	0.582	0.637	0.000	0.637

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
savings and ensure common configuration. Army and Marine Corps Depot facilities will be utilized to perform hardware installation. Purpose of the upgrade is to enhance performance and availability. *FY 2009 Accomplishments:* Dahlgren - Engineering Support for the Family of Target Acquisition systems support the Correlation and Fusion to include market studies (RFI's). *FY 2010 Plans:* NSWC CRANE - Government Engineering Support to include Correlation and Fusion, Dahlgren - Engineering Support for the Family of Target Acquisition systems to support the Correlation and Fusion as well as market studies (RFI's). *FY 2011 Base Plans:* CECOM - supporting the SW/HW Engineering Chancge Proposal's and Diminishing Manufacturing Systems.					
*GWLR/FTAS: Software/Hardware ECP's GWLR is a sustainment and upgrade program for the current AN/TPQ-46A radar. The upgrade will be accomplished through a series of engineering change proposals (antenna transceiver group re-cap, Radar Processor re-host, and the lightweight computer unit replacement). Engineering Change Proposals (ECPs) will be conducted by the equipment Primary Inventory Control Agent (PICA) (Army PM Firefinder) with USMC participation. Joint procurement of hardware will realize economy of scale savings and ensure common configuration. Army and Marine Corps Depot facilities will be utilized to perform hardware installation. Purpose of the upgrade is to enhance performance and availability. *FY 2010 Plans:* Dahlgren - continuation of services from FY09 and ongoing. Crane - Correlation and Fusion.	0.000	0.165	0.175	0.000	0.175

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Dahlgren - continuation of services from FY09 and ongoing. CECOM - supporting the SW/HW Engineering Change Proposal's and Diminishing Manufacturing Systems efforts.					
*GWLR/FTAS: System Diminishing Manufacturing Sources (DMS) GWLR is a sustainment and upgrade program for the current AN/TPQ-46A radar. The upgrade will be accomplished through a series of engineering change proposals (antenna transceiver group re-cap, Radar Processor re-host, and the lightweight computer unit replacement). Engineering Change Proposals (ECPs) will be conducted by the equipment Primary Inventory Control Agent (PICA) (Army PM Firefinder) with USMC participation. Joint procurement of hardware will realize economy of scale savings and ensure common configuration. Army and Marine Corps Depot facilities will be utilized to perform hardware installation. Purpose of the upgrade is to enhance performance and availability. *FY 2010 Plans:* Dahlgren - continuation of services from FY09 and ongoing. Crane - Correlation and Fusion. *FY 2011 Base Plans:* Dahlgren - continuation of services from FY09 and ongoing. CECOM - supporting the SW/HW Engineering Change Proposal's and Diminishing Manufacturing Systems efforts.	0.000	1.006	1.040	0.000	1.040
*G/ATOR: Contractor Technical, Development Engineering/EDM *FY 2009 Accomplishments:* Engineering Development Model (EDM) design effort continuation. Critical Design Review, software development, and Partial Array (prototype) delivery and near field range testing.	80.158	0.000	0.000	0.000	0.000
*G/ATOR: Program Office Management & Travel Costs	1.198	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Government personnel/travel and contractor engineering design support was completed.					
*G/ATOR: Government Tech Support *FY 2009 Accomplishments:* MITRE and NSWC Dahlgren Software Engineerng Support (management, requirements mapping, code walk through) and Radar Engineering Support.	6.920	0.000	0.000	0.000	0.000
*G/ATOR: Engineering, Management, & Logistics Support *FY 2009 Accomplishments:* Critical Design Review completed.	4.400	0.000	0.000	0.000	0.000
*SHORT/MEDIUM RANGE AIR DEFENSE RADAR: Life Extension Study The Short/Medium Range Air Defense Radar AN/TPS-63B is a two-dimensional, medium-range, medium altitude, transportable radar system which is doctrinally employed as a tactical gap-filler or as an early warning system for early deployment into the operational area. It has a 360-degree air surveillance capability at a range of 160 miles and complements the co-employed AN/TPS-59(V)3 three-dimensional, long-range, air surveillance radar system. *FY 2009 Accomplishments:* Continued to assess the TORA reports for future ECPs to maintain readiness of radar systems. *FY 2010 Plans:* To provide better configuration management to the current systems by on site visits and field configuration survey. AN/TPS-63 modifications and system improvements will be researched and analyzed to determine which complement existing components.	0.115	0.220	0.197	0.000	0.197

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: To provide better configuration management to the current systems by on site visits and field configuration survey. Continuing developing effort to resolve ongoing DMSMS issues and ensure current sustainment efforts.					
*SHORT/MEDUIM RANGE AIR DEFENSE RADAR: Engineering and Technical Support (IFF) The Short/Medium Range Air Defense Radar AN/TPS-63B is a two-dimensional, medium-range, medium altitude, transportable radar system which is doctrinally employed as a tactical gap-filler or as an early warning system for early deployment into the operational area. It has a 360-degree air surveillance capability at a range of 160 miles and complements the co-employed AN/TPS-59(V)3 three-dimensional, long-range, air surveillance radar system. The radar also provides a time-shared display of radar and Identification Friend or Foe (IFF) data. The Short/Medium Range Air Defense Radar will develop engineering change proposals related to improved system performance with the specific purpose of meeting increased fleet operational requirements. AN/TPS-63 modifications and system improvements will be researched and analyzed to determine which complement existing components to preclude an expensive USMC investment in solid-state radar technology. *FY 2009 Accomplishments:* On going effort to develop engineering change proposals related to improved system performance with the specific purpose of meeting increased fleet operational requirements. *FY 2011 Base Plans:* Research and development efforts are needed to be Mode 5 Identification Friend or Foe (IFF) compliant and provide the communication link to pass critical IFF data to the TAOC.	0.133	0.000	1.027	0.000	1.027
*AN/TPS-59 : Develop Engineering Change Proposals	14.493	14.293	19.568	0.000	19.568

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
The program will address Diminishing Manufacturing Sources (DMS) issues by continuing use of a Post Production Support (PPS) contract. The AN/TPS-59 Incremental Sustainment is a two-phased acquisition approach to address Diminishing Manufacturing Systems for the AN/TPS-59(V)3 Radar System. *FY 2009 Accomplishments:* Data Processor Group, Tech Refresh continued started in FY08 and to continue in FY10 and FY11. *FY 2010 Plans:* Lockheed Martin and Sensis - Engineering Change Proposal support, Lockheed Martin - Diminishing Manufacturing Systems reports, Lockheed Martin - software integration, Mode 5 trade study, DO54 Processor Tech Refresh and S/W Radar Environmental Simulator. *FY 2011 Base Plans:* Lockheed Martin and Sensis - Engineering Change Proposal support, Lockheed Martin - Diminishing Manufacturing Systems reports, Lockheed Martin - software integration, Mode 5 trade study, DO54 Processor Tech Refresh and S/W Radar Environmental Simulator.					
*AN/TPS-59 : Contractor service support. The program will address Diminishing Manufacturing Sources (DMS) issues by continuing use of a Post Production Support (PPS) contract. The AN/TPS-59 Incremental Sustainment is a two-phased acquisition approach to address Diminishing Manufacturing Systems for the AN/TPS-59(V)3 Radar System. *FY 2009 Accomplishments:* Over Seas Contingency Operations with contractor oversight support. Technical refresh and provide procurement of the Government furnished properties in support of the Digital Processor Group Technology Refresh effort with Lockheed Martin Corporation. Modeling and Simulation effort support.	0.713	1.250	2.249	0.000	2.249

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Provided programmatic and technical support for the Air Force for the 3 Dimensional Expeditionary Long Range Radar program. *FY 2010 Plans:* MCOTEA/MCTSSA - Testing events, MITRE - Engineering support, Lockheed Martin - PMO/IPT, MDIOC - Modeling and Simulation, MCSC - Program Management Support. *FY 2011 Base Plans:* MCOTEA/MCTSSA - Testing events, MITRE - Engineering support, Lockheed Martin - PMO/IPT, MDIOC - Modeling and Simulation, MCSC - Program Management Support.					
Accomplishments/Planned Programs Subtotals	108.928	17.566	24.893	0.000	24.893

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/46501: *Short/Medium Range Radar Mods*	0.419	0.700	0.694	0.000	0.694	0.720	6.690	0.743	0.755	Continuing	Continuing
• PMC/46502: *AN/TPS-59*	24.230	4.285	0.000	0.000	0.000	7.594	40.316	28.349	29.283	Continuing	Continuing
• PMC/46503: *FAMILY OF TARGET ACQUISITION SYSTEMS*	17.663	5.837	0.166	0.000	0.166	3.671	3.134	2.143	2.202	Continuing	Continuing
• PMC/46504: *G/ATOR*	0.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.056

D. Acquisition Strategy

Ground/Air Task Oriented Radar (G/ATOR), formerly known as Multi-Role Radar System (MRRS) will fill the MRRS and GWLR requirements. Five legacy systems (AN/TPS-63, AN/UPS-3, AN/MPQ-62, AN/TPS-73 and AN/TPQ-46A) will be replaced by a single material design that offers an opportunity to reduce development cost and combine training & logistics assets. MRRS Aviation Authorized Acquisition Objective (AAO) is 43 systems replacing the AN/TPS-63, AN/MPQ-62 and AN/TPS-73 systems as well as additional systems in support of the SHORAD mission (CLAWS weapon cue); MRRS Ground AAO is 38 systems, a one for one replacement of the

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*

AN/TPQ-46A. The System Development & Demonstration (SDD) phase designed to allow for technology insertion due to obsolescence and technology growth issues. Initial builds will be back fitted to current then year technology as required. As they become available Tactical Enhancements will parallel field to then year initial builds and back fitted to earlier builds. Two Engineering Development Models (EDM) -- one Contractor, one Government -- will be developed during the SDD phase and flowed down to support builds.

Long Range Radar (AN/TPS-59(V)3) - The program will address Diminishing Manufacturing Sources (DMS) issues by continuing use of a Post Production Support (PPS) contract. The AN/TPS-59 Incremental Sustainment is a two-phased acquisition approach to address Diminishing Manufacturing Systems for the AN/TPS-59(V)3 Radar System.

Family of Target Acquisition Systems (FTAS) - is a sustainment and upgrade program for the current AN/TPQ-46A radar. The upgrade will be accomplished through a series of engineering change proposals (antenna transceiver group re-cap, Radar Processor re-host, and the lightweight computer unit replacement). Engineering Change Proposals (ECPs) will be conducted by the equipment Primary Inventory Control Agent (PICA) (Army PM Firefinder) with USMC participation. Joint procurement of hardware will realize economy of scale savings and ensure common configuration. Army and Marine Corps Depot facilities will be utilized to perform hardware installation. Purpose of the upgrade is to enhance performance and availability.

Short/Medium Range Air Defense Radar (SHORAD) - The program will identify, address and support resolution of emergent Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues in order to keep the radar operational, prevent mission failure, and ensure safety to fleet. The AN/TPS-63B must remain in operation until replaced by the Ground/Air Task Oriented Radar (G/ATOR).

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/TPS-59	C/CPFF	LOCKHEED MARTIN SYRACUSE, NY	39.707	12.868	Jan 2010	19.568	Jan 2011	0.000		19.568	0.000	72.143	Continuing
AN/TPS-59	C/CPFF	SENSIS SYRACUSE, NY	0.800	0.300	Jul 2010	0.000		0.000		0.000	0.000	1.100	Continuing
SHORT/MEDIUM RANGE	C/CPFF	NORTHROP GRUMMAN Not Specified	0.000	0.220	Mar 2010	1.224	Jan 2011	0.000		1.224	0.000	1.444	Continuing
		Subtotal	40.507	13.388		20.792		0.000		20.792	0.000	74.687	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FTAS	WR	NSWC, DAHLGREN DAHLGREN	5.105	0.493	Nov 2009	0.000		0.000		0.000	0.000	5.598	Continuing
FTAS	MIPR	CECOM FT MONMOUTH	1.932	0.000		1.040	Jan 2011	0.000		1.040	0.000	2.972	Continuing
FTAS	WR	MCLB BARSTOW	1.200	0.000		0.000		0.000		0.000	0.000	1.200	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FTAS	WR	NSWC, CRANE CRANE, IN	1.180	0.670	Nov 2009	0.175	Nov 2010	0.000		0.175	0.000	2.025	Continuing
FTAS	C/FFP	MCSC QUANTICO	0.253	0.640	Jun 2010	0.637	Jan 2011	0.000		0.637	0.000	1.530	Continuing
		Subtotal	9.670	1.803		1.852		0.000		1.852	0.000	13.325	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/TPS-59	C/CPFF	MCSC QUANTICO	6.867	1.750	Dec 2009	1.349	Dec 2010	0.000		1.349	0.000	9.966	Continuing
AN/TPS-59	C/CPFF	MITRE Not Specified	0.400	0.625	Oct 2009	0.900	Oct 2010	0.000		0.900	0.000	1.925	Continuing
FTAS	WR	MCSC QUANTICO	0.504	0.000		0.000		0.000		0.000	0.000	0.504	Continuing
		Subtotal	7.771	2.375		2.249		0.000		2.249	0.000	12.395	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	57.948	17.566		24.893		0.000		24.893	0.000	100.407	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*

Family of Target Acquisition Systems (FTAS/GWLR) Program Schedule

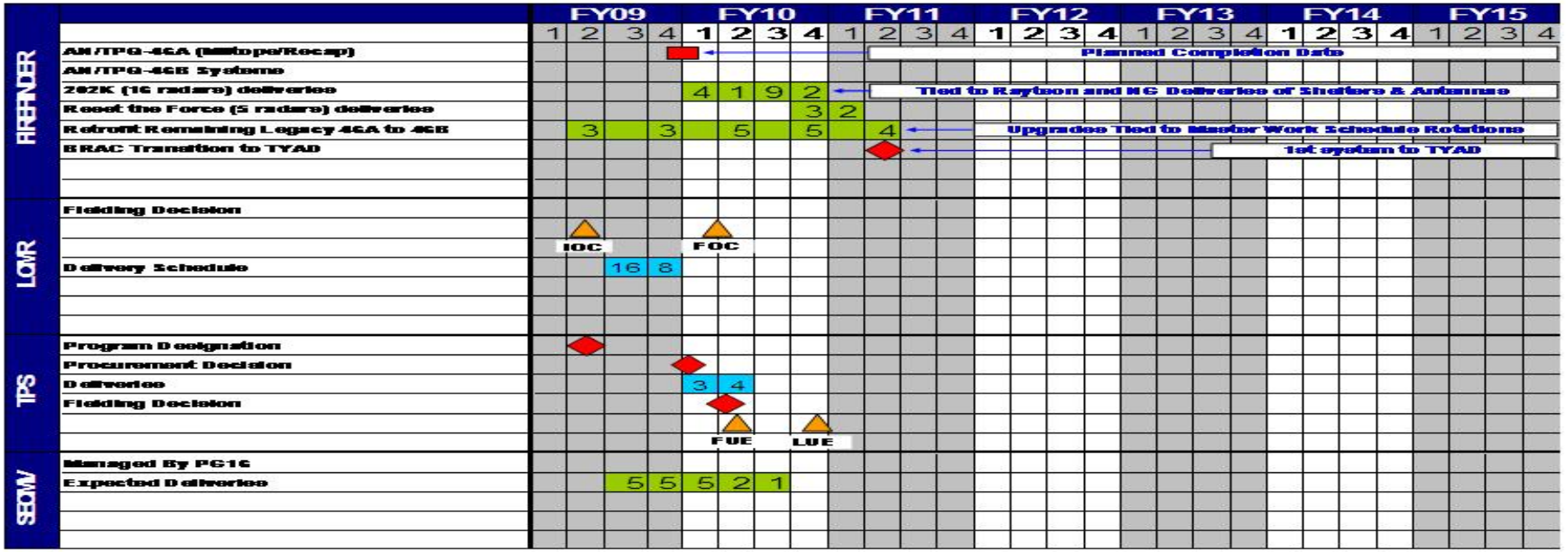

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*

AN/TPS-59 Product Improvement Program (PIP) Program Schedule

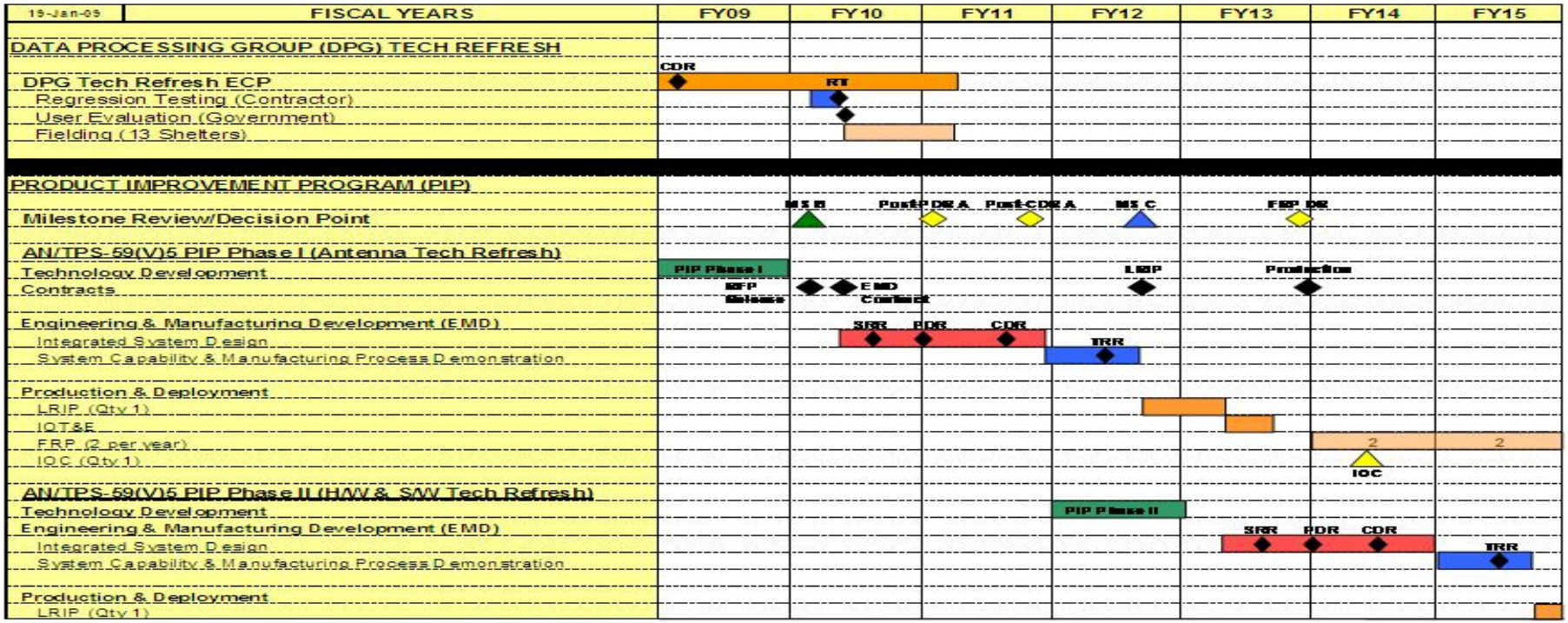

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*

GROUND AIR TASK ORIENTED RADAR
G/ATOR SCHEDULE C3099

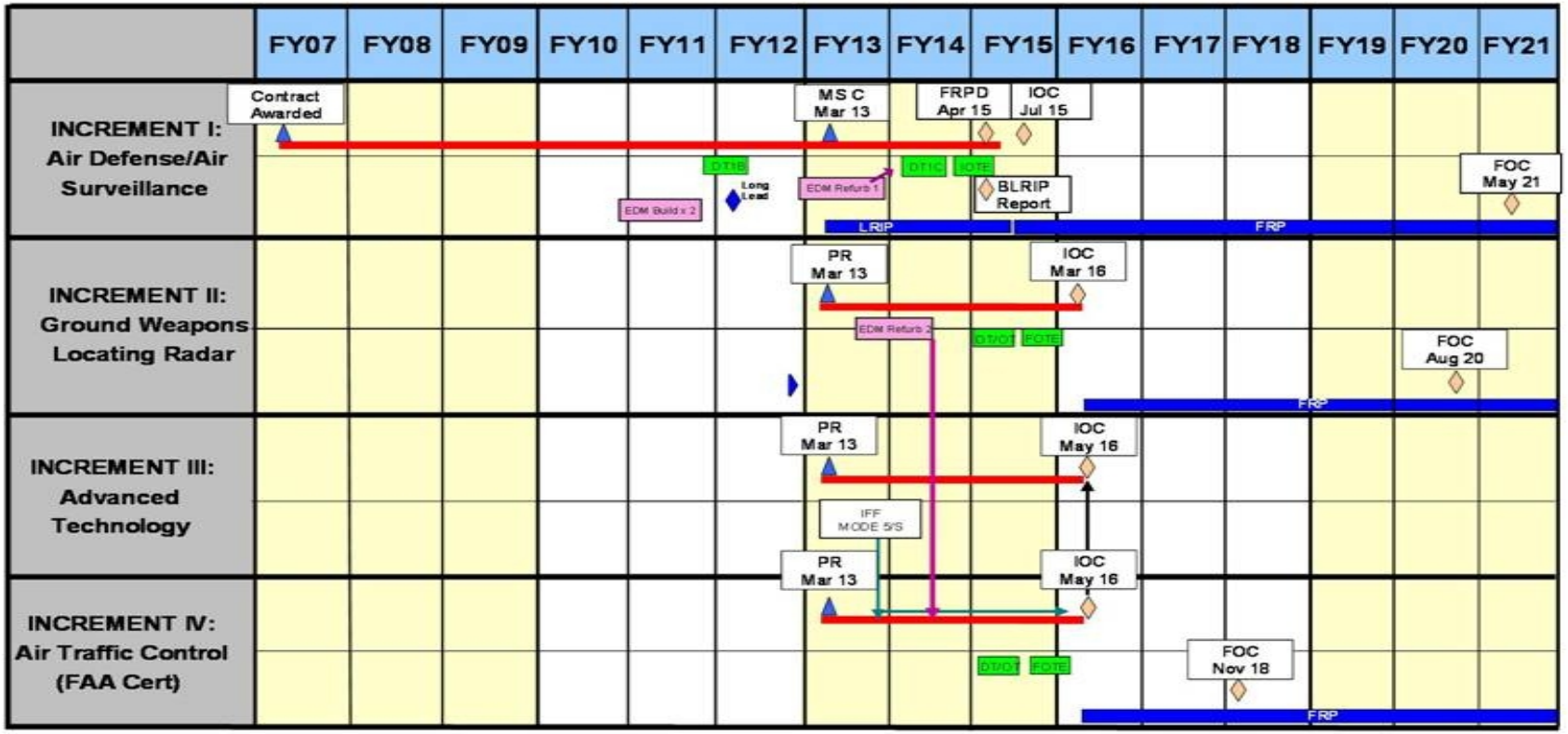

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
G/ATOR System Development and Demonstration Phase	1	2009	2	2013
G/ATOR System Demonstration (DT)(1B)	4	2012	2	2013
G/ATOR System Demonstration (DT/OT)(1C)	1	2014	3	2014
G/ATOR Operational Assessment (OA)	3	2012	3	2012
G/ATOR Long Lead Items (EDM, LRIP & Production)	2	2013	1	2015
G/ATOR Milestone C	2	2013	2	2013
G/ATOR Full Rate Production Decision	3	2014	3	2014
G/ATOR IOT&E	4	2014	1	2015
G/ATOR IOC	4	2015	4	2015
G/ATOR Full Rate Production	4	2015	4	2015
GWLR IOC	2	2009	2	2009
GWLR FOC	1	2010	1	2010
G/ATOR Advance Technology Program Reviews (PR)	3	2012	3	2012
G/ATOR Air Traffic Control Capability Not Currently Funded Program Reviews (PR)	4	2015	4	2015
G/ATOR Air Traffic Control Capability Not Currently Funded IOC	2	2014	2	2014
AN/TPS-59 Sustainment IFF Mode 5 Upgrade	1	2009	4	2009
AN/TPS-59 Sustainment Post Fielding Software Updates	1	2009	4	2009
AN/TPS-59 PIP Concept and Technology MS-B Documentation	1	2010	1	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 3099: *Radar System*

	Start		End	
Event	Quarter	Year	Quarter	Year
AN/TPS-59 PIP Concept and Technology System Design	2	2010	3	2012
AN/TPS-59 PIP Concept and Technology System Integration (EDM)	3	2011	1	2012
AN/TPS-59 PIP Concept and Technology System Demo/Op Change (DT/OT)	1	2012	2	2012
AN/TPS-59 PIP Concept and Technology Milestone C	3	2012	3	2012
AN/TPS-59 Production Phase LRIP	3	2012	2	2013
AN/TPS-59 Production Phase IOT&E	3	2013	4	2013
AN/TPS-59 Production Phase IOC	2	2014	2	2014

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	15.380	6.373	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	73.641
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Battlefield Sensor Netting System - This is a system using several sensors in a battlefield area, with groups of sense in communication with sensor netting stations. Each sensor netting station broadcasts air traffic data to terminal users in its area. The sensors may be radars, infrared detectors, etc. The sensor netting station includes communications to each sensor, processing facilities for handling aircraft I.D. and eliminating redundant targets, and communications to terminal users. The terminal users may include missile or gun batteries, tank or infantry columns, etc. This funds the development of increasing timeliness and accuracy to better engage aircraft and missiles earlier.

Mobile Modular Command and Control (M2C2) - The development of Mobile Modular Command and Control (M2C2) technology provides the Marine Operating Forces with an on-the-move command and control (OTM C2) capability with over the horizon (OTH) communication links. The Congressional funding will help to baseline the M2C2 capability and prepare it for transition into an acquistion program of record, the Command Operations Center (COC).

Performance Enhancements for IA/IS - Add will enable the USMC the ability to provide the development, maintenance, and the technical support for advanced software configurations of Wide Area Network (WAN) Connection Assurance and Acceleration (WCAA).

Marine Corps Intelligence Analysis System - IAS Family of Systems (FOS) uses a three tiered approach for receiving, parsing, analyzing and disseminating fused all-source intelligence data that will be employed cross disciplinary approach in order to build a more powerful investigative and analytic toll that will provide semi-automatic means to predict insurgent's point of origin/bases.

Media Explotation Tool Integration with Intelligence C2 Systems- Digital media exploitation rapidly extracts data from enemy devices and media captured on the battlefield. Development of this tool will allow for collection/conversion of raw data into actionable intelligence for timely analysis/dissemination.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Media Exploitation Tool Integration with Intelligence C2 Systems *FY 2010 Plans:* (C10C187) Digital media exploitation rapidly extracts data from enemy devices and media captured on the battlefield. Development of this tool will allow for collection/conversion of raw data into actionable intelligence for timely analysis/dissemination.	0.000	1.195
Congressional Add: BATTLEFIELD SENSOR NETTING *FY 2009 Accomplishments:* (C9C68A) Initiated the development of increasing timeliness and accuracy in order to better engage enemy aircraft and missiles earlier. *FY 2010 Plans:* Continuation of FY2009 effort.	2.394	2.390
Congressional Add: PERFORMANCE ENHANCEMENTS FOR IA & IS *FY 2009 Accomplishments:* (C9C69A) Add will enable the USMC the ability to provide the development, maintenance, and the technical support for advanced software configurations of Wide Area Network (WAN) Connection Assurance and Acceleration (WCAA). WCAA improves network performance with in existing connectivity as well as harden, test, certify and improve tactical configurations of the existing underlying technology. Additonal configurations and evaluations will identify selected information systems and virtual appliances, including replication and configuration services and measure anticipated performance improvements across wide-area networks with high latency and noise characteristics.	6.381	0.000
	1.516	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Center for geospatial intelligence and investigati *FY 2009 Accomplishments:* (C9E20A) Planned Geospatial Research at Texas State University.		
Congressional Add: M2C2 *FY 2009 Accomplishments:* (C9E21A) M2C2 Transition Engineering Services - Engineering services contract to fund the M2C2 project engineering management team. Since M2C2 is a technology initiative and not an acquisition program of record, the project started from scratch in terms of basic staff members, acquisition documentation and establishment of processes. All these areas are now substantially mature. The M2C2 Transition project is now positioned for successful competition in POM-12 and the foundation has been laid for transition of the M2C2 technology into the Combat Operations Center program during the next two years. M2C2 Transition Prime Contract - Development of Mobile Modular Command and Control (M2C2) technology. M2C2 Urgent Universal Need Statement (U-UNS) Satellite Communications/Command and Control Development and Testing - Supported M2C2 U-UNS and the development of on-the-move wide-band satellite communications technology, command and control system optimization, and laboratory testing of the integrated systems/sub-systems. *FY 2010 Plans:* Mobile Modular Command and Control (M2C2) - Continues the development of Mobile Modular Command and Control (M2C2) technology and prepares it for transition into an acquisition program of record.	5.089	2.788
Congressional Adds Subtotals	15.380	6.373

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Congressional Add

E. Performance Metrics

Congressional Add

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9C89: *Marine Ground-Air Radar*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9C89: *Marine Ground-Air Radar*	38.000	63.660	55.173	0.000	55.173	14.449	7.137	5.984	6.112	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Ground/Air Task Oriented Radar (G/ATOR) (formerly known as the Multi-Role Radar System (MRRS)) is an expeditionary, 3-dimensional, high-mobility, multi-purpose wheeled vehicle, short/medium range multi-role radar designed to detect cruise missiles, air breathing targets, rockets, mortars, and artillery. MRRS and GWLR (Ground Weapons Locating Radar) merged into a single requirement/capability (G/ATOR) and will replace an aging fleet of single mission legacy radar systems. G/ATOR will support air defense, air surveillance, counter-battery/target acquisition, aviation radar tactical enhancements and the final evolution will also support the Air Traffic Control mission. (This project was funded under project C3099 prior to FY2010)

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*G/ATOR: Contractor Technical, Development Engineering/EDM	35.417	45.983	39.110	0.000	39.110
FY 2009 Accomplishments: Engineering Development Model (EDM) design effort continuation. Critical Design Review, software development, and Partial Array (prototype) delivery and near field range testing. *FY 2010 Plans:* EDM material procurement and fabrication. Contractor software integration and test, and contractor system integration and test. *FY 2011 Base Plans:* Environmental testing, Performance Qualification Testing, Factory Acceptance Testing, and begin Developmental Testing.					
*G/ATOR: Test and Evaluation	0.649	2.015	2.822	0.000	2.822

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9C89: *Marine Ground-Air Radar*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: MITER and Redstone Arsenal TEMP development. *FY 2010 Plans:* MCOTEA, General Dynamics, NSWC Corona, and Aberdeen Test Facility TEMP development. *FY 2011 Base Plans:* Environmental testin, Performance Qualification Testing, and being Developmental Testing.					
*G/ATOR: Program Office Management & Travel Costs *FY 2010 Plans:* Travel support for testing events scheduled in FY10. *FY 2011 Base Plans:* Continue travel efforts in support of program test events.	0.000	0.361	0.150	0.000	0.150
*G/ATOR: Government Technical Support *FY 2009 Accomplishments:* MITRE and NSWC Dahlgren Software Engineerng Support (management, requirements mapping, code walk through) and Radar Engineering Support. *FY 2010 Plans:* MITRE, NSWC Dahlgren, NSWC Crane, MARCORSYSCOM, MCOTEA Quantico Software Engineering (management, requirements mapping, code walk through) and Radar Engineering Support *FY 2011 Base Plans:* MITRE, NSWC Dahlgren, NSWC Crane, MARCORSYSTEM, MCOTEA.	0.908	8.534	7.491	0.000	7.491

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9C89: *Marine Ground-Air Radar*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*G/ATOR: Engineering, Management, & Logistics Support	1.026	6.767	5.600	0.000	5.600
FY 2009 Accomplishments: Critical Design Review completed and Supportability Analysis (Trade Study). *FY 2010 Plans:* Supportability Analysis update (Maintenance Plan), M-Demonstration, and training. *FY 2011 Base Plans:* Engineering Management & Logistics Support.					
Accomplishments/Planned Programs Subtotals	38.000	63.660	55.173	0.000	55.173

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/465000: *GRND/AIR TASK ORIENTED RADAR*	0.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.445
• RDTE&N/C3099: *GRND/AIR TASK ORIENTED RADAR*	92.676	0.000	0.000	0.000	0.000	0.018	0.012	0.000	0.000	0.000	179.621

D. Acquisition Strategy

The Ground/Air Task Oriented Radar (G/ATOR), formerly known as Multi-Role Radar System (MRRS) will fill the MRRS and GWLR requirements. Five legacy systems (AN/TPS-63, AN/UPS-3, AN/MPQ-62, AN/TPS-73 and AN/TPQ-46A) will be replaced by a single material design that offers an opportunity to reduce development cost and combine training & logistics assets. MRRS Aviation systems replace the AN/TPS-63, AN/MPQ-62 and AN/TPS-73 systems as well as additional systems in support of the SHORAD mission (CLAWS weapon cue); MRRS Ground system is a one for one replacement of the AN/TPQ-46A. The System Development & Demonstration (SDD) phase designed to allow for technology insertion due to obsolescence and technology growth issues. Initial builds will be back fitted to current then year technology as required. As they become available, Tactical Enhancements will parallel field to then year initial builds and back fitted to earlier builds. Two Engineering Development Models (EDM) -- one Contractor, one Government -- will be developed during the SDD phase and flowed down to support builds.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9C89: *Marine Ground-Air Radar*

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9C89: *Marine Ground-Air Radar*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
G/ATOR	C/CPIF	NORTHRUP GRUMMAN LINTHICUM HEIGHTS, MD	35.147	45.983	Nov 2009	39.110	Nov 2010	0.000		39.110	Continuing	Continuing	Continuing
		Subtotal	35.147	45.983		39.110		0.000		39.110			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
G/ATOR	MIPR	MITRE BOSTON, MA	0.338	0.480	Nov 2009	0.504	Nov 2010	0.000		0.504	Continuing	Continuing	Continuing
G/ATOR	WR	NSWC-DAHLGREN DAHLGREN, VA	0.570	6.965	Nov 2009	6.010	Nov 2010	0.000		6.010	Continuing	Continuing	Continuing
G/ATOR	WR	NSWC-CRANS CRANE, ID	0.000	0.660	Nov 2009	0.530	Nov 2010	0.000		0.530	Continuing	Continuing	Continuing
G/ATOR	C/FP	MCSC QUANTICO, VA	0.000	0.107	Nov 2009	0.107	Nov 2010	0.000		0.107	Continuing	Continuing	Continuing
G/ATOR	WR	MCOTEA QUANTICO, VA	0.000	0.322	Nov 2009	0.340	Nov 2010	0.000		0.340	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9C89: *Marine Ground-Air Radar*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.908	8.534		7.491		0.000		7.491			

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
G/ATOR	WR	MCOTEA QUANTICO, VA	0.000	0.322	Nov 2009	0.350	Nov 2010	0.000		0.350	Continuing	Continuing	Continuing
G/ATOR	C/FP	GENERAL DYNAMICS STAFFORD, VA	0.000	0.450	Nov 2009	0.500	Nov 2010	0.000		0.500	Continuing	Continuing	Continuing
G/ATOR	MIPR	MITRE BOSTON, MA	0.539	0.640	Nov 2009	0.672	Nov 2010	0.000		0.672	Continuing	Continuing	Continuing
G/ATOR	WR	MCSC QUANTICO, VA	0.000	0.385	Nov 2009	0.300	Nov 2010	0.000		0.300	Continuing	Continuing	Continuing
G/ATOR	WR	NSWC-CORONA CORONA, CA	0.000	0.118	Dec 2009	0.300	Nov 2010	0.000		0.300	Continuing	Continuing	Continuing
G/ATOR	MIPR	US ARMY ABEREEND PROVING GROUND, MD	0.000	0.100	Dec 2009	0.350	Nov 2010	0.000		0.350	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9C89: *Marine Ground-Air Radar*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
G/ATOR	MIPR	MARINE CORP AIR STATION YUMA, AZ	0.000	0.000		0.350	Nov 2010	0.000		0.350	Continuing	Continuing	Continuing
G/ATOR	MIPR	REDSTONE ARSENAL ALABAMA	0.110	0.000		0.000		0.000		0.000	0.000	0.110	Continuing
		Subtotal	0.649	2.015		2.822		0.000		2.822			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
G/ATOR1	C/FP	GENERAL DYNAMICS STAFFORD, VA	1.026	6.767	Nov 2009	5.400	Nov 2010	0.000		5.400	Continuing	Continuing	Continuing
G/ATOR2	WR	MCSC QUANTICO, VA	0.000	0.150	Oct 2009	0.150	Oct 2010	0.000		0.150	Continuing	Continuing	Continuing
G/ATOR3	C/FP	MCSC QUANTICO, VA	0.000	0.211	Oct 2009	0.200	Oct 2010	0.000		0.200	Continuing	Continuing	Continuing
		Subtotal	1.026	7.128		5.750		0.000		5.750			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9C89: *Marine Ground-Air Radar*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks													

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	37.730	63.660		55.173		0.000		55.173			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9C89: *Marine Ground-Air Radar*

GROUND AIR TASK ORIENTED RADAR
G/ATOR SCHEDULE C9C89B

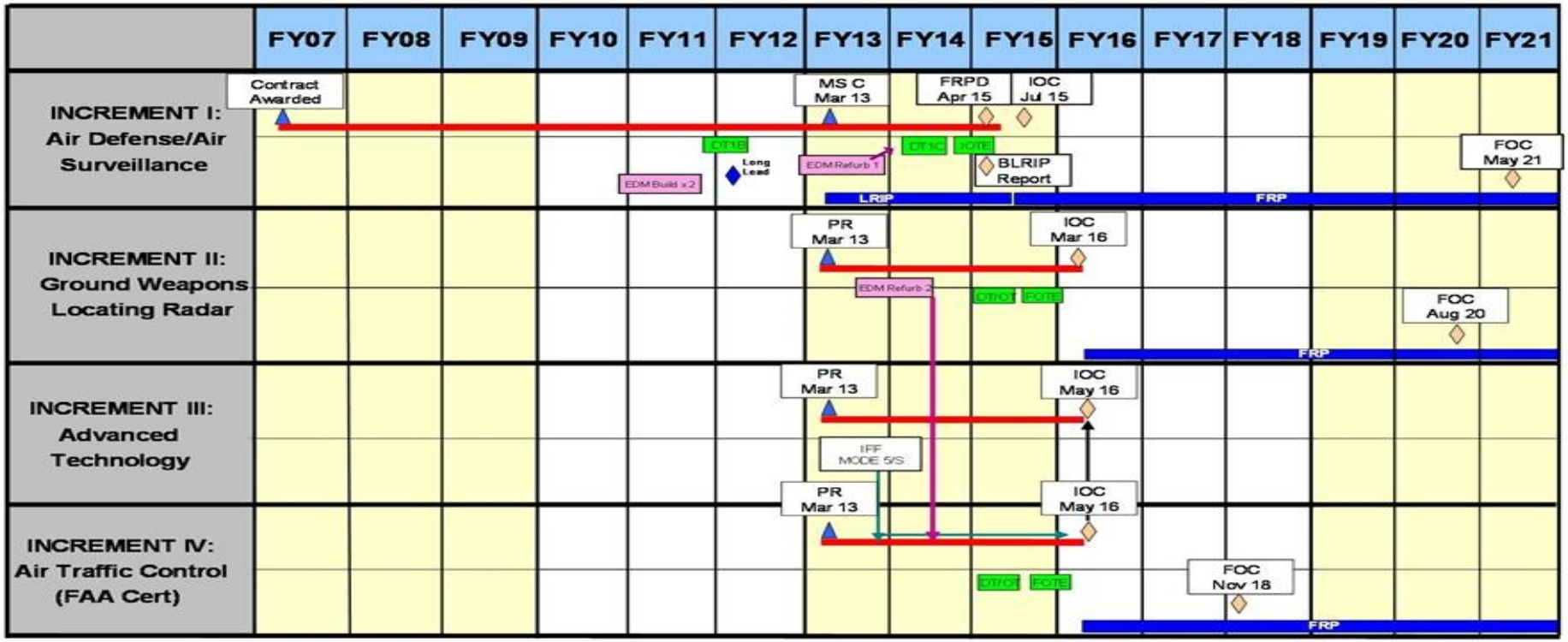

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206313M: *Marine Corps Comms Systems*	PROJECT 9C89: *Marine Ground-Air Radar*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Defense/Air Surveillance Capability System Development and Demonstration Phase	1	2009	3	2013
Defense/Air Surveillance Capability System Demonstration (DT)(iB)	4	2011	2	2012
Defense/Air Surveillance Capability System Demonstration (DT/OT)(1C)	1	2014	3	2014
Defense/Air Surveillance Capability Operational Assessment (OA)	3	2012	3	2012
Defense/Air Surveillance Capability Long Lead Items (EDM, LRIP and Production)	2	2013	1	2015
Defense/Air Surveillance Capability Milestone C	2	2013	2	2013
Defense/Air Surveillance Capability Full Rate Production Decision	3	2015	3	2015
Defense/Air Surveillance Capability IOT&E	4	2014	1	2015
Defense/Air Surveillance Capability IOC	4	2015	4	2015
Defense/Air Surveillance Capability Full Rate Production	2	2015	4	2015
GWLR Program Reviews (PR)	2	2013	2	2013
GWLR System Demonstration (DT)	1	2015	2	2015
GWLR FOT&E	3	2015	4	2015
Advance Technology Program Review (PR)	2	2013	2	2013
Advance Technology IFF MODE 5/S Capabilities	2	2013	1	2014
Air Traffic Control Capability Not Currently Funded Program Review (PR)	2	2013	2	2013
Air Traffic Control Capability Not Currently Funded FOT&E	3	2015	4	2015
Air Traffic Control Capability Not Currently Funded System Demonstration (DT/OT)(1C)	1	2015	2	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	103.050	108.857	100.424	0.000	100.424	169.193	174.711	134.455	102.586	Continuing	Continuing
0021: *Assault Amphibious Vehicle 7A1*	30.465	44.817	1.887	0.000	1.887	1.955	2.051	2.079	2.197	Continuing	Continuing
1555: *Lt Armored Vehicle Prog*	10.429	6.608	14.760	0.000	14.760	17.032	10.864	2.331	2.393	Continuing	Continuing
1901: *MC Grnd Wpnry Prod Improvement*	5.265	9.809	11.514	0.000	11.514	10.863	8.805	7.788	7.383	Continuing	Continuing
2086: *Soldier/Marine Enhancement*	5.346	3.366	4.534	0.000	4.534	4.657	4.783	4.922	5.055	Continuing	Continuing
2112: *Lightweight 155mm Howitzer*	0.000	1.394	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.394
2237: *Amphibious Vehicle Test*	0.892	0.902	0.929	0.000	0.929	0.944	0.947	0.967	0.984	Continuing	Continuing
2315: *Training Devices/Simulators*	19.131	13.218	2.226	0.000	2.226	7.039	17.774	14.159	10.802	Continuing	Continuing
2503: *Initial Issue*	16.326	9.823	12.271	0.000	12.271	12.509	14.733	13.488	13.567	Continuing	Continuing
2928: *Exp Indirect Fire Gen Supt Wpn Sys*	2.233	1.943	1.542	0.000	1.542	2.109	2.395	2.447	2.500	Continuing	Continuing
3098: *Fire Support System*	8.078	6.005	20.559	0.000	20.559	28.260	25.512	19.043	9.122	Continuing	Continuing
4002: *Family of Raid Reconnaissance*	0.896	4.027	3.391	0.000	3.391	0.809	0.425	0.435	0.444	Continuing	Continuing
9999: *Congressional Adds*	3.989	3.824	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	58.967
9C85: *Marine Personnel Carrier (MPC)*	0.000	3.121	26.811	0.000	26.811	83.016	86.422	66.796	48.139	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*

A. Mission Description and Budget Item Justification

This PE provides modification to Marine Corps Expeditionary Ground Force Weapon Systems to increase lethality, range, survivability and operational effectiveness. It also provides for the development of AAV7A1 reliability, maintainability, operational and safety modifications, improvements in command and control, and product improvements to the family of LAVs. The AVTB provides facilities and personnel which perform a broad range of testing, repair and technical services to amphibious vehicles. This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing and manufacturing development for upgrades of existing systems.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	119.007	120.379	0.000	0.000	0.000
Current President's Budget	103.050	108.857	100.424	0.000	100.424
Total Adjustments	-15.957	-11.522	100.424	0.000	100.424
• Congressional General Reductions		-0.455			
• Congressional Directed Reductions		-14.900			
• Congressional Rescissions	0.000	-0.007			
• Congressional Adds		3.840			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-5.952	0.000			
• SBIR/STTR Transfer	-10.005	0.000			
• Program Adjustments	0.000	0.000	100.424	0.000	100.424

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Expandable Rigid Wall Composite Shelter*	0.000	0.797
Congressional Add: *Remote Aiming and Sighting Optical Retrofit*	0.000	3.027
Congressional Add: *MARCOM Computer Research*	0.997	0.000
Congressional Add: *Marine Corps Shotgun Modernization Program*	2.992	0.000
Congressional Add Subtotals for Project: 9999	3.989	3.824

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add Totals for all Projects	3.989	3.824

Change Summary Explanation

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 0021: *Assault Amphibious Vehicle 7A1*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0021: *Assault Amphibious Vehicle 7A1*	30.465	44.817	1.887	0.000	1.887	1.955	2.051	2.079	2.197	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) PM AAV lifecycle support and Primary Item Control Agent (PICA) functions. Funding to integrate Survivability, C4I & Environment/Habitability upgrades to the AAV.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*AAV (FOV) Survivability, C4I, Environment/Habitability (SCE) Upgrade Program	30.465	42.504	0.000	0.000	0.000
FY 2009 Accomplishments: AAV (FOV) Survivability, C4I, Environment/Habitability (SCE) Upgrade Program: Capabilities based upgrade program centered on material upgrades in survivability, C4I and Environment/Habitability. *FY 2010 Plans:* AAV (FOV) Survivability, C4I, Environment/Habitability (SCE) Upgrade Program: Capabilities based upgrade program centered on material upgrades in survivability, C4I and Environment/Habitability.					
*PM AAV Operations Support: PM AAV Operations Support: Evaluation and testing of safety improvements and fact of life changes to maintain the AAV Family of Vehicles (FOV). *FY 2010 Plans:* Continued research and development for the AAV SCE upgrade effort and engineering and safety improvements to the FOV.	0.000	2.313	1.887	0.000	1.887

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 0021: *Assault Amphibious Vehicle 7A1*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Engineering and safety fact of life changes to the FOV.					
Accomplishments/Planned Programs Subtotals	30.465	44.817	1.887	0.000	1.887

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/BLI 202100: *AAV7A1*	5.462	6.135	7.749	0.000	7.749	9.915	10.145	10.504	10.878	0.000	60.788

D. Acquisition Strategy

TBD

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 0021: *Assault Amphibious Vehicle 7A1*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Safety Analysis	WR	NSWC Dahlgren VA	0.175	0.175	Feb 2010	0.000		0.000		0.000	0.000	0.350	Continuing
RAM/Safety	WR	SPAWAR Charleston SC	0.080	0.000		0.000		0.000		0.000	0.000	0.080	Continuing
Fire Supression/KIDDIE	WR	SPAWAR Charleston SC	0.035	0.000		0.000		0.000		0.000	0.000	0.035	Continuing
SCE Dev/Eval	C/CPFF	TBD TBD	0.705	0.000		0.000		0.000		0.000	0.000	0.705	Continuing
Comp ID/Demo-Tests	C/CPFF	NSWC Dahlgren	0.578	4.825	Feb 2010	0.000		0.000		0.000	0.000	5.403	Continuing
Comp ID/Demo-Tests	C/CPFF	BAE Systems Triangle VA	9.354	0.600	Feb 2010	0.000		0.000		0.000	0.000	9.954	Continuing
Integration/APU	C/CPFF	BAE Systems Triangle VA	0.659	0.000		0.000		0.000		0.000	0.000	0.659	Continuing
Safety Analysis	C/CPFF	BAE Systems Triangle VA	1.500	5.650	Feb 2010	0.000		0.000		0.000	0.000	7.150	Continuing
RAM Safety	C/CPFF	BAE Systems Triangle VA	1.500	0.000		0.000		0.000		0.000	0.000	1.500	Continuing
Safety Analysis	WR	NWSC Crane IN	0.000	0.400	Feb 2010	0.000		0.000		0.000	0.000	0.400	Continuing
Comp ID/Demo-Tests	WR	NWSC Crane IN	0.000	0.800	Feb 2010	0.000		0.000		0.000	0.000	0.800	Continuing
Test Analysis	WR	AVTB Camp Pendleton	0.000	0.350	Jun 2010	0.000		0.000		0.000	0.000	0.350	Continuing
Analysis/Product Dev	C/FP	MITRE	0.000	0.120	Jun 2010	0.000		0.000		0.000	0.000	0.120	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 0021: *Assault Amphibious Vehicle 7A1*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Stafford VA											
SCE Comp Dev	C/CPFF	BAE Systems Stafford VA	0.000	6.000	Feb 2010	0.000		0.000		0.000	0.000	6.000	Continuing
		Subtotal	14.586	18.920		0.000		0.000		0.000	0.000	33.506	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical $ Engineering Spt	WR	SPAWAR Charleston SC	0.063	0.000		0.162	Feb 2011	0.000		0.162	0.000	0.225	Continuing
Technical $ Engineering Spt	WR	NSWC Dahlgren/Crane	3.649	6.800	Feb 2010	0.000		0.000		0.000	0.000	10.449	Continuing
Technical $ Engineering Spt	C/CPFF	BAE Systems Triangle VA	3.035	5.580	Feb 2010	0.000		0.000		0.000	0.000	8.615	Continuing
Documentation	C/CPFF	BAE Sysrtems Triangle VA	1.132	1.000	Feb 2010	0.100	Feb 2011	0.000		0.100	0.000	2.232	Continuing
Support	C/CPFF	BAE Systems Triangle VA	2.000	0.531	Feb 2010	0.150	Feb 2011	0.000		0.150	0.000	2.681	Continuing
Documentation	C/FP	CEOss	0.000	0.200	May 2010	0.000		0.000		0.000	0.000	0.200	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 0021: *Assault Amphibious Vehicle 7A1*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Quantico VA											
		Subtotal	9.879	14.111		0.412		0.000		0.412	0.000	24.402	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TEMP/LCCE/CDD	WR	MCCDC Quantico VA	0.740	0.000		0.000		0.000		0.000	0.000	0.740	Continuing
EMI Evaluation	PO	SPAWAR Charleston SC	5.993	0.250	Feb 2010	0.000		0.000		0.000	0.000	6.243	Continuing
Field Test	PO	29 Palms MCB CA	0.035	0.000		0.000		0.000		0.000	0.000	0.035	Continuing
Field Test	PO	Camp LeJeune MCB NC	0.030	0.000		0.000		0.000		0.000	0.000	0.030	Continuing
Test and Eval	PO	MCOTEA Quantico VA	1.028	0.000		0.000		0.000		0.000	0.000	1.028	Continuing
Decon Verification	C/CPFF	BAE Systems Stafford VA	0.000	0.100	Feb 2010	0.000		0.000		0.000	0.000	0.100	Continuing
Testing	C/CPFF	BAE Systems	0.000	4.000	Feb 2010	0.000		0.000		0.000	0.000	4.000	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 0021: *Assault Amphibious Vehicle 7A1*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Stafford VA											
Testing	WR	NWSC Dahlgren VA	0.000	3.000	Apr 2010	0.000		0.000		0.000	0.000	3.000	Continuing
DT Testing	C/CPFF	MCOTEA Quantico VA	0.000	1.000	Jan 2010	0.000		0.000		0.000	0.000	1.000	Continuing
		Subtotal	7.826	8.350		0.000		0.000		0.000	0.000	16.176	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Management	C/CPFF	BAE Systems Triangle VA	2.100	2.000	Feb 2010	1.275	Feb 2011	0.000		1.275	0.000	5.375	Continuing
Various Management	WR	Government Various	12.448	1.000	Apr 2010	0.000		0.000		0.000	0.000	13.448	Continuing
Travel	Allot	Government Various	0.000	0.436	Oct 2009	0.200	Oct 2010	0.000		0.200	0.000	0.636	Continuing
		Subtotal	14.548	3.436		1.475		0.000		1.475	0.000	19.459	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 0021: *Assault Amphibious Vehicle 7A1*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	46.839	44.817		1.887		0.000		1.887	0.000	93.543	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 0021: *Assault Amphibious Vehicle 7A1*

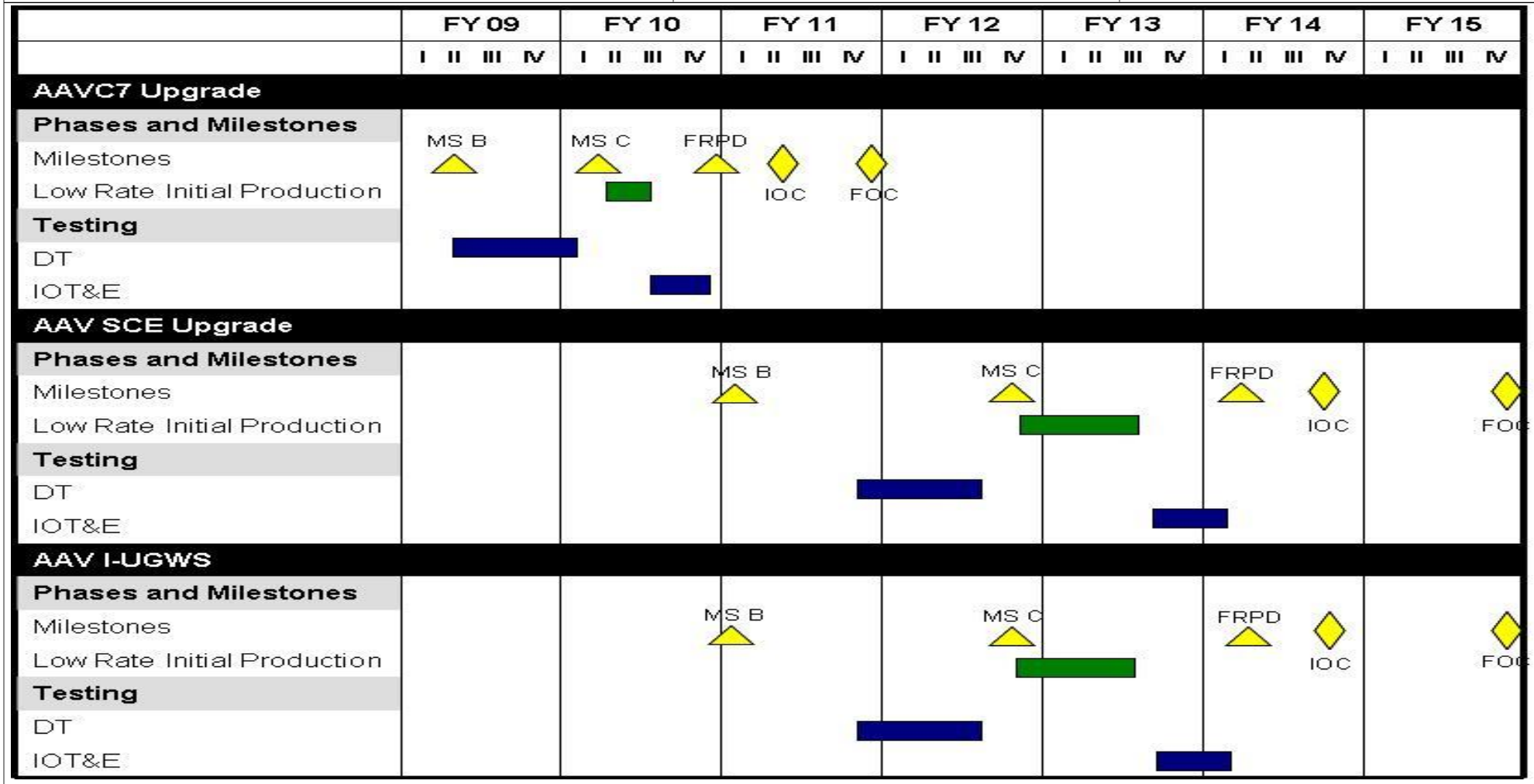

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 0021: *Assault Amphibious Vehicle 7A1*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
AAVC7 Upgrade MSB	2	2009	2	2009
AAVC7 Upgrade MSC	2	2010	2	2010
AAVC7 Upgrade LRIP	2	2010	3	2010
AAVC7 DT	2	2009	1	2010
AAVC7 IOT&E	3	2010	4	2010
AAV SCE Upgrade MSB	1	2011	1	2011
AAV SCE Upgrade MSC	4	2012	4	2012
AAVSCE LRIP	4	2012	3	2013
AAV SCE DT	4	2011	3	2012
AAV SCE IOT&E	3	2013	1	2014
AAV I-UGWS MSB	4	2010	1	2011
AAV I-UGWS MSC	3	2012	4	2012
AAV I-UGWS LRIP	4	2012	3	2013
AAV I-UGWS DT	4	2011	3	2012
AAV I-UGWS IOT&E	3	2013	1	2014

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1555: *Lt Armored Vehicle Prog*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1555: *Lt Armored Vehicle Prog*	10.429	6.608	14.760	0.000	14.760	17.032	10.864	2.331	2.393	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Light Armored Vehicle Family of Vehicles (LAV FOV) consists of six fielded LAV configurations, and one communications/intelligence-configured asset on a LAV chassis. The LAV FOV provides a logistically self-contained, highly mobile, and lethal combined arms combat system to the Marine Air-Ground Task Force (MAGTF). The LAV Product Improvement Program funds the development and testing of modifications of two programs; the LAV Modification Program and the LAV Anti-Tank System Program . These programs will ensure that the LAV FOV will be capable of conducting its assigned missions by enhancing lethality and survivability; reliability, availability, maintainability and durability; as well as reducing operations and support costs. The MPC program moved to a separate line (C9C85) in FY10. Since PB10 submission, the Indirect Fire Modernization program was cancelled and replaced by the Anti-Tank System.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MARINE PERSONNEL CARRIER - MPC	5.524	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Develop Marine-PC test bed, develop life cycle cost estimate, Milestone A documentation					
LAV MODIFICATIONS	4.905	0.531	2.251	0.000	2.251
FY 2009 Accomplishments: Research and development of numerous LAV Modification projects to address minor modifications, safety, and obsolescence issues. (Cooling Vests, MRV Mounts, Weight Reduction and Portable Welder)					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1555: *Lt Armored Vehicle Prog*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Research and development of numerous LAV Modification projects to address minor modifications, safety, and obsolescence issues. (Lifting Eye/Tiedown Redesign) *FY 2011 Base Plans:* Research and development of numerous LAV Modification projects to address minor modifications, safety, and obsolescence issues. (Slip Ring, Electrical Upgrade)					
LAV ANTI-TANK SYSTEM *FY 2010 Plans:* LAV-AT - Develop Milestone B documentation, and complete Analysis of Alternatives. *FY 2011 Base Plans:* LAV-AT - Engineering & Manufacturing Development contract award, Preliminary Design Review and Critical Design Review.	0.000	6.077	12.509	0.000	12.509
Accomplishments/Planned Programs Subtotals	10.429	6.608	14.760	0.000	14.760

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/2038: *LAV*	231.031	74.219	41.277	152.333	193.610	16.439	5.993	145.213	142.616	Continuing	Continuing
• PMC/7000: *LAV SPARES*	0.054	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
	0.997	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.997

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1555: *Lt Armored Vehicle Prog*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0206623M/C9E22A: *MARINE CORPS COMMON HARDWARE*											

D. Acquisition Strategy

The LAV Modification program funds numerous low-dollar, yet extremely important minor modifications, support equipment and tools and other projects that increase LAV reliability and readiness while simultaneously reducing operations and support costs. The Marine Corps, PM-LAV Sustainment Readiness Team uses multi-disciplined integrated project teams consisting of engineering, logistical, contracting and financial personnel to manage Modification projects. The majority of contracts issued under the Modification line are subject to the competitive acquisition process.

"(U) D. ACQUISITION STRATEGY: The LAV Anti-Tank System program will focus on full and open competition to integrate a new turret into the LAV-AT variant with options for production. The LAV-ATM is a replacement for the M901A1 turret to correct operational and readiness deficiencies. It will be capable of firing the current family of TOW missiles and be forward compatible with the next generation of heavy anti armor missiles. The program was approved in December of 2009 as part of the Material Development Decision to enter at MS-B based on the technical maturity of the capabilities required, schedule, and budget. Milestone B is scheduled for May 2010, leading to the Engineering & Manufacturing Development (EMD) phase. Once the EMD phase is complete, a combined MS C and Full Rate Production Review (FRPR) are planned to be followed by a tailored Production and Deployment Phase and Operations and Support Phase.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1555: *Lt Armored Vehicle Prog*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PRODUCT DEV. (MOD)	Various/ TBD	Various Various	4.539	0.337	Mar 2010	1.826	Mar 2010	0.000		1.826	Continuing	Continuing	Continuing
SYSTEM DEV (Anti-Tank)	Various/ TBD	Various Various	0.000	2.905	May 2010	10.713	Nov 2010	0.000		10.713	13.531	27.149	Continuing
		Subtotal	4.539	3.242		12.539		0.000		12.539			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Mgmt (MOD)	Various/ Various	TACOM Warren, MI	0.079	0.053	Dec 2009	0.160	Oct 2010	0.000		0.160	Continuing	Continuing	Continuing
Program Mgmt (Anti-Tank)	Various/ Various	TACOM Warren, MI	0.000	0.926	Jan 2010	0.769	Oct 2010	0.000		0.769	2.235	3.930	Continuing
		Subtotal	0.079	0.979		0.929		0.000		0.929			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1555: *Lt Armored Vehicle Prog*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Devl/Oper. T&E (MOD)	Various/ Various	Various Various	0.567	0.075	Mar 2010	0.195	Mar 2011	0.000		0.195	Continuing	Continuing	Continuing
Devl/Oper. T&E (Anti-Tank)	Various/ Various	Various Various	0.000	0.000		0.000		0.000		0.000	7.313	7.313	Continuing
		Subtotal	0.567	0.075		0.195		0.000		0.195			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Tech. Eng. Services (MOD)	C/FP	SURVICE Bellcamp, MD	0.063	0.066	Jan 2010	0.070	Jan 2011	0.000		0.070	Continuing	Continuing	Continuing
Tech. Eng. Services (Anti-Tank)	C/FP	SURVICE Bellcamp, MD	0.000	2.246	Jan 2010	1.027	Jan 2011	0.000		1.027	0.174	3.447	Continuing
		Subtotal	0.063	2.312		1.097		0.000		1.097			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1555: *Lt Armored Vehicle Prog*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.248	6.608		14.760		0.000		14.760			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1555: *Lt Armored Vehicle Prog*

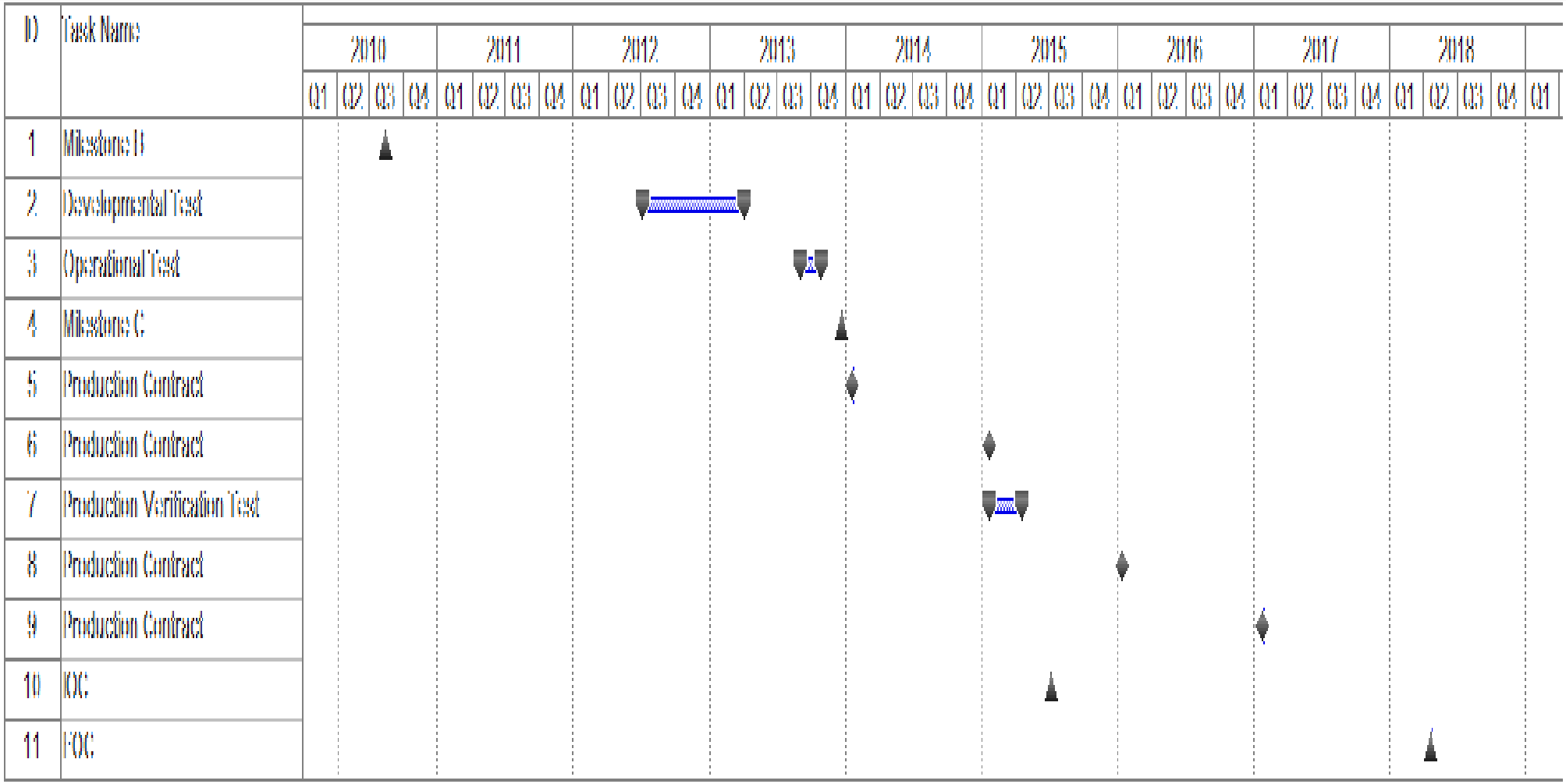

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 1555: *Lt Armored Vehicle Prog*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Anti-Tank MS-B	3	2010	3	2010
Ant-Tank Devl Test	3	2012	1	2013
Anti-Tank Oper. Test	3	2013	4	2013
Anti-Tank MS-C	4	2013	4	2013
Anti-Tank Contract Award	1	2014	1	2014

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1901: *MC Grnd Wpnry Prod Improvement*	5.265	9.809	11.514	0.000	11.514	10.863	8.805	7.788	7.383	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 joint and Marine Corps unique improvements to infantry weapons technology, non-lethal systems technology, improvements for Night Vision Equipment, Rifle Combat Optics, Family of Individual Optics, and monitors national and international weapons development.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Company and Battalion Mortars.	0.373	0.934	0.501	0.000	0.501
FY 2009 Accomplishments: This funding will be used to provide system development and demonstration, pre-Milestone C activities, and purchasing Non-developmental Items (NDI) for testing and evaluation of candidate systems and modifications.					
FY 2010 Plans: This funding will be used to provide system development and demonstration, pre-Milestone C activities, and purchasing Non-developmental Items (NDI) for testing and evaluation of candidate systems and modifications.					
FY 2011 Base Plans: This funding will be used to provide system development and demonstration, pre-Milestone C activities, and purchasing Non-developmental Items (NDI) for testing and evaluation of candidate systems and modifications.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Family of Individual Optics	2.022	1.905	0.000	0.000	0.000
FY 2009 Accomplishments: This funding was utilized to support improvements in technology to systems that are currently in use. Research efforts will evaluate the possibility of combining / integrating disparate sensor technology to increase the overall capability. One example will be combining the Infrared (IR) and Image Intensifier (I2) technologies into one system.					
FY 2010 Plans: This funding will be utilized to support improvements on the technology that is currently used. Research efforts will evaluate the possibility of combining / integrating disparate sensor technology to increase the overall capability. One example will be combining the Infrared (IR) and Image Intensifier (I2) technologies into one system.					
Infantry Weapons Mods.	1.011	1.125	1.240	0.000	1.240
FY 2009 Accomplishments: The Infantry Weapons Modification program develops joint and Marine Corps unique improvements to infantry weapons and fire support technology. The improvements address critical operational and logistics deficiencies in fielded infantry weapon systems and equipment. The funding permits economical level-of-effort project participation, to analyze, design, develop, and field modifications. This level-of-effort funding line allows timely response to safety and performance issues that require immediate attention to maintain operational readiness.					
FY 2010 Plans: The Infantry Weapons Modification program develops joint and Marine Corps unique improvements to infantry weapons and fire support technology. The improvements address critical operational and logistics deficiencies in fielded infantry weapon systems and equipment. The funding permits economical level-of-effort project participation, to analyze, design, develop, and field modifications.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
This level-of-effort funding line allows timely response to safety and performance issues that require immediate attention to maintain operational readiness. *FY 2011 Base Plans:* The Infantry Weapons Modification program develops joint and Marine Corps unique improvements to infantry weapons and fire support technology. The improvements address critical operational and logistics deficiencies in fielded infantry weapon systems and equipment. The funding permits economical level-of-effort project participation, to analyze, design, develop, and field modifications. This level-of-effort funding line allows timely response to safety and performance issues that require immediate attention to maintain operational readiness.					
Mission Payload Module (MPM). *FY 2010 Plans:* The MPM program was initiated by the Joint Non-Lethal Weapons (JNLW) Director during FY04. The Concept and Technology Development Phase (FY04-FY08) for MPM was funded solely through the JNLW Program per Joint Service Memorandum of Agreement for all NLW programs. The JNLW Program funds the initial year of the System Development & Demonstration (SDD) Phase (FY09). Beginning in FY10, the Marine Corps will share the MPM RDT&E costs with the JNLW Program. The JNLW Program funds numerous non-lethal efforts for all Services, and relies on individual Service support for the difference between the required R&D costs and available JNLW funds. *FY 2011 Base Plans:* The MPM program was initiated by the Joint Non-Lethal Weapons (JNLW) Director during FY04. The Concept and Technology Development Phase (FY04-FY08) for MPM was funded solely through the JNLW Program per Joint Service Memorandum of Agreement for all NLW programs. The JNLW Program funds the initial year of the System Development & Demonstration (SDD) Phase (FY09). Beginning in FY10, the Marine Corps will share the MPM RDT&E costs with the JNLW Program. The	0.000	3.893	2.720	0.000	2.720

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
JNLW Program funds numerous non-lethal efforts for all Services, and relies on individual Service support for the difference between the required R&D costs and available JNLW funds.					
Night Vision Mod Line. *FY 2009 Accomplishments:* Joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps night vision devices. *FY 2010 Plans:* Joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps night vision devices. *FY 2011 Base Plans:* Joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps night vision devices.	1.645	1.652	2.333	0.000	2.333
Escalation of Force Equipment The initiative will fund the tranformation of the existing Force Protection Capability Sets into a new set of pre-packaged, mission-specific modules that contain the individual and unit equipment required specifically for OOTW missions. *FY 2011 Base Plans:* The initiative will fund the tranformation of the existing Force Protection Capability Sets into a new set of pre-packaged, mission-specific modules that contain the individual and unit equipment required specifically for OOTW missions.	0.000	0.000	0.049	0.000	0.049
Ocular Interuption (OI).	0.000	0.000	1.851	0.000	1.851

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Ocular Interuption (OI), is the replacement 'Dazzling Laser' program for the B.E. Meyers GBD-IIIC and 532P-M Mini-Green Laser. OI will be an ""eye-safe"" system that will be used in the Escalation of Force Missions. *FY 2011 Base Plans:* Ocular Interuption (OI), is the replacement 'Dazzling Laser' program for the B.E. Meyers GBD-IIIC and 532P-M Mini-Green Laser. OI will be an ""eye-safe"" system that will be used in the Escalation of Force Missions.					
Sniper System Capability Set (SSCS). *FY 2009 Accomplishments:* The Sniper System Capability Sets (SSCS) program supports the development, acquisition and sustainment of the Scout Sniper suite of equipment which provides the scout sniper team with the following capabilities: long-range precision rifle, semi-automatic precision rifle, improved observation capability during the day, night and during obscure battlefield conditions, improved communications, improved target identification and designation for indirect fires and close air support, improved concealability, and improved transportability. *FY 2010 Plans:* The Sniper System Capability Sets (SSCS) program supports the development, acquisition and sustainment of the Scout Sniper suite of equipment which provides the scout sniper team with the following capabilities: long-range precision rifle, semi-automatic precision rifle, improved observation capability during the day, night and during obscure battlefield conditions, improved communications, improved target identification and designation for indirect fires and close air support, improved concealability, and improved transportability.	0.214	0.300	0.302	0.000	0.302

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: The Sniper System Capability Sets (SSCS) program supports the development, acquisition and sustainment of the Scout Sniper suite of equipment which provides the scout sniper team with the following capabilities: long-range precision rifle, semi-automatic precision rifle, improved observation capability during the day, night and during obscure battlefield conditions, improved communications, improved target identification and designation for indirect fires and close air support, improved concealability, and improved transportability.					
Family of Optical Systems Family of Optical Systems (FOS). Transitions Family of Individual Optics to Family of Optical Systems to encompass all Optical Systems into this program. Provides handheld, helmet mounted and weapons optics systems including various thermal, image intensifier, magnified optical, laser range-finding, illuminating, and pointer functionalities. Replaces multiple single-purpose night vision equipment (NVE) fielded to the marine Corps. *FY 2011 Base Plans:* This funding will be utilized to support improvements on the technology that is currently used. Research efforts will evaluate the possibility of combining / integrating disparate sensor technology to increase the overall capability. One example will be combining the Infrared (IR) and Image Intensifier (I2) technologies into one system.	0.000	0.000	2.518	0.000	2.518
Accomplishments/Planned Programs Subtotals	5.265	9.809	11.514	0.000	11.514

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDTEN/0603851M/2319: *CBG Non Lethal Weapons*	3.800	2.060	3.046	0.000	3.046	0.000	0.000	0.000	0.000	0.000	8.906

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/2208001: *Weapons Enhncmnt Program (OOTW)*	8.241	9.652	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.893
• PMC/2208002: *Weapons Enhncmnt Program (MPM)*	0.000	0.000	0.000	0.000	0.000	0.928	3.926	3.972	0.000	0.000	8.826
• PMC/2208003: *Weapons Enhncmnt Program (OI)*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.497	15.331	Continuing	Continuing
• PMC/4930001: *Night Vision Equiment (NVM)*	8.950	8.033	0.000	0.000	0.000	4.510	6.318	8.490	8.780	Continuing	Continuing
• PMC/4930002: *Night Vision Equipment (FOIO)*	18.376	2.295	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.671
• PMC/2220003: *Under $5 Million (Com & Batt Mortars)*	4.929	2.195	2.178	0.000	2.178	3.226	3.311	3.405	3.493	Continuing	Continuing
• PMC/2220004: *Under $5 Million (IW Mods)*	6.454	9.085	6.217	6.765	12.982	3.008	3.049	3.132	3.220	Continuing	Continuing
• PMC/2220005: *Under $5 Million (SSCS)*	0.000	4.293	1.096	0.000	1.096	1.123	1.150	1.182	0.000	0.000	8.844
• PMC/700000: *Spares (SSCS)*	0.000	1.494	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.494
• PMC/493000: *Family of Optical Systems (FOS)*	0.000	0.000	0.000	0.000	0.000	4.185	4.287	4.361	4.437	Continuing	Continuing
• PMC/2208008: *Escalation of Forces Equipment*	0.000	0.000	0.682	18.571	19.253	1.372	1.393	1.429	1.462	Continuing	Continuing

D. Acquisition Strategy

These programs range from off-the-shelf modifications to developmental items for safety, reliability, and technology up-grades to meet Marine Corps requirements.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ocular Interruption	Various/ Various	Various Contract Industry	0.000	0.000		1.851	Jan 2011	0.000		1.851	0.000	1.851	Continuing
Mission Payload Module	Various/ Various	AFRL San Antonio,TX	0.000	0.663	Nov 2009	1.145	Nov 2010	0.000		1.145	0.000	1.808	Continuing
Family of Individual Optics	Various/ Various	Night Vision Lab Ft. Belvoir, VA	3.352	0.368	Jan 2009	0.000		0.000		0.000	0.000	3.720	Continuing
Night Vision Mod	Various/ Various	Various (Contract Industry) TBD	1.560	0.975	Dec 2009	0.980	Dec 2010	0.000		0.980	0.000	3.515	Continuing
Night Vision Mod	Various/ Various	Night Vision Lab Ft. Belvoir, VA	2.918	0.250	Dec 2009	0.957	Dec 2010	0.000		0.957	0.000	4.125	Continuing
Family of Individual Optics	Various/ Various	Contract Industry TBD	0.622	1.129	Jan 2010	0.000		0.000		0.000	0.000	1.751	Continuing
Company/Battalion Mortar	Various/ Various	NSWC Crane, IN	2.484	0.934	Mar 2010	0.501	Mar 2011	0.000		0.501	Continuing	Continuing	Continuing
Sniper System Cap Sets	Various/ Various	Various (Contract Industry) TBD	0.368	0.250	Mar 2010	0.253	Mar 2011	0.000		0.253	Continuing	Continuing	Continuing
Family of Optical Systems	Various/ Various	Night Vision Lab Ft. Belvoir, VA	0.000	0.000		1.230	Dec 2010	0.000		1.230	0.000	1.230	Continuing
Family of Optical Systems	Various/ Various	Contract Industry TBD	0.000	0.000		0.917	Jan 2011	0.000		0.917	0.000	0.917	Continuing
		Subtotal	11.304	4.569		7.834		0.000		7.834			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Mission Payload Module	Various/ Various	MCSC Quantico, VA	0.000	1.275	Nov 2009	1.200	Nov 2010	0.000		1.200	0.000	2.475	Continuing
Family of Individual Optics	Various/ Various	MCSC Quantico, VA	1.347	0.408	Jan 2010	0.000		0.000		0.000	0.000	1.755	Continuing
Night Vision Mod	Various/ Various	CEOSS Quantico, VA	1.581	0.407	Jan 2010	0.375	Jan 2011	0.000		0.375	0.000	2.363	Continuing
Infantry Weapons Mods	Various/ Various	MCSC Quantico, VA	2.146	0.301	Jun 2010	0.360	Jun 2011	0.000		0.360	Continuing	Continuing	Continuing
Family of Optical Systems	Various/ Various	MCSC Quantico, VA	0.000	0.000		0.371	Jan 2011	0.000		0.371	0.000	0.371	Continuing
		Subtotal	5.074	2.391		2.306		0.000		2.306			

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Mission Payload Module	Various/ Various	MCOTEA Quantico, VA	0.000	1.955	Nov 2009	0.375	Nov 2010	0.000		0.375	0.000	2.330	Continuing
Escalation of Force Equipment	Various/ Various	TBD TBD	0.000	0.000		0.049	Jan 2011	0.000		0.049	0.000	0.049	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Night Vision Mod	Various/ Various	NSWC, Dahlgren, VA	0.869	0.020	Jan 2010	0.021	Dec 2010	0.000		0.021	0.000	0.910	Continuing
Infantry Weapons Mods	Various/ Various	MCOTEA Quantico, VA	0.010	0.066	Feb 2010	0.150	Dec 2010	0.000		0.150	Continuing	Continuing	Continuing
Infantry Weapons Mods	Various/ Various	NSWC Crane, IN	1.341	0.508	Jun 2010	0.460	Jun 2011	0.000		0.460	Continuing	Continuing	Continuing
Infantry Weapons Mods	C/FFP	MCSC Quantico, VA	0.779	0.250	Jun 2010	0.270	Jun 2011	0.000		0.270	Continuing	Continuing	Continuing
Sniper System Cap Sets	Various/ Various	MCOTEA Quantico, VA	0.000	0.050	Mar 2010	0.049	Mar 2011	0.000		0.049	Continuing	Continuing	Continuing
		Subtotal	2.999	2.849		1.374		0.000		1.374			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	19.377	9.809		11.514		0.000		11.514			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*

SNIPER SYSTEM CAPABILITY SET (SSCS)

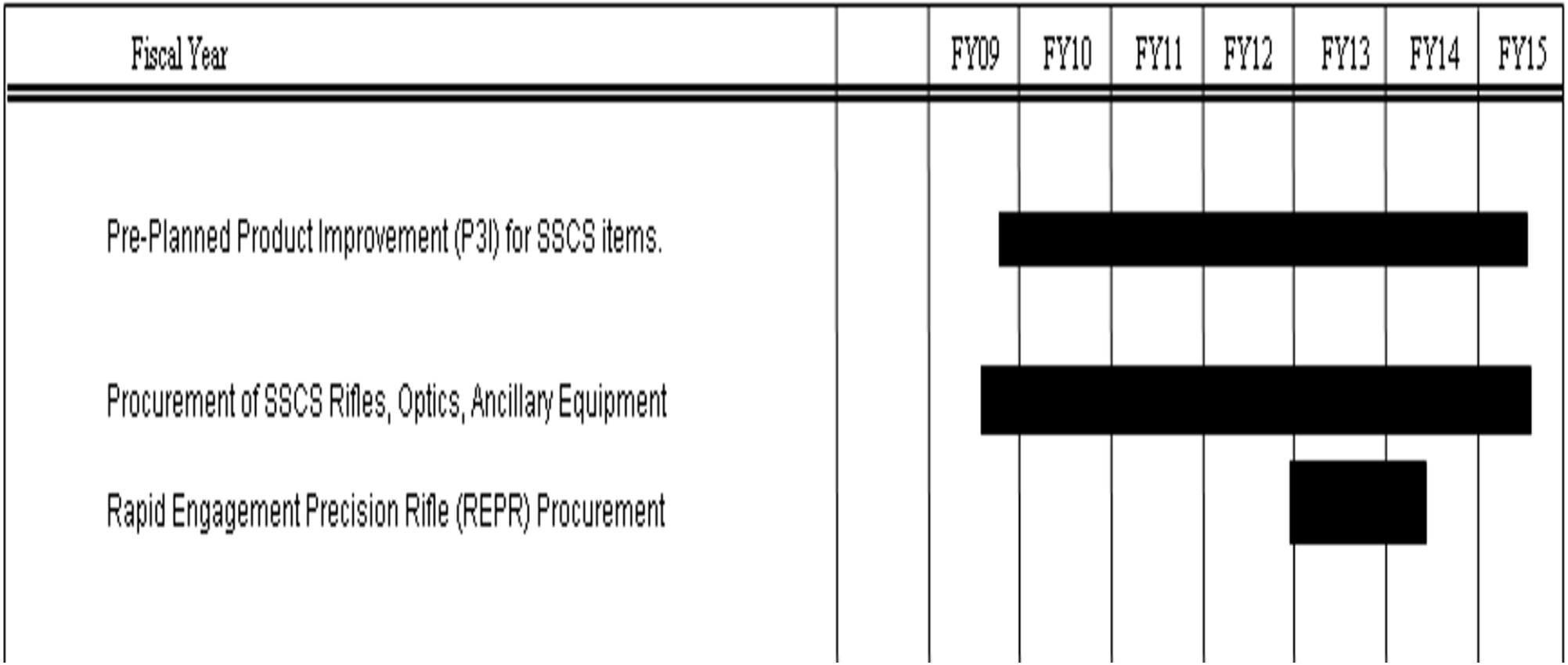

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*

MISSION PAYLOAD MODULE

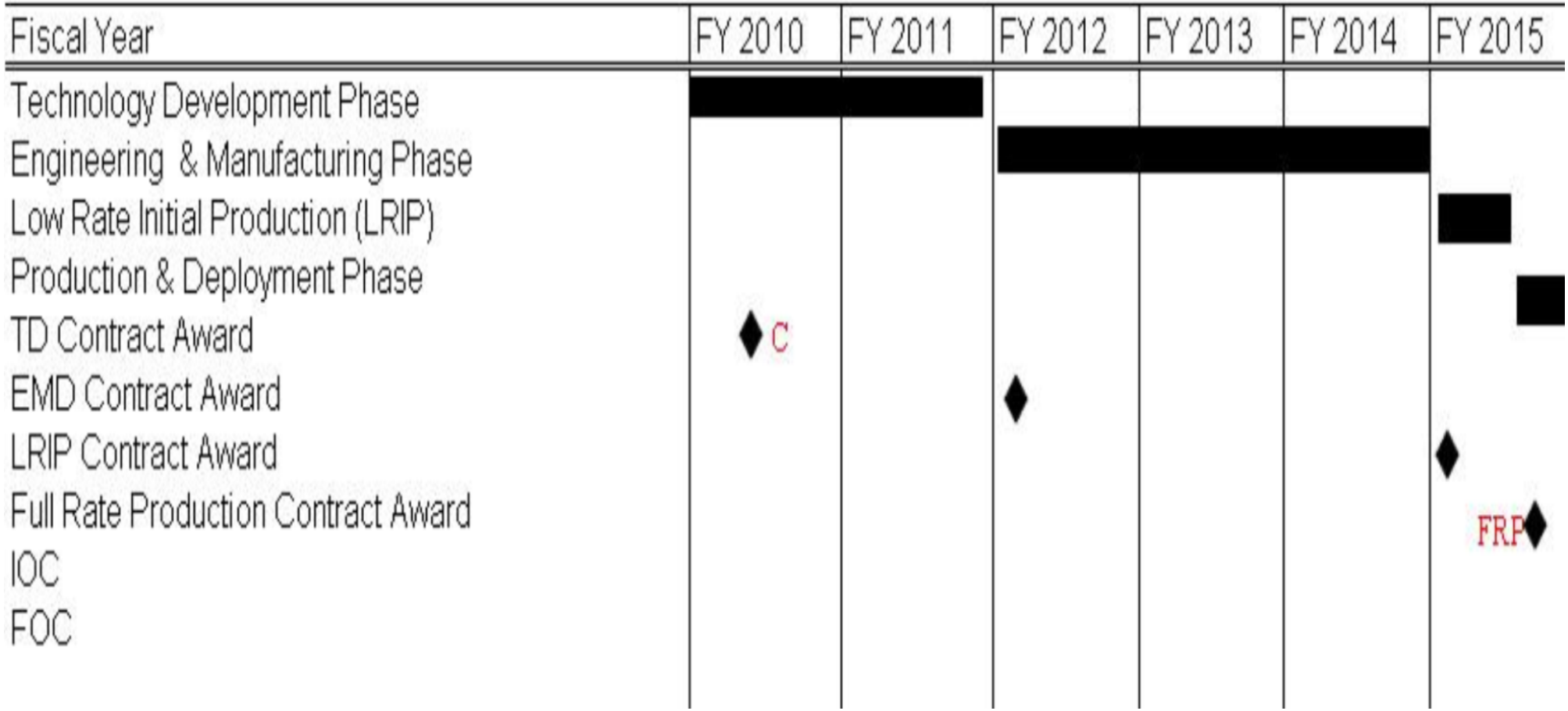

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 1901: *MC Grnd Wpnry Prod Improvement*

Ocular Interruption

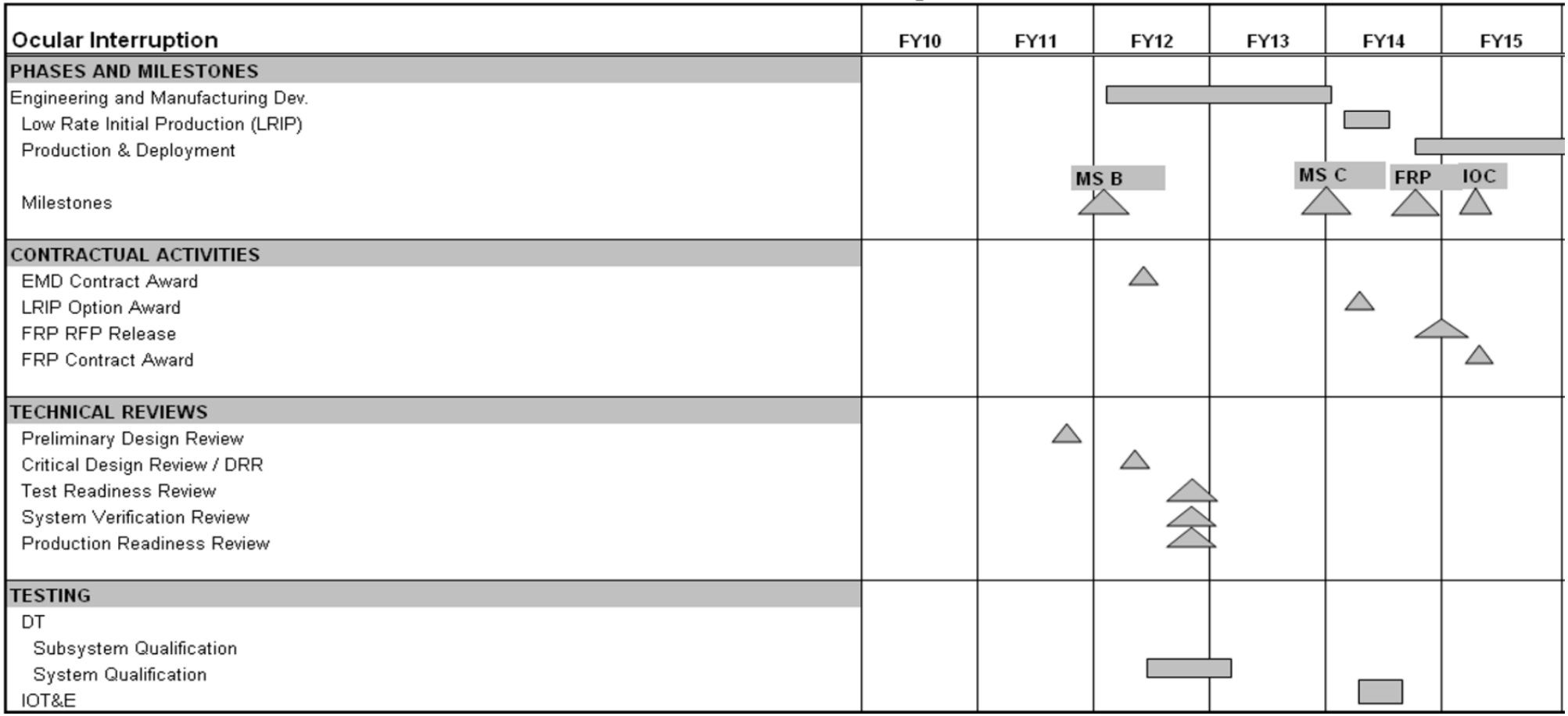

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
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FAMILY OF INDIVIDUAL OPTICS

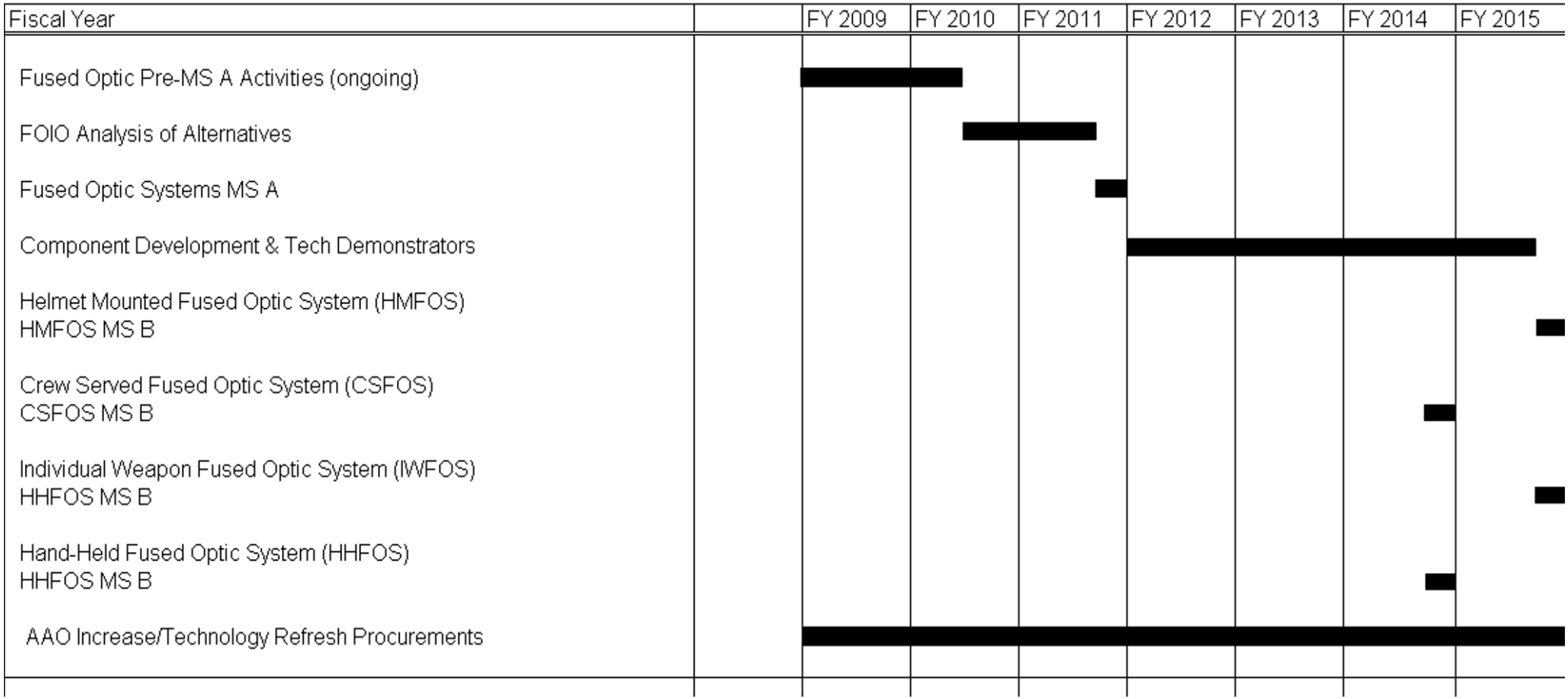

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 1901: *MC Grnd Wpnry Prod Improvement*

Mortar Schedule 2010-01-11

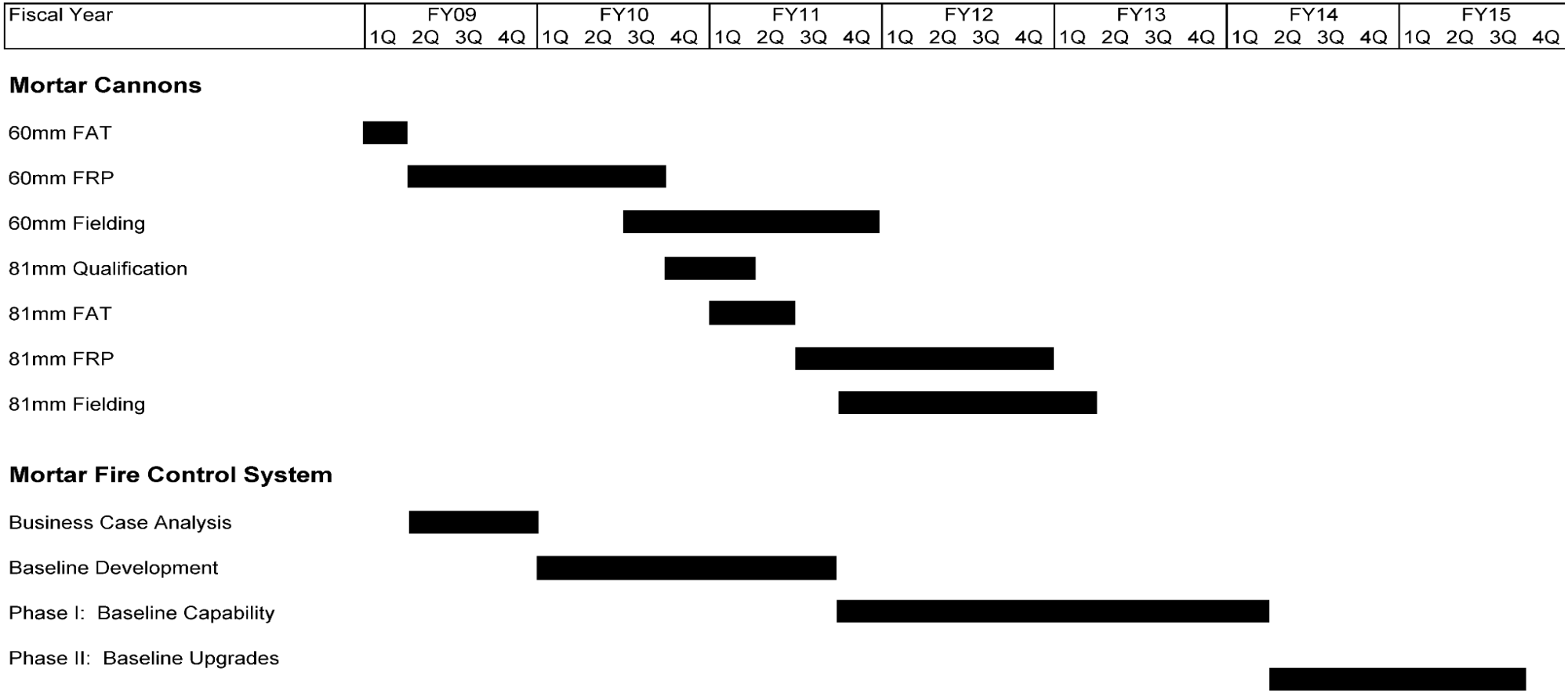

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 1901: *MC Grnd Wpnry Prod Improvement*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
SSCS	4	2009	2	2015
SSCS - Pre-Planned Product Improvement (P31) for SSCS Items.	4	2009	2	2015
SSCS - Procurement of SSCS Rifles, Optics, Ancillary Equipment	3	2009	2	2015
SSCS - Rapid Engagement Precision Rifle (REPR) Procurement	1	2013	2	2014
MPM	4	2009	2	2015
MPM - Technology Development Phase	1	2010	4	2011
MPM - Engineering & Manufacturing Phase	1	2012	4	2014
MPM - Low Rate Inital Production (LRIP)	1	2015	3	2015
MPM - Production & Deployment Phase	3	2015	4	2015
MPM - TD Contract Award	2	2010	2	2010
MPM - EMD Contract Award	1	2012	1	2012
MPM - LRIP Contract Award	1	2015	1	2015
MPM - Full Rate Production Contract Award	4	2015	4	2015
Ocular Interruption	2	2012	2	2012
Ocular Interruption - Eng and Manufacturing Development	2	2012	1	2014
Ocular Interruption - Low rate Initial Production (LRIP)	2	2014	2	2014
Ocular Interruption - Production & Development	4	2014	4	2014
Ocular Interruption - EMD Contract Award	2	2012	2	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	Quarter	Year	Quarter	Year
Ocular Interruption - LRIP Option Award	2	2014	2	2014
Ocular Interruption - FRP RFP Release	4	2014	1	2015
Ocular Interruption - FRP Contract Award	2	2015	2	2015
Ocular Interruption - Preliminary Design Review	4	2011	4	2011
Ocular Interruption - Critical Design Review / DRR	2	2012	2	2012
Ocular Interruption - Test Readiness Review	4	2012	4	2012
Ocular Interruption - System Verification Review	4	2012	4	2012
Ocular Interruption - Production readiness Review	4	2012	4	2012
Ocular Interruption - System Qualification	3	2012	1	2013
Ocular Interruption - IOT&E	2	2014	2	2014
FOIO	1	2009	4	2015
FOIO - Fused Optic Pre-MS A Activities (ongoing).	1	2009	2	2010
FOIO - Analysis of Alternatives	3	2010	3	2011
FOIO - MS A	4	2011	4	2011
FOIO - Component Development & Tech Demonstrators	1	2012	3	2015
FOIO - Helmet Mounted Fused Optic System (HMFOS) MS B	4	2015	4	2015
FOIO - Individual Weapon Fused Optic (IWFOS) MS B	4	2014	4	2014
FOIO - Hand-Held Fused Optic Systems (HHFOS)	4	2014	4	2014
FOIO - AAO Increase/Technology Refresh Procurements	1	2009	1	2009
Mortar Cannons	1	2009	1	2009

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
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	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Mortar Cannons - 60mm FAT	1	2009	1	2009
Mortar Cannons - 60mm FRP	2	2009	3	2010
Mortar Cannons - 60mm Fielding	3	2010	4	2011
Mortar Cannons - 81mm Qualification	4	2010	2	2011
Mortar Cannons - 81mm FAT	1	2009	1	2009
Mortar Cannons - 81mm FRP	3	2010	4	2011
Mortar Cannons - 81mm Fielding	4	2010	1	2012
Mortar Fire Control System	2	2009	4	2009
Mortar Fire Control Systems - Business Case Analysis	2	2009	4	2009
Mortar Fire Control Systems - Baseline Development	1	2010	3	2011
Mortar Fire Control Systems - Phase I: Baseline Capability	4	2011	4	2013
Mortar Fire Control Systems - Phase II: Baseline Upgrades	1	2014	3	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2086: *Soldier/Marine Enhancement*	5.346	3.366	4.534	0.000	4.534	4.657	4.783	4.922	5.055	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Marine Expeditionary Rifle Squad (MERS) mission is to manage the infantry squad "squad as a system" by conducting integration, systems engineering, human factors, and modernization efforts across all the products that are worn, carried and consumed by the rifle squad. Physical integration, capability analysis, modeling and simulation, ergonomics, and configuration management are facilitated by this program in working with the various program managers and project officer in the development of their unique items that contribute to the squads overall capabilities. Weight and volume management are fundamental considerations in the insertion or modernization of any squad equipment. MERS works with Joint and NATO soldier modernization programs to harvest new technologies to increase the capability of the rifle squad. The program also ensures the integration of the rifle squad into the various mobility platforms currently in service and being developed to ensure a Marine and his equipment can operate effectively. This program is essential to ensure the combined synergistic equipment effects enhance the warfighting functions of the Marine rifle squad towards the strategic Marine Corps warfighting vision for the future.

Marine Enhancement Program (MEP) provides Research, Development, Test and Evaluation funding for low visibility, low cost items. It focuses on items of equipment which will benefit the individual Marine by reducing the load, increasing survivability, enhancing safety and improving combat effectiveness. The emphasis of the program is on non-developmental item / commercial off the shelf (NDI/COTS) available items which can be quickly evaluated and fielded. This program is coordinated with the Army's Soldier Enhancement Program (SEP).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*MEP	2.529	1.996	2.780	0.000	2.780
FY 2009 Accomplishments: MEP has funded several critical programs, including: Improved Military Eye Protection, M203 Grip Pod, Collapsible Water Bag, Individual Water Purification Block I (Miox Pen), Flame-Resistant					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Organizational Gear, Personal Cooling Vest, Combat Tent, Leaders Tactical Handbook, Vehicle Mounted Battery Charger, and the 3-Seasons Sleep System. *FY 2010 Plans:* MEP will fund the following efforts: Chest Rig, Next Generation ILBE, Improved Helmet Suspension/ Retention System, Individual Water Purification System continuation, Crew Served Weapons Pack, IISR Battery Charging Adapter, Pocket Laser Range Finder, and the Expeditionary Individual Fitness System. *FY 2011 Base Plans:* MEP will provide funding for incomplete FY10 projects, as well as new yet-to-be-determined MEP requirements based on future MEP candidate submissions/selections.					
*MERS *FY 2009 Accomplishments:* Conducted four integration trials for Enhanced Combat Helmet at Camp Lejeune NC and Quantico VA, participated in design reviews and limited user trials on Improved Modular Tactical Vest and Scalable Plate Carrier, conducted Tactical Assault Pouch integration trial, collapsible buttstock integration trial, helmet mounted sensor integration functionality and design work, alternative headset for PRC-153 users trial, infantry weapon weight human factors study, and NACRE QuietPro Tactical Headset software upgrade and safety testing. MERS developed and executed a Design Light workshop in order to reduce equipment weight, conducted equipment surveys with several infantry battalions, conducted equipped anthropometry study and modeling & simulation of Marines in vehicles for requirements and systems engineering, supported MCWL Lighten the Load trial at Camp Pendleton CA, provide human factors engineering support to SMAW II program office, and conducted analysis of loads and weight carried by infantry battalions during deployments. Continued operation of the Gruntworks Squad Integration Facility and conducted human factors, systems engineering, modeling and simulation, user evals for the program offices that provide infantry equipment to the Marine Rifle Squad. Developed	2.817	1.370	1.754	0.000	1.754

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
the Load Effects Assessment Program to provide metrics for mobility, continued work on physiological status monitoring techniques of Marines, and explored ergonomic solutions for load carriage of infantry specific equipment. Hosted numerous meetings and data gathering for MCCDC Squad Power Study. Hosted a variety of General and Flag officers, foreign visitors, and other distinguished visitors at the Gruntworks Squad Integration facility. Participated on source selection boards for US Army Ground Soldier System and Enhanced Combat Helmet. IPT member on Ground Soldier System and participated in functional requirements reviews and Critical Design Review. Conducted anthropometry and human factors training unique to MERS program office. *FY 2010 Plans:* Continue to support all the Marine Corps Systems Command program offices that provide equipment to the Marine rifle squad or provide mobility platforms that support the squad. Significant efforts will be with IMTC, SPC, ECH, JLTV, and GSS this year. MERS will receive five Ground Soldier Systems from each of the three vendors to conduct a capability analysis. Expect significant efforts with JBC-P program office this year regarding a hand held device at the squad level. Will conduct in theater and post deployment surveys with infantry battalions. Will conduct data collection utilizing the Load Effects Assessment Program and conduct mobility assessments with 1st and 2nd MarDiv infantry battalions. Program Office will stand up the Command's Institutional Review Board. Anticipate conducting user evaluations on various new items of infantry equipment. Will begin transition of Gruntworks squad Integration facility to an on base facility. Design Light workshop recommendations and implemented recommendations will be conducted. Significant efforts on power reductions and commonality within the squad. Will continue gathering anthropometry data on equipped Marines and physiological data while Marines conduct various tasks. Continue to engage the S&T community on their various projects for integrated transition paths to programs of record. *FY 2011 Base Plans:* Continue to support all the Marine Corps Systems Command program offices that provide equipment to the Marine rifle squad or provide mobility platforms that support the squad. Helmet mounted day,					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2086: *Soldier/Marine Enhancement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
thermal and I2 sensors as components of an integrated Headborne System. Continue to manage the Squad as a System and quantify weight, thermal and ergonomic effects in operational conditions. Continue efforts resident in 2010 that will include recommendations and implementation of the various studies conducted. Provide a Marine Corps position on level of involvement with Ground Soldier System.					
Accomplishments/Planned Programs Subtotals	5.346	3.366	4.534	0.000	4.534

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC BLI 220800: *Weapons Enhancement Program*	4.107	3.480	3.261	0.000	3.261	4.296	4.380	4.495	4.621	0.000	28.640

D. Acquisition Strategy

NDI/COTS

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2086: *Soldier/Marine Enhancement*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MERS Product Development	Various/ Various	Various Various	1.270	0.505		0.715		0.000		0.715	0.000	2.490	Continuing
MEP Product Development	Various/ Various	Various Various	1.371	0.441		0.560		0.000		0.560	0.000	2.372	Continuing
		Subtotal	2.641	0.946		1.275		0.000		1.275	0.000	4.862	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MEP Operational Test & Eval	WR	Various Various	0.860	0.304		0.350		0.000		0.350	0.000	1.514	Continuing
		Subtotal	0.860	0.304		0.350		0.000		0.350	0.000	1.514	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2086: *Soldier/Marine Enhancement*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MERS Developmental Test & Eval	Various/ Various	Various Various	1.287	0.265		0.320		0.000		0.320	0.000	1.872	Continuing
MEP Developmental Test & Eval	Various/ Various	Various Various	1.854	0.751		1.187		0.000		1.187	0.000	3.792	Continuing
		Subtotal	3.141	1.016		1.507		0.000		1.507	0.000	5.664	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MERS Program Mgmt/ Tech Spt	Various/ Various	Various Various	1.215	0.600		0.719		0.000		0.719	0.000	2.534	Continuing
MEP Program Mgmt/ Tech Spt	Various/ Various	Various Various	0.942	0.500		0.683		0.000		0.683	0.000	2.125	Continuing
		Subtotal	2.157	1.100		1.402		0.000		1.402	0.000	4.659	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2086: *Soldier/Marine Enhancement*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	8.799	3.366		4.534		0.000		4.534	0.000	16.699	

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2112: *Lightweight 155mm Howitzer*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2112: *Lightweight 155mm Howitzer*	0.000	1.394	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.394
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Lightweight 155mm Howitzer (LW155), also known as the M777A2, provides direct, reinforcing, and general support fires to maneuver forces. It replaces all howitzers in all missions in the USMC and replaces the M198 howitzer as the general support artillery for light forces in the Army. The LW155 fires unassisted projectiles to a range of 15 miles and assisted projectiles to 19 miles, but the addition of the digital fire control system enables the weapon to program and fire the improved Excalibur precision-guided munition to ranges in excess of 25 miles with better than 10-meter Circular Error Probable (CEP) accuracy. The LW155 is the first ground combat system whose major structures are made of high strength titanium alloy and the system makes extensive use of hydraulics to operate the breech, load tray, recoil and wheel arms. The combination of titanium structures and the use of hydraulic systems resulted in a significant weight savings over the M198 system (~7000 lbs.). Compared to the M198, the LW155 emplaces three-times faster and displaces four-times faster. It traverses 32 percent more terrain worldwide and is 70 percent more survivable than the M198. The LW155 was first introduced into the Marine Corps in April 2005 and since then 10th, 11th, 12th and 14th Marines and the schoolhouses have been fielded. The Army has been fielding the system to its Stryker Brigades and Fires Brigades. The LW155 is currently in OEF with both Services.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*LW155 Test and Evaluation *FY 2010 Plans:* System Test and Evaluation	0.000	1.394	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	1.394	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2112: *Lightweight 155mm Howitzer*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC BLI 218500: *155MM Lightweight Towed Howitzer*	188.654	61.397	10.356	103.600	113.956	5.564	5.559	0.000	0.000	0.000	375.130
• PMC BLI 700000: *SPARES*	4.674	2.904	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.578

D. Acquisition Strategy

This effort shall design, integrate and qualify a Laser Ignition System for the M777A2 Lightweight 155mm Howitzer (LW155) that will replace the current Primer Feed Mechanism (PFM) and M82 percussion primers. This product improvement will eliminate problems which have been experienced in OEF and OIF and result in significant life cycle cost savings by eliminating the needs for the acquisition of primers to fire artillery rounds.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2237: *Amphibious Vehicle Test*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2237: *Amphibious Vehicle Test*	0.892	0.902	0.929	0.000	0.929	0.944	0.947	0.967	0.984	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) The Amphibious Vehicle Test Branch (AVTB) is a one-of-a-kind Department of Defense test facility for amphibious vehicles and supports the requirements of all services. The AVTB conducts developmental, combined developmental/operational, and follow-on testing and evaluation of production hardware. It also conducts Product Assurance Testing and Substitute or alternative parts and material testing for amphibious vehicles and associated equipment. Because of its year-round temperate climate, diverse terrain, and 17 miles of coastline, the AVTB is ideal for the amphibious vehicle, as well as ship related testing. The AVTB is in close proximity to San Clemente Island which is used frequently for live fire sea-to-shore testing and high-speed water testing. The AVTB is committed to testing product improvement programs, engineering change proposal design changes, and field change requests. The Amphibious Vehicle Test Branch (AVTB) serves as the primary Test & Evaluation facility for the Expeditionary Fighting Vehicle (EFV) Program, the Marine Corps' number one priority ground weapon system acquisition program.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Contracts	0.539	0.709	0.476	0.000	0.476
FY 2009 Accomplishments: Provide the necessary support assets required to conduct safe and accurate simultaneous developmental testing on EFV prototypes. Provide the maintenance, refurbishment, upgrade, and replacement of test equipment and instrumentation as necessary to provide program support, supplies, and services at the AVTB test site as well as various off-site testing locations to support scheduled EFV Developmental Testing. This includes the upgrade of instrumentation for over the horizon (OTH) capability in developing weapons systems to support operational maneuver from the sea, providing organic supply support including management operations, general accounting, and a maintenance float of equipment; and providing intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2237: *Amphibious Vehicle Test*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Provide the necessary support assets required to conduct safe and accurate simultaneous developmental testing on EFV prototypes. Provide the maintenance, refurbishment, upgrade, and replacement of test equipment and instrumentation as necessary to provide program support, supplies, and services at the AVTB test site as well as various off-site testing locations to support scheduled EFV Developmental Testing. This includes the upgrade of instrumentation for over the horizon (OTH) capability in developing weapons systems to support operational maneuver from the sea, providing organic supply support including management operations, general accounting, and a maintenance float of equipment; and providing intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment. *FY 2011 Base Plans:* Provide the necessary support assets required to conduct safe and accurate simultaneous developmental testing on EFV prototypes. Provide the maintenance, refurbishment, upgrade, and replacement of test equipment and instrumentation as necessary to provide program support, supplies, and services at the AVTB test site as well as various off-site testing locations to support scheduled EFV Developmental Testing. This includes the upgrade of instrumentation for over the horizon (OTH) capability in developing weapons systems to support operational maneuver from the sea, providing organic supply support including management operations, general accounting, and a maintenance float of equipment; and providing intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.					
Support Services	0.353	0.193	0.453	0.000	0.453
FY 2009 Accomplishments: Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton, California for electricity, heating, and other power charges; and long distance telephone support. Provide					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2237: *Amphibious Vehicle Test*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
funding for calibration of laboratory test equipment and maintenance services provided by MCLB Barstow and 1st Force Service Support Group (FSSG). *FY 2010 Plans:* Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton, California for electricity, heating, and other power charges; and long distance telephone support. Provide funding for calibration of laboratory test equipment and maintenance services provided by MCLB Barstow and 1st Force Service Support Group (FSSG). *FY 2011 Base Plans:* Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton, California for electricity, heating, and other power charges; and long distance telephone support. Provide funding for calibration of laboratory test equipment and maintenance services provided by MCLB Barstow and 1st Force Service Support Group (FSSG).					
Accomplishments/Planned Programs Subtotals	0.892	0.902	0.929	0.000	0.929

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Work will be led in-house. Necessary contractor support will be provided by Marine Corps Base Camp Pendleton via existing contracts. General Services Administration will be used for vehicle leasing contract.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2315: *Training Devices/Simulators*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2315: *Training Devices/Simulators*	19.131	13.218	2.226	0.000	2.226	7.039	17.774	14.159	10.802	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) Training simulators supported by this program element include Combined Arms Command & Control Training Upgrade System (CACCTUS), Deployable Virtual Training Environment (DVTE), Multiple Integrated Laser Engagement System (MILES) 2000, Marine Air-Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) Enhancements, Range Modernization/Transformation (RM/T) and Training Support. These training systems provide tactical weapons and decision-making skill training from entry level through (MAGTF) staff level. Systems will be interoperable and will allow for mission planning, mission rehearsal and concept evaluation in a valid synthetic environment with objective, and timely feedback. Through live, virtual and constructive simulation, the Marine Corps will have the means to train jointly, educate, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations, and define operational requirements.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Combined Arms Command and Control Trainer Upgrade System (CACCTUS)	5.699	4.630	0.236	0.000	0.236
FY 2009 Accomplishments: Completed all developmental and testing activities in preparation for Initial Operational Capability (IOC) Government Acceptance Testing at Camp Lejeune, NC.					
FY 2010 Plans: Continue the incremental development and user prioritized CACCTUS simulation product developments and all required testing coupled to fielding of systems to three Combined Arms Staff Trainer (CAST) training facilities at: Camp Pendleton, CA, Marine Corps Base Hawaii, Camp Courtney, and Okinawa, Japan. Install and upgrade of previously fielded sites with same newly developed system.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue the development of Marine Expeditionary Brigade (MEB) Staff training for modeling and simulation and greater Command, Control, Communications, Computers and Intelligence Systems Reconnaissance (C4ISR) capabilities in support of the integration of key elements of the Live, Virtual and Constructive resources.					
Deployable Virtual Training Environment (DVTE) *FY 2009 Accomplishments:* Developed an improved system network infrastructure and graphical user interfaces to enable Marines to train using actual operational equipment in the execution of training scenarios to include Virtual Battlespace 2 (VBS2) software development, Combined Arms Network (CAN) development, Joint Live, Virtual and Constructive (JLVC) integration development, Terrain Database Development, and Automated Language Training System (ALTS) application development. *FY 2010 Plans:* Continue to support DVTE network infrastructure by planned enhancement to the semi-autonomous simulation models which will provide the ability to modify existing or emerging real world terrain databases as well as ability to develop and/or leverage system interfaces that will enable integration of DVTE with constructive and live training. This effort will be supported with the award of a new competitive contract.	5.978	5.293	0.000	0.000	0.000
Multiple Integrated Laser Engagement System (MILES) *FY 2009 Accomplishments:* Provided developmental testing of USMC Infantry Automatic Rifle (IAR) compatibility with USMC Small Arms Transmitters (SATs). Precision Gunnery System (PGS) engineering evaluation performed on the Light Armored Vehicle (LAV) to determine adaptations required to accomodate the LAV A2 vehicle weapons system upgrade.	0.395	0.099	0.050	0.000	0.050

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Commence engineering evaluations for the Combat Vehicle Tactical Engagement Simulation System (CV-TESS) vehicle hardware and software to determine compatibility with the Instrumented Tactical Engagement Simulation System (I-TESS) individual weapon systems. *FY 2011 Base Plans:* Continue CV-TESS R&D efforts to incorporate compatibility for tanks. Determine integration required for other platforms.					
Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simuation (MTWS) Enhancements *FY 2009 Accomplishments:* Provided the development of the MTWS High Level Architecture (HLA) Bridge and integration into the Joint Live, Virtual and Constructive (JLVC) Federation, enhanced terrain models, enhanced C4I interface, upgraded ship-to-shore functionality and software conversion to 64-bit capability. *FY 2010 Plans:* Continue development of the MTWS HLA Bridge and integration into JLVC Federation spirals 4 and 5 while providing Enhanced Mission Scenario Events List (MSEL) capability. *FY 2011 Base Plans:* Maintain databanks for continued development of the MTWS High Level Architecture (HLA) Bridge and integration into the Joint Live, Virtual and Constructive (JLVC) Federation.	2.400	2.178	0.127	0.000	0.127
Range Modernization/Transformation (RM/T) *FY 2009 Accomplishments:* Provided development and design of fixed Tactical Audio Capture System (TACS) to integrate with the RM/T training network at MCAGCC, 29 Palms, CA. Prototype development of the Automatic Performance Evaluation and Lessons Learned (APELL) systems. Integration of the Deployable	4.659	1.018	0.098	0.000	0.098

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Instrumented Training System (DITS) and Integrated Global Positioning System Radio System (IGRS) to feed position and engagement data to the Marine Corps Instrumented Training System (MC-ITS). *FY 2010 Plans:* Complete developmental lab testing and field testing of the Tactical Audio Capture System (TACS) at Corona, CA and 29 Palms, CA. Perform demonstration followed by installation of the prototype Automatic Performance Evaluation and Lessons Learned (APELL) systems at Naval Air Warfare Center, China Lake, CA, and MCB Camp Pendleton, CA. Research integration of Inertial Navigation System (INS) to the Instrumented Tactical Engagement Simulation System (I-TESS). *FY 2011 Base Plans:* Complete integration of Tactical Audio Capture System (TACS) with Marine Corps Instrumented Training System (MC-ITS). Commence of the Automatic Performance Evaluation and Lessons Learned (APELL) system with MC-ITS and the main Tactical Video Capture System (TVCS) work station. Integrate prototype Inertial Navigation System (INS) with Instrumented Tactical Engagement Simulation System (I-TESS) Individual Weapon System (IWS).					
Training Support *FY 2011 Base Plans:* Provide training solution development efforts for the modernization of training systems by providing high fidelity, immersive simulations and capabilities. Also, integrate existing live, virtual, and constructive training capabilities to provide fully coordinated MAGTF training exercises that realistically simulate the operating environment. Combined Arms Planning Tool (CAPT) funds will be used to develop and expand network training and will be fielded to formal schools such as Exhibitionary Warfare School (EWS), Senior Non-Commissioned Officers (SNCO) Academies, The Basic School (TBS), and Infantry Officers Course (IOC). Combat Convoy Simulator (CCS) funds will be applied to federation of the CCS and Deployable Virtual Training Environment (DVTE) which provides the capability for simulations to communicate in the same virtual environment. This capability will bring	0.000	0.000	1.715	0.000	1.715

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
additional war fighting capabilities to this system such as Call for Fire, Pilot in the loop for joint force operation (JFO) certification, and Combined Arms Network (CAN).					
Accomplishments/Planned Programs Subtotals	19.131	13.218	2.226	0.000	2.226

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/BLI#6532001: *Training Devices, CACCTUS*	4.801	4.101	0.174	5.960	6.134	1.313	4.705	4.829	3.815	999.999	1,051.924
• PMC/BLI#6532002: *Training Devices, MILES*	0.682	0.012	0.013	0.000	0.013	0.000	0.000	0.000	0.000	0.000	23.950
• PMC/BLI#6532003: *Training Devices, RM/T*	100.803	99.637	0.408	18.826	19.234	2.883	29.704	30.294	23.733	999.999	1,369.506
• PMC/BLI#6532004: *Training Devices, Training Sys Spt an Tails*	0.000	0.000	0.000	0.000	0.000	2.714	2.705	1.927	0.000	0.000	7.346

D. Acquisition Strategy

(U) CACCTUS - Competitive Cost plus Fixed Fee contract (CPFF).
(U) DVTE - Competitively award development contract.
(U) MILES - Competitively awarded Broad Agency Announcement (BAA) Experimentation/Development contracts.
(U) MTWS Enhancements - Competitively award Cost Plus Incentive Fee (CPIF) development contract.
(U) RM/T - Competitive Cost plus Fixed Fee contract (CPFF) and Competitively awarded Broad Agency Announcement (BAA) Experimentation/Development contracts.
(U) Training Support - Competitive Cost plus Fixed Fee contract (CPFF).

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MILES	Various/ Various	Various Not Specified	1.331	0.099	Apr 2010	0.050	Feb 2011	0.000		0.050	0.000	1.480	Continuing
RM/T TAC Dev	WR	NSWC Corona, CA	2.619	0.000		0.000		0.000		0.000	0.000	2.619	Continuing
RM/T OV-1 Dev	TM	MITRE Orlando, FL	0.073	0.000		0.000		0.000		0.000	0.000	0.073	Continuing
RM/T APELL	C/CPFF	SARNOFF Princeton, NJ	3.952	0.000		0.000		0.000		0.000	0.000	3.952	Continuing
RM/T PLI Integration	C/FP	CTC Orlando, FL	1.278	0.000		0.000		0.000		0.000	0.000	1.278	Continuing
RM/T Range Safety Test	WR	US Army Aberdeen Proving Ground	0.274	0.000		0.000		0.000		0.000	0.000	0.274	Continuing
RM/T DITS	C/FP	SAAB USA Orlando, FL	1.045	0.000		0.000		0.000		0.000	0.000	1.045	Continuing
RM/T Competitive BAA	C/FP	Various Not Specified	0.235	1.018	Mar 2010	0.098	Feb 2011	0.000		0.098	0.000	1.351	Continuing
Training Support	C/CPFF	Competitive Acquisition Not Specified	0.000	0.000		1.715	Apr 2011	0.000		1.715	0.000	1.715	Continuing
		Subtotal	10.807	1.117		1.863		0.000		1.863	0.000	13.787	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2315: *Training Devices/Simulators*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
S/W Dev -CACCTUS	C/CPFF	Cole Engineering Systems Inc. (CESI) Orlando, FL	11.366	3.230	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
S/W Dev - CACCTUS	WR	NAWC Orlando, FL	1.244	0.200	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
S/W Dev - CACCTUS	Various/ Various	Various Not Specified	1.440	1.200	May 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
S/W Dev - DVTE	MIPR	PEOSTRI Orlando, FL	2.222	0.000		0.000		0.000		0.000	0.000	2.222	Continuing
S/W Dev - DVTE	Various/ FFP	Bohemia Interactive Not Specified	1.368	5.293	Jun 2010	0.000		0.000		0.000	0.000	6.661	Continuing
S/W Dev - DVTE	Various/ Various	Various Not Specified	1.739	0.000		0.000		0.000		0.000	0.000	1.739	Continuing
S/W Dev - MTWS	Various/ CPIF	L-3 Communications San Diego, CA	7.911	2.159	Mar 2010	0.127	Mar 2011	0.000		0.127	Continuing	Continuing	Continuing
S/W Dev -MTWS	C/CPIF	Department of Energy (DOE) Livemore, CA	0.302	0.019	Mar 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	27.592	12.101		0.127		0.000		0.127			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2315: *Training Devices/Simulators*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CACCTUS Labor (Research PERS)	C/CPFF	Cole Engineering Systems Inc. (CESI) Orlando, FL	0.000	0.000		0.236	Nov 2011	0.000		0.236	0.000	0.236	Continuing
		Subtotal	0.000	0.000		0.236		0.000		0.236	0.000	0.236	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	38.399	13.218		2.226		0.000		2.226			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2315: *Training Devices/Simulators*

Training Support

PROGRAM SCHEDULE

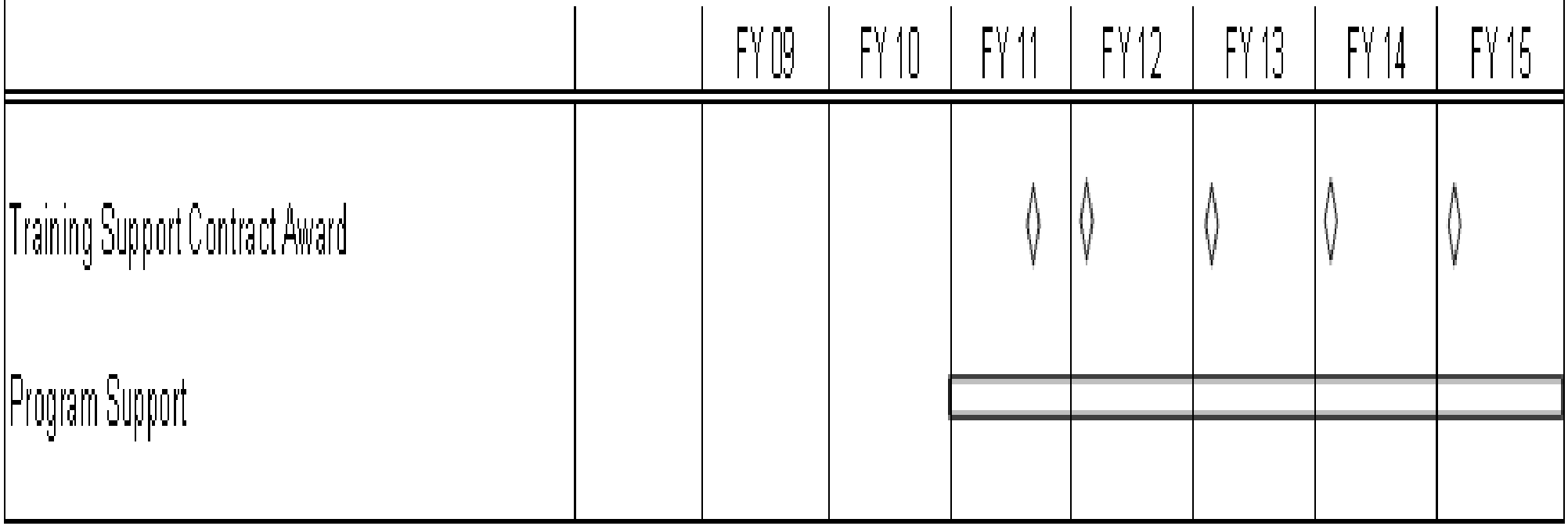

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 2315: *Training Devices/Simulators*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Training Support Contract Award	3	2011	1	2015
Program Support	1	2011	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2503: *Initial Issue*	16.326	9.823	12.271	0.000	12.271	12.509	14.733	13.488	13.567	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Family of Combat Equipment Support and Services provides research, development, test and evaluation on low cost items with emphasis on non-developmental/ commercially available items. Much of the RDT&E is conducted in coordination/concert with other services and joining organizations, and in consideration of RDT&E efforts being pursued by the other services. Items approved for procurement will transition into Procurement Marine Corps and Operation and Maintenance Marine Corps lines for Individual Combat Equipment, Medical Equipment and Shelters. The focus is to provide state of the art combat equipment (e.g. lightweight helmet, sleeping bags, load bearing systems, etc.), medical equipment (e.g. Authorized Medical Allowance (AMAL)/Authorized Dental Allowance (ADAL), Enroute Care, Mobile Medical Monitors, etc.), and Family of Shelters (softwall, different frames and fabrics, etc.). The benefit will be reduced logistics, less weight, improved combat effectiveness, better echelon I and II care for Marines, improved individual and unit protection, tactical mobility, etc. The employment of state-of-the art equipment will ensure Marines are equipped with the best items that technology can offer.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*Family of Ballistic Protection Systems	8.869	4.258	5.296	0.000	5.296
FY 2009 Accomplishments: Explored new commercial technologies to be inserted into current body armor to reduce weight, increase survivability, lethality and mobility. Both torso and head/neck ballistic studies were conducted to assess blunt trauma/shock forces on the body and how ballistic materials/designs could afford the most protection while reducing weight. Modeling and simulation initiatives were used to baseline current equipment and enabled configuration/compatibility management of new equipment.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Explore new commercial technologies to be inserted into current body armor to reduce weight, increase survivability, lethality and mobility. Both torso and head/neck ballistic studies are being conducted to assess blunt trauma/shock forces on the body and how ballistic materials/designs can afford the most protection while reducing weight. Modeling and simulation initiatives are being used to baseline current equipment and enable configuration/compatibility management of new equipment. *FY 2011 Base Plans:* Will explore new commercial technologies to be inserted into body armor to reduce weight, increase survivability, lethality and mobility. Both torso and head/neck ballistic studies will be conducted to assess blunt trauma/shock forces on the body and how ballistic materials/designs can afford the most protection while reducing weight. Modeling and simulation initiatives will be used to baseline current equipment and enable configuration/compatibility management of new equipment.					
*Clothing and Flame Resistant Organizational Gear *FY 2009 Accomplishments:* Pursued designs, prototyping, user surveys, textile and physical properties testing and the full range of clothing design in response to new uniform initiatives. *FY 2010 Plans:* Pursuing designs, prototyping, user surveys, textile and physical properties testing and the full range of clothing design in response to new uniform initiatives. *FY 2011 Base Plans:* Will pursue designing, prototyping, user surveys, textile and physical properties testing and the full range of clothing design in response to new uniform initiatives.	0.595	0.462	0.686	0.000	0.686
*Family of Mountain Cold Weather Clothing & Equipment (FMCWCE)	2.150	0.920	1.234	0.000	1.234

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FMCWCE provided a capability set of clothing and equipment to facilitate Marine Air-Ground Task Force (MAGTF) operations in mountainous and cold weather environments. The intent was to reduce the individual load (weight/volume) of the Ground Combat Element (GCE), particularly dismounted infantry while maintaining or improving system performance. Mobility, survivability and sustainability requirements for the Command Element (CE), Combat Service Support Element (CSSE), and the Air Combat Element (ACE) were also met. This program substantially improved current inventory items and added new capabilities such as steep earth and alpine ice equipment for which we train Marines yet have no assets to perform these missions within the operating forces. Rapid technological advances in the outdoor commercial market made it possible to continuously update the capability provided by FMCWCE. *FY 2010 Plans:* FMCWCE will continue to provide a capability set of clothing and equipment to facilitate Marine Air-Ground Task Force (MAGTF) operations in mountainous and cold weather environments. The intent is to reduce the individual load (weight/volume) of the Ground Combat Element (GCE), particularly dismounted infantry while maintaining or improving system performance. Mobility, survivability and sustainability requirements for the Command Element (CE), Combat Service Support Element (CSSE), and the Air Combat Element (ACE) is being met. This program is substantially improving current inventory items and adding new capabilities such as steep earth and alpine ice equipment for which we train Marines yet have no assets to perform these missions within the operating forces. Rapid technological advances in the outdoor commercial market make it possible to continuously update the capability provided by FMCWCE. *FY 2011 Base Plans:* FMCWCE will provide a capability set of clothing and equipment to facilitate Marine Air-Ground Task Force (MAGTF) operations in mountainous and cold weather environments. The intent is to reduce the individual load (weight/volume) of the Ground Combat Element (GCE), particularly dismounted					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2503: *Initial Issue*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
infantry while maintaining or improving system performance. Mobility, survivability and sustainability requirements for the Command Element (CE), Combat Service Support Element (CSSE), and the Air Combat Element (ACE) will also be met. This program will substantially improve current inventory items and add new capabilities such as steep earth and alpine ice equipment for which we train Marines yet have no assets to perform these missions within the operating forces. Rapid technological advances in the outdoor commercial market make it possible to continuously update the capability provided by FMCWCE.					
*Family of Improved Load Bearing Equipment *FY 2009 Accomplishments:* This program supported the Marine Corps requirements for a replacement load bearing system and individual water purifier and supported continual system improvement throughout the life-cyle of the equipment. *FY 2010 Plans:* This program supports the Marine Corps requirements for a replacement load bearing system and individual water purifier and supports continual system improvement throughout the life-cyle of the equipment. *FY 2011 Base Plans:* This program will support the Marine Corps requirements for a replacement load bearing system and individual water purifier and will support continual system improvement throughout the life-cyle of the equipment.	0.502	0.341	0.512	0.000	0.512
*Family of Individual Warfighter Equipment (formerly Combat Support Equipment)	0.117	0.093	0.136	0.000	0.136

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: The purpose of the Family of Individual Warfighter Equipment is to enhance or improve unit operational capabilities and enhance unit morale. In addition, some items such as the field tarp and poncho will greatly enhance survivability, mobility and provide significantly improved field equipment to Marines. *FY 2010 Plans:* Continue to enhance or improve unit operational capabilities and enhance unit morale. In addition, some items such as the field tarp and poncho will greatly enhance survivability, mobility and provide significantly improved field equipment to Marines. *FY 2011 Base Plans:* Continue to enhance or improve unit operational capabilities and enhance unit morale. In addition, some items such as the field tarp and poncho will greatly enhance survivability, mobility and provide significantly improved field equipment to Marines.					
*Family of Field Medical Equipment	3.610	3.137	3.651	0.000	3.651
FY 2009 Accomplishments: Family of Field Medical Equipment: Started development of Vaccine and Reagent Refrigeration System (VARRS) to replace all refrigeration except the HEMACOOL blood refrigerator in the AMAL inventory. The VARRS is rugged, well insulated, and will operate on battery power. The Rugged design will improve survivability over the current refrigeration systems in austere environments. Development of Commercial-off-the-shelf/Non-developmental (COTS/NDI) medical equipment items to evaluate their functionality to improve the quality of warfighter's healthcare. Testing of Commercial-off-the-shelf/Non-developmental (COTS/NDI) medical equipment items for the Enroute Care System to evaluate functionality for patient transportation post resuscitative surgery in forward echelons and for the replacement of the obsolete Narkomed ruggedized anesthesia machine. Tested medical equipment items to evaluate their functionality improving the quality of warfighter healthcare and to					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2503: *Initial Issue*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
reduce the logistics footprint of USMC medical equipment. Planned completion of testing and initiation of technology insertion. *FY 2010 Plans:* Family of Field Medical Equipment: Continue the development of Vaccine and Reagent Refrigeration System (VARRS) to replace all refrigeration except the HEMACOOL blood refrigerator in the AMAL inventory. The VARRS is rugged, well insulated, and will operate on battery power. The Rugged design will improve survivability over the current refrigeration systems in austere environments. Development of Commercial-off-the-shelf/Non-developmental (COTS/NDI) medical equipment items to evaluate their functionality to improve the quality of warfighter's healthcare. Testing of Commercial-off-the-shelf/Non-developmental (COTS/NDI) medical equipment items for the Enroute Care System to evaluate functionality for patient transportation post resuscitative surgery in forward echelons and for the replacement of the obsolete Narkomed ruggedized anesthesia machine. Testing of other medical equipment items to evaluate their functionality improving the quality of warfighter healthcare and to reduce the logistics footprint of USMC medical equipment. Plan to complete testing and initiation of technology insertion. *FY 2011 Base Plans:* Family of Field Medical Equipment: Complete the development of Vaccine and Reagent Refrigeration System (VARRS) to replace all refrigeration except the HEMACOOL blood refrigerator in the AMAL inventory. The VARRS is rugged, well insulated, and will operate on battery power. The Rugged design will improve survivability over the current refrigeration systems in austere environments. Development of Commercial-off-the-shelf/Non-developmental (COTS/NDI) medical equipment items to evaluate their functionality to improve the quality of warfighter's healthcare. Testing of Commercial-off-the-shelf/Non-developmental (COTS/NDI) medical equipment items for the Enroute Care System to evaluate functionality for patient transportation post resuscitative surgery in forward echelons and for the replacement of the obsolete Narkomed ruggedized anesthesia machine. Testing of other medical equipment items to evaluate their functionality improving the quality of warfighter healthcare and to					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
reduce the logistics footprint of USMC medical equipment. Plan to complete testing and initiation of technology insertion.					
*Family of Shelters and Shelter Equipment *FY 2009 Accomplishments:* Family of Shelters and Shelter Equipment: Command and Control Systems have out grown the current Modular Command Post Shelter in size and performance. Changing operational doctrine, logistic support systems and advances in technology require development of an advanced lightweight rapid deploying tactical shelter with a minimum of 420 sq. ft. Design and engineering to increase capability, reduce weight, cost and cube of soft wall shelters. Explore and test new technologies in coordination with the US. Army for insertion into the shelter. *FY 2010 Plans:* Family of Shelters and Shelter Equipment: Command and Control Systems have out grown the current Modular Command Post Shelter in size and performance. Changing operational doctrine, logistic support systems and advances in technology require development of an advanced lightweight rapid deploying tactical shelter with a minimum of 420 sq. ft. Design and engineering to increase capability, reduce weight, cost and cube of soft wall shelters. Explore and test new technologies in coordination with the US. Army for insertion into the shelter. *FY 2011 Base Plans:* Family of Shelters and Shelter Equipment: Command and Control Systems have out grown the current Modular Command Post Shelter in size and performance. Changing operational doctrine, logistic support systems and advances in technology require development of an advanced lightweight rapid deploying tactical shelter with a minimum of 420 sq. ft. Design and engineering to increase capability, reduce weight, cost and cube of soft wall shelters. Explore and test new technologies in coordination with the US. Army for insertion into the shelter.	0.147	0.132	0.149	0.000	0.149
Family of Combat Field Feeding	0.336	0.480	0.607	0.000	0.607

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Improvements on current technology for heating individual rations was explored to test individual ration heater concepts and equipment. Although some progress has been made in recent years to improve field feeding equipment, most current field messing equipment consists of manpower and maintenance intensive M59 ranges utilizing M2 burners setup within tents. The current Tray Ration Heater System has a large footprint, lacks a quick displacement capability, includes unsafe and hazardous components (specifically the M2 burners), and does not conform to the single fuel concept. Also, this current system is not compatible with tenets of Operational Maneuver from the Sea (OMFTS) and does not facilitate maneuverable warfare operations. Current cookware sanitizing equipment consists of 30 gallon containers used in consonance with immersion water heaters, fueled by gasoline (MOGAS).					
FY 2010 Plans: Improvements on current technology for heating individual rations are being explored to test individual ration heater concepts and equipment. Although some progress has been made in recent years to improve field feeding equipment, most current field messing equipment consists of manpower and maintenance intensive M59 ranges utilizing M2 burners setup within tents. The current Tray Ration Heater System has a large footprint, lacks a quick displacement capability, includes unsafe and hazardous components (specifically the M2 burners), and does not conform to the single fuel concept. Also, this current system is not compatible with tenets of Operational Maneuver from the Sea (OMFTS) and does not facilitate maneuverable warfare operations. Current cookware sanitizing equipment consists of 30 gallon containers used in consonance with immersion water heaters, fueled by gasoline (MOGAS).					
FY 2011 Base Plans: Improvements on current technology for heating individual rations will be explored to test individual ration heater concepts and equipment. Although some progress has been made in recent years to improve field feeding equipment, most current field messing equipment consists of manpower					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
and maintenance intensive M59 ranges utilizing M2 burners setup within tents. The current Tray Ration Heater System has a large footprint, lacks a quick displacement capability, includes unsafe and hazardous components (specifically the M2 burners), and does not conform to the single fuel concept. Also, this current system is not compatible with tenets of Operational Maneuver from the Sea (OMFTS) and does not facilitate maneuverable warfare operations. Current cookware sanitizing equipment consists of 30 gallon containers used in consonance with immersion water heaters, fueled by gasoline (MOGAS).					
Accomplishments/Planned Programs Subtotals	16.326	9.823	12.271	0.000	12.271

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/652200: *Field Medical Equipment*	21.980	3.384	3.432	0.000	3.432	3.501	3.586	3.684	3.784	0.000	177.051
• PMC/661300: *Combat Field Feeding System*	4.625	2.207	4.283	0.000	4.283	5.037	5.124	5.213	5.303	0.000	55.692

D. Acquisition Strategy

Family of Ballistic Protection Systems, Family of Mountain Cold Weather Clothing and Equipment, Family of Improved Load Bearing Equipment, Family of Combat Support Equipment, Clothing & Flame Resistant Organizational Gear, and Combat Field Feeding Systems items utilize various acquisition strategies. These programs leverage heavily on current developments and technology in commercial industry. As a result, the government's R&D phase is relatively short. Contracting is performed by either Marine Corps Systems Command Contracting Directorate, the Naval Research Laboratory or the U.S. Army Natick Research, Development & Engineering Center via Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts. ID/IQ contracts are used to decrease the government risk, allow maximum contract flexibility and capitalize on the savings realized by utilizing Economic Order Quantities.

Shelters: The Shelter acquisition strategy is to modify non-developmental items (NDI) to further meet the requirements of the Marine Corps, to support development of multi-service items through inter-service agreements and to adopt Commercial-Off-the-Shelf (COTS) items.

Family of Field Medical Equipment: These programs leverage heavily on current development and technology in the commercial medical industry. The field medical acquisition strategy is to modify non-developmental items (NDI) and adopt Commercial-Off-the-Shelf (COTS) items.

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E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of Field Medical 1	MIPR	USAMRMC FT DETRICK,MD	0.000	0.106	Dec 2009	0.105	Dec 2010	0.000		0.105	0.000	0.211	Continuing
Family of Field Medical 2	MIPR	USAMRMC FT DETRICK,MD	0.000	0.159	Dec 2009	0.157	Dec 2010	0.000		0.157	0.000	0.316	Continuing
Family of Field Medical	WR	NMRC Maryland	0.000	0.517	Dec 2009	0.525	Dec 2010	0.000		0.525	0.000	1.042	Continuing
Family of Field Medical	MIPR	AFMESA FT DETRICK, MD	0.000	1.373	Mar 2010	1.775	Mar 2011	0.000		1.775	0.000	3.148	Continuing
Family of Ballistic Protection Systems	MIPR	USASSCOM Natick, MA	5.524	0.809	Mar 2010	0.835	Feb 2011	0.000		0.835	0.000	7.168	Continuing
Family of Ballistic Protection Systems	WR	NRL Washington, DC	11.287	1.918	Mar 2010	2.888	Feb 2011	0.000		2.888	0.000	16.093	Continuing
Family of Ballistic Protection Systems	WR	ONR Arlington, VA	0.156	0.090	Mar 2010	0.100	Feb 2011	0.000		0.100	0.000	0.346	Continuing
Improved Load Bearing Equipment	MIPR	USASSCOM Natick, MA	1.873	0.341	Mar 2010	0.512	Mar 2011	0.000		0.512	0.000	2.726	Continuing
Family of Mountain Cold Weather	MIPR	USASSCOM Natick, MA	3.573	0.210	Mar 2010	0.500	Mar 2011	0.000		0.500	0.000	4.283	Continuing
Combat Field Feeding System	MIPR	USASSCOM Natick, MA	1.041	0.292	Apr 2010	0.394	Apr 2011	0.000		0.394	0.000	1.727	Continuing
Individual Warfighter Equipment	MIPR	USASSCOM Natick, MA	0.000	0.070	Jan 2010	0.062	Jun 2011	0.000		0.062	0.000	0.132	Continuing
Clothing & FR Organizational Gear	MIPR	USSASSCOM Natick, MA	1.961	0.349	Mar 2010	0.554	Dec 2010	0.000		0.554	0.000	2.864	Continuing
		Subtotal	25.415	6.234		8.407		0.000		8.407	0.000	40.056	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2503: *Initial Issue*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of Field Medical	WR	NHRC SAN DIEOG, CA	0.352	0.360	Dec 2009	0.376	Dec 2010	0.000		0.376	0.000	1.088	Continuing
		Subtotal	0.352	0.360		0.376		0.000		0.376	0.000	1.088	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of Field Medical 1	MIPR	USAMRMC FT DETRICK	0.000	0.060	Jun 2010	0.075	Jun 2011	0.000		0.075	0.000	0.135	Continuing
Family of Field Medical 2	MIPR	USAMRAA	0.000	0.532	Jun 2010	0.608	Jun 2011	0.000		0.608	0.000	1.140	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2503: *Initial Issue*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		FT DETRICK											
Family of Shelters & Shelter Equipment	MIPR	USA NSRDEC Natick, MA	0.000	0.132	Mar 2010	0.149	Mar 2011	0.000		0.149	0.000	0.281	Continuing
Family of Ballistic Protection Systems	MIPR	USASSCOM Natick, MA	5.312	0.931	Mar 2010	0.958	Nov 2010	0.000		0.958	0.000	7.201	Continuing
Family of Ballistic Protection Systems	SS/TBD	MCSC Quantico VA	1.834	0.510	Mar 2010	0.515	Dec 2010	0.000		0.515	0.000	2.859	Continuing
Family of Mountain Cold Weather	MIPR	USASSCOM Natick, MA	2.142	0.402	Mar 2010	0.425	Dec 2010	0.000		0.425	0.000	2.969	Continuing
Family of Mountain Cold Weather	C/FP	MCSC Quantico, VA	0.000	0.030	Mar 2010	0.040	Dec 2010	0.000		0.040	0.000	0.070	Continuing
Individual Warfighter Equipment	MIPR	USASSCOM Natick, VA	0.287	0.000		0.013	Dec 2010	0.000		0.013	0.000	0.300	Continuing
		Subtotal	9.575	2.597		2.783		0.000		2.783	0.000	14.955	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2503: *Initial Issue*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FAMILY OF FIELD MEDICAL	Various/ Various	MCSC QUANTICO, VA	0.000	0.030	Mar 2010	0.030	Mar 2011	0.000		0.030	0.000	0.060	Continuing
Family of Mountain Cold Weather	C/FP	MCSC Quantico, VA	1.274	0.278	Jun 2010	0.269	Jun 2011	0.000		0.269	0.000	1.821	Continuing
Individual Warfighter Equipment	C/FP	MCSC Quantico, VA	0.218	0.023	Mar 2010	0.061	Mar 2011	0.000		0.061	0.000	0.302	Continuing
Combat Field Feeding Systems	C/FP	MCSC Quantico, VA	0.097	0.188	Mar 2010	0.213	Dec 2010	0.000		0.213	0.000	0.498	Continuing
Clothing & FR Organizational Gear	MIPR	USASSCOM Natick, VA	0.828	0.113	Jun 2010	0.132	Dec 2010	0.000		0.132	0.000	1.073	Continuing
		Subtotal	2.417	0.632		0.705		0.000		0.705	0.000	3.754	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	37.759	9.823		12.271		0.000		12.271	0.000	59.853	

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2928: *Exp Indirect Fire Gen Supt Wpn Sys*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2928: *Exp Indirect Fire Gen Supt Wpn Sys*	2.233	1.943	1.542	0.000	1.542	2.109	2.395	2.447	2.500	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

HIMARS is a C-130 transportable, wheeled, indirect fire, rocket/missile system capable of firing all rockets and missiles in the current and future Multiple Launch Rocket System Family of Munitions (MFOM). The system includes one launcher, two Re-Supply Systems, and the MFOM. HIMARS will provide the Fleet Marine Force with 24 hour ground-based, responsive General Support/General Support Reinforcing (GS/GSR) indirect fires which accurately engage targets at long range (60+km) with high volumes of lethal fire under all weather conditions throughout all phases of combat operations ashore to include irregular warfare and distributed operations. HIMARS is a significant improvement over currently fielded ground fire support systems. During a 24 hour period, the system will be expected to conduct multiple moves and multiple fire missions. HIMARS will satisfy the Marine Corps requirement for an indirect fire system that is responsive, maneuverable, and is capable of engaging targets at long range.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*HIMARS Systems Engineering	1.777	1.393	1.184	0.000	1.184
Primary and Ancillary Hardware Development and Systems Engineering Support, includes Navy, Marine Corps, Army and contractor R&D efforts. The U.S. Army Program Office continues to provide system updates to accommodate emerging requirements such as armor upgrades, and enhanced communications. This element provides engineering support for integration of the changes into the U.S.M.C. inventory.					
FY 2009 Accomplishments: Primary and Ancillary Hardware Development and Systems Engineering Support, includes Navy, Marine Corps, Army and contractor R&D efforts. The U.S. Army Program Office continues to provide					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
system updates to accommodate emerging requirements such as armor upgrades, and enhanced communications. This element provides engineering support for integration of the changes into the U.S.M.C. inventory. *FY 2010 Plans:* Primary and Ancillary Hardware Development and Systems Engineering Support, includes Navy, Marine Corps, Army and contractor R&D efforts. The U.S. Army Program Office continues to provide system updates to accommodate emerging requirements such as armor upgrades, and enhanced communications. This element provides engineering support for integration of the changes into the U.S.M.C. inventory. *FY 2011 Base Plans:* Primary and Ancillary Hardware Development and Systems Engineering Support, includes Navy, Marine Corps, Army and contractor R&D efforts. The U.S. Army Program Office continues to provide system updates to accommodate emerging requirements such as armor upgrades, and enhanced communications. This element provides engineering support for integration of the changes into the U.S.M.C. inventory.					
*HIMARS Testing Support Test and Evaluation Program with Army. Support Test and Evaluation Program for Marine Corps Principle End Items. The U.S. Army Program Office continues to provide improvements such as the alternate warheads. This funding includes support and oversight to ensure testing supports U.S.M.C. requirements. *FY 2009 Accomplishments:* Support Test and Evaluation Program with Army. Support Test and Evaluation Program for Marine Corps Principle End Items. The U.S. Army Program Office continues to provide improvements such	0.303	0.397	0.205	0.000	0.205

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
as the alternate warheads. This funding includes support and oversight to ensure testing supports U.S.M.C. requirements. *FY 2010 Plans:* Support Test and Evaluation Program with Army. Support Test and Evaluation Program for Marine Corps Principle End Items. The U.S. Army Program Office continues to provide improvements such as the alternate warheads. This funding includes support and oversight to ensure testing supports U.S.M.C. requirements. *FY 2011 Base Plans:* Support Test and Evaluation Program with Army. Support Test and Evaluation Program for Marine Corps Principle End Items. The U.S. Army Program Office continues to provide improvements such as the alternate warheads. This funding includes support and oversight to ensure testing supports U.S.M.C. requirements.					
*HIMARS Program Support Program Management at Quantico, USMC Liaison Office at Army Program, USMC Test Unit at Ft Sill, and contractor support. HIMARS is a joint program run from the Army Program Office at Huntsville, AL. U.S.M.C. provides onsite liaison with the Army at Huntsville to support joint acquisition and program planning. *FY 2009 Accomplishments:* Program Management at Quantico, USMC Liaison Office at Army Program, USMC Test Unit at Ft Sill, and contractor support. HIMARS is a joint program run from the Army Program Office at Huntsville, AL. U.S.M.C. provides onsite liaison with the Army at Huntsville to support joint acquisition and program planning.	0.153	0.153	0.153	0.000	0.153

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Program Management at Quantico, USMC Liaison Office at Army Program, USMC Test Unit at Ft Sill, and contractor support. HIMARS is a joint program run from the Army Program Office at Huntsville, AL. U.S.M.C. provides onsite liaison with the Army at Huntsville to support joint acquisition and program planning. *FY 2011 Base Plans:* Program Management at Quantico, USMC Liaison Office at Army Program, USMC Test Unit at Ft Sill, and contractor support. HIMARS is a joint program run from the Army Program Office at Huntsville, AL. U.S.M.C. provides onsite liaison with the Army at Huntsville to support joint acquisition and program planning.					
Accomplishments/Planned Programs Subtotals	2.233	1.943	1.542	0.000	1.542

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/BLI 221200: *HIMARS SYSTEMS AN ROCKETS*	135.107	71.256	22.230	145.533	167.763	14.727	6.757	6.873	6.994	0.000	399.477

D. Acquisition Strategy

USMC HIMARS is procuring the Army rocket launcher, the current / future Multiple Launch Rocket System Family of Munitions (MFOM) and developing an Medium Tactical Vehicle Replacement (MTVR)-based Resupply System (truck(s) with associated trailer(s)). The Marine Corps launcher and ammo requirements closely match U.S. Army requirements. The US Army HIMARS program received increased funding so that it is now an Acquisition Category ACAT IC level program. Marine Corps Resupply System requirements are unique. Accordingly, the Marine Corps is an integrator and must ensure the required warfighting capability is fielded to the Marine Corps operating forces. The USMC has aligned funds to reflect an emphasis on not only hardware development, but also the integration of these principle end items while providing associated evaluation and oversight. Additionally, the Marine Corps program is establishing the training and support methodologies that will result in

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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associated skill sets required within the Marine Corps. The Marine Corps strategy is incorporating Evolutionary Acquisition and capability upgrades to both the systems and rocket munitions. These improvements parallel the US Army's acquisition strategy.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prmary Hardware Dev	C/FP	Lockheed Martin Dallas, TX	14.242	0.985	Nov 2009	0.646	Nov 2010	0.000		0.646	0.000	15.873	Continuing
Ancillary Hardware Dev	C/FP	RTTC Redstone, AL	1.519	0.234	Dec 2009	0.262	Dec 2010	0.000		0.262	0.000	2.015	Continuing
Systems Engineering	C/FP	NSWC Dahlgren, VA	3.567	0.174	Dec 2009	0.276	Dec 2010	0.000		0.276	0.000	4.017	Continuing
Systems Engineering	C/FP	NSWC Earle, NJ	0.896	0.000		0.000		0.000		0.000	0.000	0.896	Continuing
Systems Engineering	C/FP	Lockheed Martin Dallas, TX	0.720	0.000		0.000		0.000		0.000	0.000	0.720	Continuing
		Subtotal	20.944	1.393		1.184		0.000		1.184	0.000	23.521	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
INteg Logistics Support	WR	NSWCIHD Earle, NJ	0.140	0.000		0.000		0.000		0.000	0.000	0.140	Continuing
		Subtotal	0.140	0.000		0.000		0.000		0.000	0.000	0.140	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 2928: *Exp Indirect Fire Gen Supt Wpn Sys*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev Test & Eval	WR	NSWC Dahlgren, VA	2.737	0.123	Nov 2009	0.073	Nov 2010	0.000		0.073	0.000	2.933	Continuing
Dev Test & Eval	WR	Redstone Test Ctr Redstone, AL	1.516	0.274	Dec 2009	0.132	Dec 2010	0.000		0.132	0.000	1.922	Continuing
Dev Test & Eval	WR	NSWC Carderock, MD	0.094	0.000		0.000		0.000		0.000	0.000	0.094	Continuing
Dev Test & Eval	MIPR	DAC McCallister, OK	0.145	0.000		0.000		0.000		0.000	0.000	0.145	Continuing
Operational Test & Eval	WR	MCOTEA Quantico, VA	1.074	0.000		0.000		0.000		0.000	0.000	1.074	Continuing
		Subtotal	5.566	0.397		0.205		0.000		0.205	0.000	6.168	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Mngmnt	WR	MCSC Quantico, VA	2.146	0.030	Oct 2009	0.030	Oct 2010	0.000		0.030	0.000	2.206	Continuing
Program Mngmnt	C/FFP	CEOSS Quantico, VA	5.154	0.123	Oct 2009	0.123	Oct 2010	0.000		0.123	0.000	5.400	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			7.300	0.153		0.153		0.000		0.153	0.000	7.606	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	33.950	1.943		1.542		0.000		1.542	0.000	37.435	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
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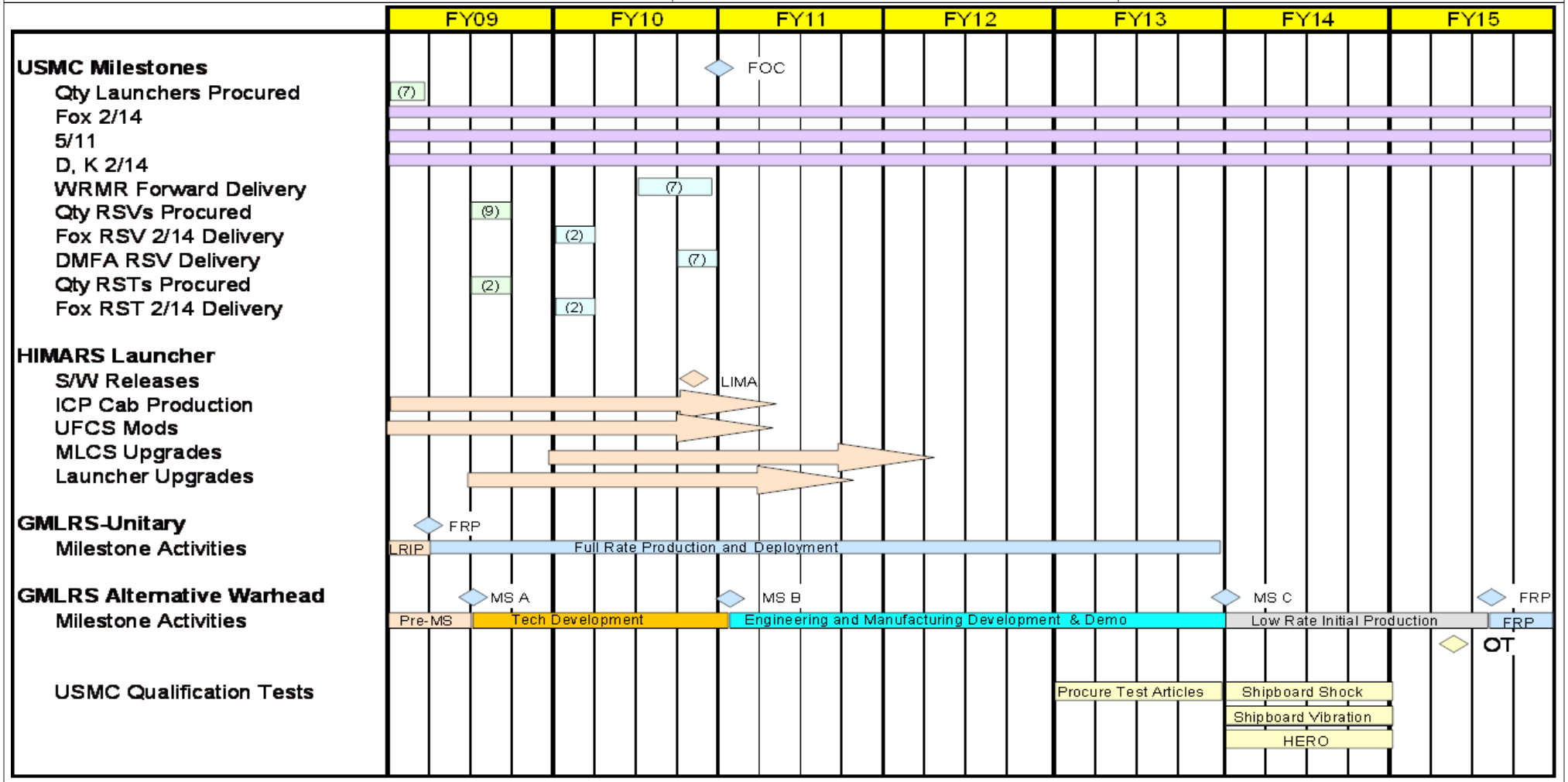

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 2928: *Exp Indirect Fire Gen Supt Wpn Sys*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Full Operational Capability	4	2010	4	2010
GMLRS Unitary Full Rate Production	1	2009	1	2009
GMLRS Alternative Warhead Milestone A	3	2009	3	2009
GMLRS Alternative Warhead Milestone B	1	2011	1	2011
GMLRS Alternative Warhead Milestone C	1	2014	1	2014
GMLRS Alternative Warhead Operational Test	2	2015	2	2015
GMLRS Alternative Warhead Full Rate Production	3	2015	3	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3098: *Fire Support System*	8.078	6.005	20.559	0.000	20.559	28.260	25.512	19.043	9.122	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 joint and Marine Corps unique improvements to artillery technology, USMC unique Amphibious Armor Systems (AAS), and international weapons development. Two new initiatives have been approved, Common Laser Range Finder (CLRF) and MAGTF Meteorological Information Manager (MIMM). The CLRF Pre-Planned Product Improvement (P3I) is a Research and Development initiative to develop a lightweight, man-portable, True North Azimuth Determination System (TNADS). MIMM sustains the capability of Marine artillerymen to obtain accurate meteorological (Met) information through the development of 30 MMIM systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*Common Laser Range Finder (CLRF) *FY 2011 Base Plans:* The Joint Effects Targeting System (JETS) is a System of Systems (SoS) that will provide Marine, Army, Air Force and Special Operations units the ability to perform target location, identification, designation and coordination of joint fires by utilizing a handheld, lightweight, accurate, and responsive reconnaissance, surveillance, target acquisition and target engagement coordination system.	0.000	0.000	5.871	0.000	5.871
*Meterological Measuring Sets (MMS) *FY 2009 Accomplishments:* The RDT&E dollars will be utilized to adapt the Air Force Weather Agency Predictive Weather Model as required input to howitzer fire control. It will also be used to develop meteorological sensors conducive to battlefield operations.	0.929	0.000	0.000	0.000	0.000
*Modeled Meteorological Information Manager (MMIM)	0.000	1.477	0.980	0.000	0.980

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: (Replacing MMS in FY10) The RDT&E dollars will be utilized to adapt the Air Force Weather Agency Predictive Weather Model as required input to howitzer fire control. It will also be used to develop meteorological sensors conducive to battlefield operations. *FY 2011 Base Plans:* The RDT&E dollars will be utilized to adapt the Air Force Weather Agency Predictive Weather Model as required input to howitzer fire control. It will also be used to develop meteorological sensors conducive to battlefield operations.					
*Expeditionary Fire Support Systems (EFSS) Program entered Milestone B in November 2004 and the award of a contract with cost plus award fee and firm fixed price line items. EFSS entered the System Development and Demonstration (SD&D) with a single vendor - General Dynamics Ordnance and Tactical Systems. Milestone C decision made in June 2005. Functional Configuration Audit began May 2006. LRIP decision made June 2006. Operation Testing (OT) completed on July 2007. Limited Full Rate Production Decision made in September 2007. Follow On Test and Evalution (FOT&E) was completed in March 2008. Full Rate Production (FRP) decision made in May 2008. EFSS supports irregular warfare and distributed operations. *FY 2009 Accomplishments:* R&D dollars in the budget required for the following: EFSS weapon system upgrades, specifically digitization (there is currently a communications gap to the system) to support the guided rounds. Extended range guided ammunition development. Develop and produce hardware for the guided rounds and have the various field activities test the hardware. Integration to ballistics and firing tables (software development) and qualification of energetics. In addition, system weight reduction and armoring development are outyear candidates. EFSS supports irregular warfare and distributed operations.	4.383	2.315	10.382	0.000	10.382

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: R&D dollars in the budget required for the following: EFSS weapon system upgrades, specifically digitization (there is currently a communications gap to the system) to support the guided rounds. Extended range guided ammunition development. Develop and produce hardware for the guided rounds and have the various field activities test the hardware. Integration to ballistics and firing tables (software development) and qualification of energetics. In addition, system weight reduction and armoring development are outyear candidates. EFSS supports irregular warfare and distributed operations. *FY 2011 Base Plans:* R&D dollars in the budget required for the following: EFSS weapon system upgrades, specifically digitization (there is currently a communications gap to the system) to support the guided rounds. Extended range guided ammunition development. Develop and produce hardware for the guided rounds and have the various field activities test the hardware. Integration to ballistics and firing tables (software development) and qualification of energetics. In addition, system weight reduction and armoring development are outyear candidates. EFSS supports irregular warfare and distributed operations.					
*Fire Support Mods (FSM) *FY 2009 Accomplishments:* (Formerly known as Sustainment / Readiness) Joint participation in artillery and fire support improvement projects for replacement capabilities. Projects include the Digital Aiming Circle, the M198 Howitzer, LW 155mm Howitzer and more accurate gun laying technology. *FY 2010 Plans:* (Formerly known as Sustainment / Readiness) Joint participation in artillery and fire support improvement projects for replacement capabilities. Projects include the Digital Aiming Circle, the M198 Howitzer, LW 155mm Howitzer and more accurate gun laying technology.	2.486	0.849	1.844	0.000	1.844

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 3098: *Fire Support System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: (Formerly known as Sustainment / Readiness) Joint participation in artillery and fire support improvement projects for replacement capabilities. Projects include the Digital Aiming Circle, the M198 Howitzer, LW 155mm Howitzer and more accurate gun laying technology.					
*Family of Artillery Munitions (FAM)	0.280	0.308	0.312	0.000	0.312
FY 2009 Accomplishments: Support R&D of Advanced Cannon Artillery (ACAAP) and Excalibur to include approved Insensitive Munitions (IM) and Weapons Systems Explosives Safety Review Board (WSESRB) testing, program support, and travel. Actively monitor U.S. Army artillery ammunition development programs in order to leverage off of and influence army developmental efforts. Beginning in FY10 funding for C2906 - Insensitive Munitions, will be incorporated into the FAM line. Two programs are included in the IM funding line, Insensitive Munitions and Marine Ammunition Knowledge Enterprise (MAKE). IM R&D initiative will focus on the development of improved packaging materials/design, venting technology, development/ incorporation of a less sensitive propelling charge and all associated munitions qualification testing of the incorporated technologies. The R&D initiative of MAKE is the enterprise knowledge repository designed, evolved and updated to facilitate knowledge dominance. MAKE provides the enterprise web based access to data and information to enable the decision making process. *FY 2010 Plans:* Support R&D of Advanced Cannon Artillery (ACAAP) and Excalibur to include approved Insensitive Munitions (IM) and Weapons Systems Explosives Safety Review Board (WSESRB) testing, program support, and travel. Actively monitor U.S. Army artillery ammunition development programs in order to leverage off of and influence army developmental efforts. Beginning in FY10 funding for C2906 - Insensitive Munitions, will be incorporated into the FAM line. Two programs are included in the IM funding line, Insensitive Munitions and Marine Ammunition Knowledge Enterprise (MAKE). IM R&D					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 3098: *Fire Support System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
initiative will focus on the development of improved packaging materials/design, venting technology, development/ incorporation of a less sensitive propelling charge and all associated munitions qualification testing of the incorporated technologies. The R&D initiative of MAKE is the enterprise knowledge repository designed, evolved and updated to facilitate knowledge dominance. MAKE provides the enterprise web based access to data and information to enable the decision making process. *FY 2011 Base Plans:* Support R&D of Advanced Cannon Artillery (ACAAP) and Excalibur to include approved Insensitive Munitions (IM) and Weapons Systems Explosives Safety Review Board (WSESRB) testing, program support, and travel. Actively monitor U.S. Army artillery ammunition development programs in order to leverage off of and influence army developmental efforts. Beginning in FY10 funding for C2906 - Insensitive Munitions, will be incorporated into the FAM line. Two programs are included in the IM funding line, Insensitive Munitions and Marine Ammunition Knowledge Enterprise (MAKE). IM R&D initiative will focus on the development of improved packaging materials/design, venting technology, development/ incorporation of a less sensitive propelling charge and all associated munitions qualification testing of the incorporated technologies. The R&D initiative of MAKE is the enterprise knowledge repository designed, evolved and updated to facilitate knowledge dominance. MAKE provides the enterprise web based access to data and information to enable the decision making process.					
*Insensitive Munitions *FY 2010 Plans:* Two programs are included in the IM funding line, Insensitive Munitions and Marine Ammunition Knowledge Enterprise (MAKE). IM R&D initiative will focus on the development of improved packaging materials/design, venting technology, development/ incorporation of a less sensitive propelling charge and all associated munitions qualification testing of the incorporated technologies. The R&D initiative of MAKE is the enterprise knowledge repository designed, evolved and updated	0.000	1.056	1.170	0.000	1.170

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 3098: *Fire Support System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
to facilitate knowledge dominance. MAKE provides the enterprise web based access to data and information to enable the decision making process. *FY 2011 Base Plans:* Two programs are included in the IM funding line, Insensitive Munitions and Marine Ammunition Knowledge Enterprise (MAKE). IM R&D initiative will focus on the development of improved packaging materials/design, venting technology, development/ incorporation of a less sensitive propelling charge and all associated munitions qualification testing of the incorporated technologies. The R&D initiative of MAKE is the enterprise knowledge repository designed, evolved and updated to facilitate knowledge dominance. MAKE provides the enterprise web based access to data and information to enable the decision making process.					
Accomplishments/Planned Programs Subtotals	8.078	6.005	20.559	0.000	20.559

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/BLI 473300: *Fire Support Mod*	5.151	1.886	2.448	4.710	7.158	3.153	3.023	4.110	4.430	0.000	28.911
• PMC/4733001: *MMM*	0.000	0.686	1.458	0.000	1.458	1.939	1.449	0.481	0.480	0.000	6.493
• PMC/4733002: *CLRF*	0.000	0.000	0.000	0.000	0.000	0.000	3.816	10.085	13.320	0.000	27.221
• PMC/206400: *Expeditionary Fire Support Systems*	21.497	19.531	9.723	0.000	9.723	1.987	0.000	0.000	0.000	0.000	52.738

D. Acquisition Strategy

These programs range from off-the-shelf modifications to developmental items. Fire power enhancement used selected upgrades from Army developmental programs to create a system that more readily meets Marine Corps requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 3098: *Fire Support System*

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 3098: *Fire Support System*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EFSS	Various/ Various	GDOTS St. Petersburg, FL	19.339	0.000		3.851	May 2011	0.000		3.851	0.000	23.190	Continuing
EFSS	Various/ Various	VARIOUS Not Specified	2.711	0.169	Apr 2010	0.631	Apr 2011	0.000		0.631	0.000	3.511	Continuing
Fire Support Mods	Various/ Various	VARIOUS Not Specified	5.704	0.515	Jun 2010	1.844	Jun 2011	0.000		1.844	0.000	8.063	Continuing
CLRF	Various/ Various	VARIOUS Not Specified	0.000	0.000		3.183	Jun 2011	0.000		3.183	0.000	3.183	Continuing
MMIM	Various/ Various	VARIOUS Not Specified	0.000	1.387	Dec 2009	0.300	Jun 2011	0.000		0.300	0.000	1.687	Continuing
MMS	Various/ Various	NAVMAR San Diego, CA	2.168	0.000		0.000		0.000		0.000	0.000	2.168	Continuing
Insensitive Munitions1	Various/ Various	GDOTS Not Specified	0.000	0.650	Mar 2010	1.170	Jun 2011	0.000		1.170	0.000	1.820	Continuing
Insensitive Munitions2	Various/ Various	GDOTS Not Specified	0.000	0.406	May 2010	0.000		0.000		0.000	0.000	0.406	Continuing
		Subtotal	29.922	3.127		10.979		0.000		10.979	0.000	44.028	

Remarks

FY10 $2.7M Congressional (SAC-D) mark against BTID was incorrectly taken from the wrong PE (it was taken from PE 0206623M, Project Code C3098/EFSS vice PE 0206313M, Project Code C2273. The funds will be restored to the correct PE/Project Code but not until after submission of PB-11.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 3098: *Fire Support System*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EFSS	Various/ Various	CTQ Quantico, VA	3.563	0.000		0.000		0.000		0.000	0.000	3.563	Continuing
EFSS	WR	NSWCDD Dahlgren, VA	2.564	0.400	Mar 2010	0.600	Dec 2010	0.000		0.600	0.000	3.564	Continuing
Fam Artillery Munitions	WR	BAEST Stafford, VA	1.079	0.308	Jun 2010	0.312	Jun 2011	0.000		0.312	0.000	1.699	Continuing
Fire Support Mods	Various/ Various	VARIOUS Not Specified	4.576	0.334	Jun 2010	0.000	Jun 2011	0.000		0.000	0.000	4.910	Continuing
CLRF	Various/ Various	VARIOUS Not Specified	0.000	0.000		0.588	Jun 2011	0.000		0.588	0.000	0.588	Continuing
		Subtotal	11.782	1.042		1.500		0.000		1.500	0.000	14.324	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EFSS	WR	NSWCDD Dahlgren, VA	2.462	0.400	Mar 2010	1.000	Mar 2011	0.000		1.000	0.000	3.862	Continuing
EFSS	WR	MCPD Fallbrook, CA	3.013	0.746	Mar 2010	2.500	Mar 2011	0.000		2.500	0.000	6.259	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 3098: *Fire Support System*	

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MMS	WR	MCOTEA MCTSSA	0.110	0.000		0.000		0.000		0.000	0.000	0.110	Continuing
MMIM	WR	MCOTEA MCTSSA	0.000	0.090	Jun 2010	0.680	Jun 2011	0.000		0.680	0.000	0.770	Continuing
CLRF	Various/ Various	VARIOUS Not Specified	0.000	0.000		1.100	Jun 2011	0.000		1.100	0.000	1.100	Continuing
		Subtotal	5.585	1.236		5.280		0.000		5.280	0.000	12.101	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EFSS	Various/ Various	GDOTS St. Petersburg, FL	5.393	0.600	Mar 2010	1.800	Dec 2010	0.000		1.800	0.000	7.793	Continuing
CLRF	Various/ Various	Not Specified Not Specified	0.000	0.000		1.000	Jun 2011	0.000		1.000	0.000	1.000	Continuing
		Subtotal	5.393	0.600		2.800		0.000		2.800	0.000	8.793	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 3098: *Fire Support System*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	52.682	6.005		20.559		0.000		20.559	0.000	79.246	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 3098: *Fire Support System*

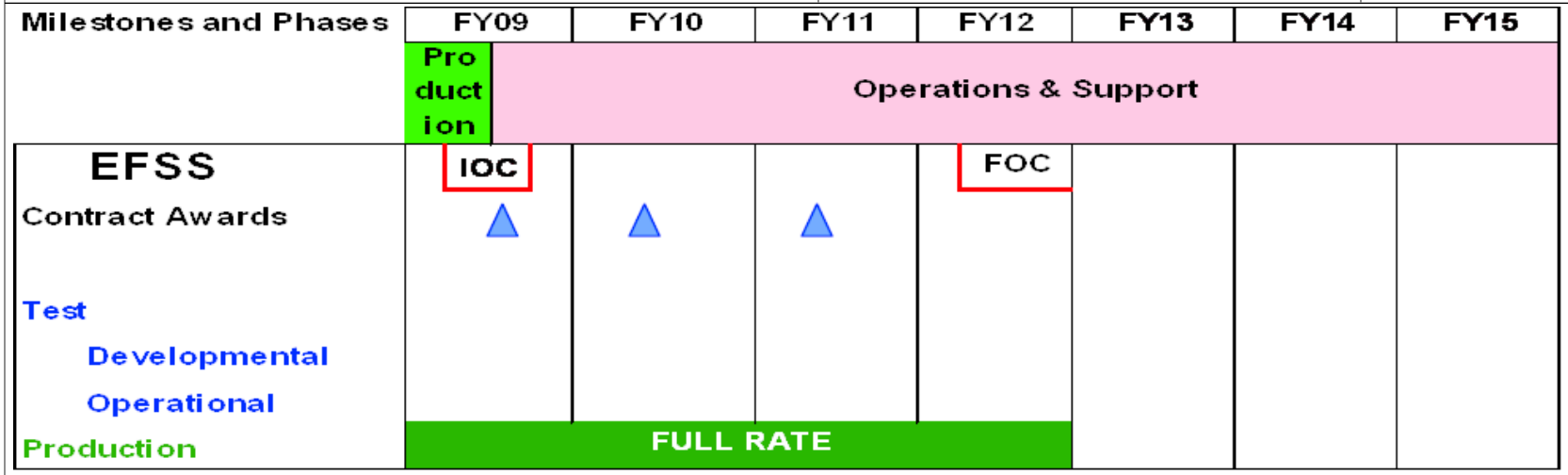

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 3098: *Fire Support System*

Modeled Meterological Information Manager

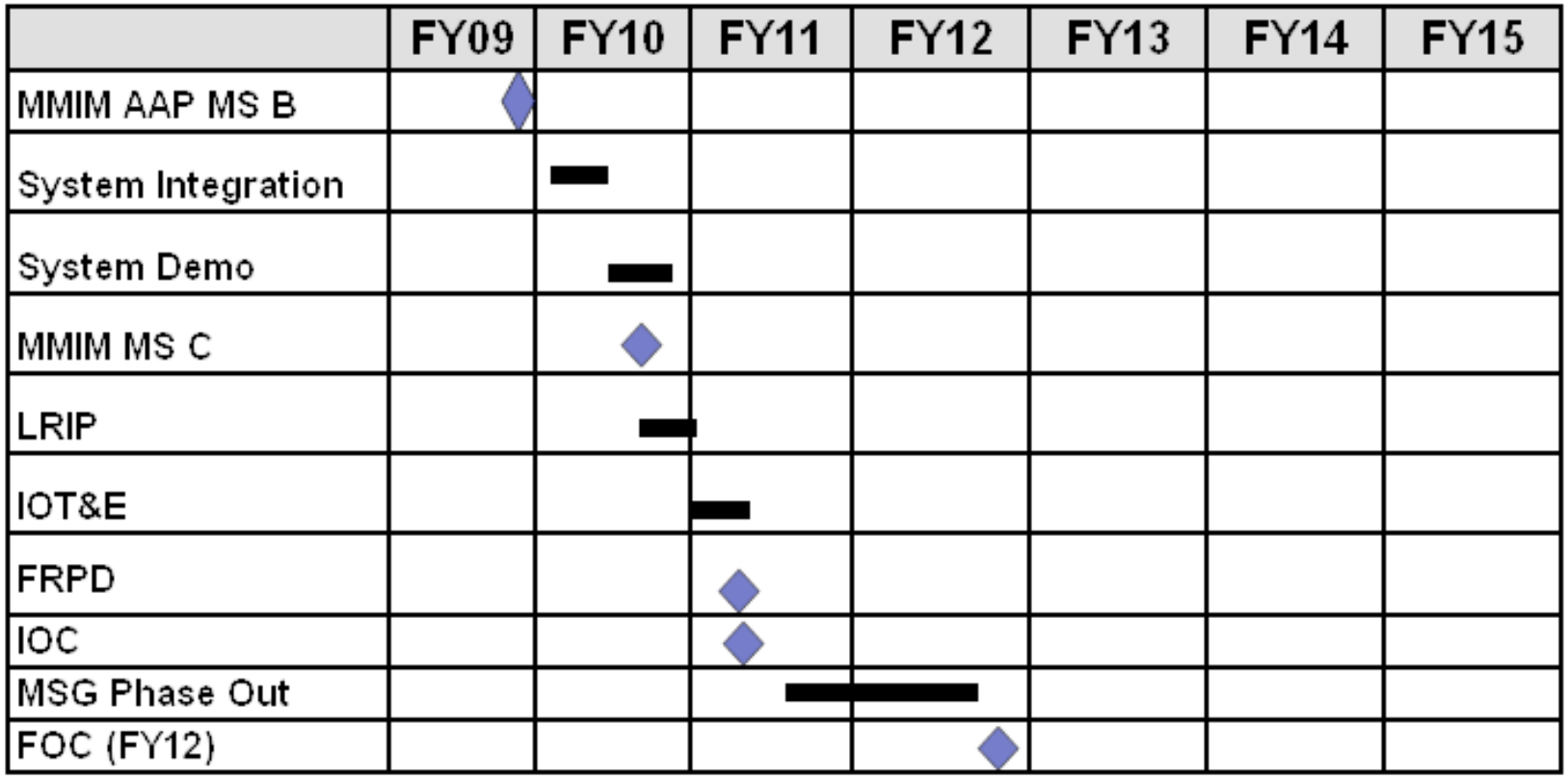

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 3098: *Fire Support System*

Common Laser Range Finder (CLRF) Refresh

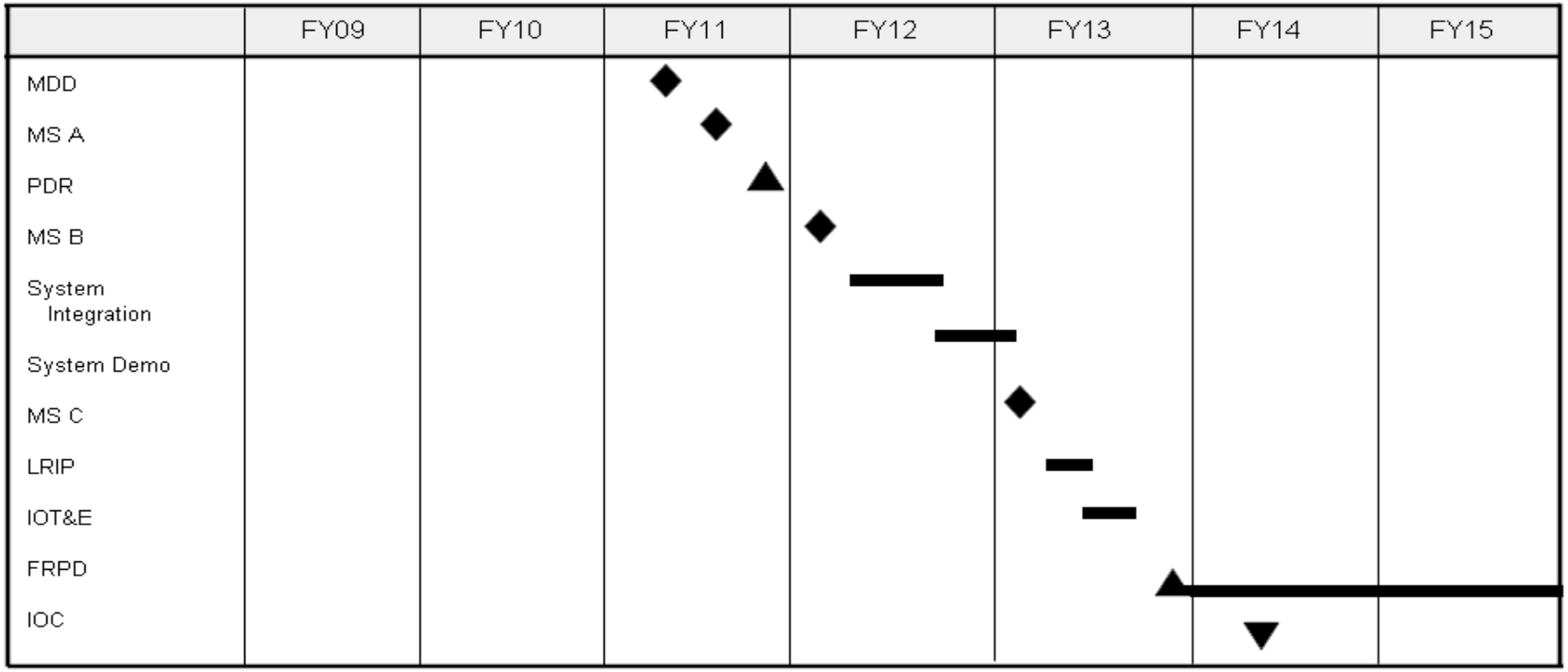

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 3098: *Fire Support System*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
EFSS Initial Operational Capability	2	2009	2	2009
EFSS Full Operation Capability	3	2012	3	2012
MMIM User Evaluations	2	2009	2	2009
MMIM AAP MS B	4	2009	4	2009
MMIM System Integration	2	2010	2	2010
MMIM System Demo	3	2010	3	2010
MMIM MS C	3	2010	3	2010
MMIM LRIP	4	2010	4	2010
MMIM IOT&E	1	2011	1	2011
MMIM FRPD	2	2011	2	2011
MMIM IOC	2	2011	2	2011
MMIM MSG Phase Out	3	2011	3	2011
MMIM FOC (FY12)	4	2012	4	2014
CLRF MDD	2	2011	2	2011
CLRF MS A	3	2011	3	2011
CLRF PDR	4	2011	4	2011
CLRF MS B	1	2012	1	2012
CLRF System Intregration	2	2012	3	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 3098: *Fire Support System*

	Start		End	
Event	Quarter	Year	Quarter	Year
CLRF System Demo	3	2012	1	2013
CLRF MS C	1	2013	1	2013
CLRF LRIP	2	2013	2	2013
CLRF IOT&P	3	2013	3	2013
CLRF FRPD	4	2013	4	2013
CLRF IOC	2	2014	2	2014

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 4002: *Family of Raid Reconnaissance*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
4002: *Family of Raid Reconnaissance*	0.896	4.027	3.391	0.000	3.391	0.809	0.425	0.435	0.444	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project supports multiple airborne/parachuting and specialized reconnaissance related programs focusing on immediate capability enhancements to numerous insertion and personnel equipment shortfalls currently existing in reconnaissance units throughout the operating forces. This includes improving airborne capability equipment and items for direct action missions that use specialized raid equipment.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*Family of Raid/Reconnaissance Equipment (FRRE)	0.896	1.071	1.135	0.000	1.135
FY 2009 Accomplishments: Efforts included: Development of evaluation/test plans for Joint Precision Airdrop System Ultra Light Weight Airdrop System (JPADS-ULW); an increment of JPADS family of steerable, extended glide aerial delivery systems to deliver critical supplies/equipment when precision and standoff required for ground threat/terrain/winds; and evaluation of improvements to Parachutist's Individual Equipment Kit (PIEK).					
FY 2010 Plans: FY10 efforts include upgrading high pressure Parachutist's High Altitude Oxygen System (PHAOS) mask and development of 3000psi bottle and improvements to Parachutist's Individual Equipment Kit (PIEK).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 4002: *Family of Raid Reconnaissance*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY11 efforts include integrating new materials into Multi-Mission Parachute System family of canopies for improved performance; evaluation of next generation Automatic Activation Device (AAD) for parachuting safety; incorporate fire resistance into clothing; develop new Tandem Offset Resupply Delivery System (TORDS) reserve canopy; integrate canopy safety release system; integrate signature reduction technologies to Full Spectrum Battle Equipment; update High Altitude High Opening Parachute Navigation System software to provide position data on other parachutists; and evaluate life cycle replacement for the Military Tandem Tethered Bundle (MTTB) System.					
*Underwater Reconnaissance Capability (URC) *FY 2010 Plans:* FY10 plans include procurement of prototypes for the Tactical Underwater Locator Beacon and support. *FY 2011 Base Plans:* FY11 plans include procurement of prototypes for pre-planned product improvement of the heads-up display for the Combatant Diver Full Face Mask (CDFFM). Other efforts include external diver warming systems; evaluation of reliability challenges presented by fielded systems; and hardening of the PVS-14 for underwater use.	0.000	2.956	2.256	0.000	2.256
Accomplishments/Planned Programs Subtotals	0.896	4.027	3.391	0.000	3.391

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/0206211M: *6518 AMPHIB SPT EQUIP*	24.745	28.787	11.718	0.000	11.718	5.545	10.923	6.344	5.248	0.000	93.310

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 4002: *Family of Raid Reconnaissance*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/70000: *7000 URC*	0.000	0.254	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.254

D. Acquisition Strategy

(U) FRRE: Acquisition strategy for Joint Precision Airdrop System (JPADS) Ultra Light Weight (ULW) includes market research survey to reveal commercially available systems with potential to meet requirements, followed by evaluation to further refine concept of operations and tailor performance specification requirements and avoid non-essential attributes. Full and open competition for production systems is planned. Base production contract with First Article Test will integrate Selective Availability Anti-Spoofing Module (SAASM) Global Positioning System (GPS) into the vendor's system, as well as optimize system for use with Marine Corps canopies. Options on contract will provide for procurement of production systems and supporting logistics elements upon successful completion of integration efforts. Planned FirmFixed-Price Independent-Deliverables Independent-Quantities (IDIQ) contract will allow other DoD elements to procure systems using the Marine Corps contract vehicle if desired. In FY10/11, acquisition strategy is to fund engineering changes and product upgrade testing and development for Parachutist's High Altitude Oxygen System (PHAOS), Automatic Activation Device (AAD), High Altitude High Opening Parachute Navigation System (HAHOPNS), and Tandem Offset Resupply Delivery System (TORDS)/Military Tandem Tethered Bundle (MTTB) system.

(U) URC: The acquisition strategy consists of market surveys to identify off-the-shelf/non-developmental item baseline competitions followed by release of desired capabilities/specifications and establishment of the trade space parameters. Project dependent, expect to down-select to best value. Follow-on testing/evaluations as required to be conducted. For the Combatant Diver Full Face Mask (CDFFM), the "head's up display" will be a development effort. A Request For Information will be issued to identify companies with a demonstrated ability to develop the display. Responding companies will be visited to evaluate capabilities, followed by issuance of Request For Proposal and evaluation of best value and demonstrated performance. For technology upgrades to existing projects during FY10/11, engineering changes and product upgrade development and testing is planned.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 4002: *Family of Raid Reconnaissance*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FRRE Hardware Development/Sys Engineering	C/FP	MARCORSYSCOM QUANTICO VA	2.573	0.301		0.000		0.000		0.000	0.000	2.874	Continuing
URC Hardware Development/Sys Engineering	C/FP	MARCORSYSCOM QUANTICO VA	0.000	0.706		0.950		0.000		0.950	0.000	1.656	Continuing
		Subtotal	2.573	1.007		0.950		0.000		0.950	0.000	4.530	

Remarks

Various award dates, unless otherwise indicated.

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FRRE Development Support	Various/ Various	VARIOUS VARIOUS	0.605	0.360	Dec 2009	0.788		0.000		0.788	0.000	1.753	Continuing
URC Development Support	Various/ Various	VARIOUS VARIOUS	0.415	1.000	Dec 2009	1.017		0.000		1.017	0.000	2.432	Continuing
		Subtotal	1.020	1.360		1.805		0.000		1.805	0.000	4.185	

Remarks

Various award dates, unless otherwise indicated.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 4002: *Family of Raid Reconnaissance*	

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FRRE Developmental/ Operational Test & Eval	Various/ Various	VARIOUS VARIOUS	1.374	0.367		0.300		0.000		0.300	0.000	2.041	Continuing
URC Developmental/ Operational Test & Eval	Various/ Various	VARIOUS VARIOUS	0.133	1.155	Dec 2009	0.250		0.000		0.250	0.000	1.538	Continuing
		Subtotal	1.507	1.522		0.550		0.000		0.550	0.000	3.579	

Remarks

Various award dates, unless otherwise indicated.

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
URC Government Engineering Support	WR	NAVSEA WASH DC	0.000	0.055	Sep 2010	0.000		0.000		0.000	0.000	0.055	Continuing
FRRE Travel	Various/ Various	MARCORSYSCOM QUANTICO VA	0.236	0.043		0.047		0.000		0.047	0.000	0.326	Continuing
URC Travel	Various/ Various	MARCORSYSCOM QUANTICO VA	0.080	0.040		0.039		0.000		0.039	0.000	0.159	Continuing
		Subtotal	0.316	0.138		0.086		0.000		0.086	0.000	0.540	

Remarks

Various award dates, unless otherwise indicated.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 4002: *Family of Raid Reconnaissance*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.416	4.027		3.391		0.000		3.391	0.000	12.834	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 4002: *Family of Raid Reconnaissance*

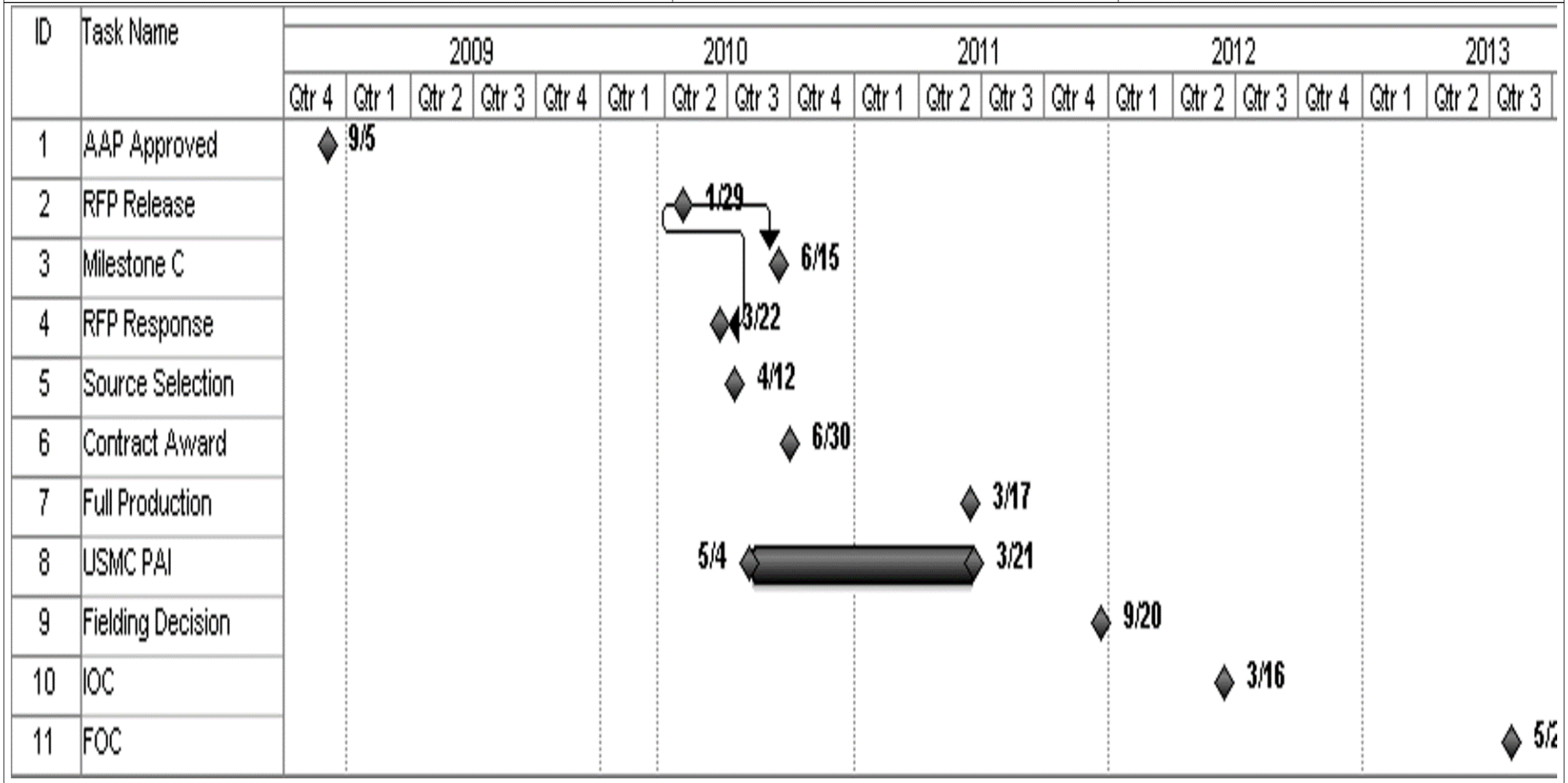

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 4002: *Family of Raid Reconnaissance*

ID	Task Name	Start	Finish
1	DARPA Deliver 2 production	Wed 3/31/10	Wed 3/31/10
2	Systems Engineering	Tue 2/23/10	Tue 11/2/10
13	MS C Preparations	Mon 1/4/10	Mon 6/6/11
34	Milestone C	Tue 6/7/11	Tue 6/7/11
36	Contracting	Wed 6/8/11	Mon 9/12/11
41	Program Reviews	Tue 10/18/11	Thu 6/28/12
46	Logistics Support	Tue 9/27/11	Fri 10/26/12
51	System Deliveries	Tue 2/28/12	Mon 12/3/12
52	Fielding Decision Preparatic	Fri 1/27/12	Thu 11/1/12
58	Fielding Decision	Thu 11/1/12	Thu 11/1/12
59	IOC	Thu 12/6/12	Thu 12/6/12
60	FOC	Wed 12/11/13	Wed 12/11/13

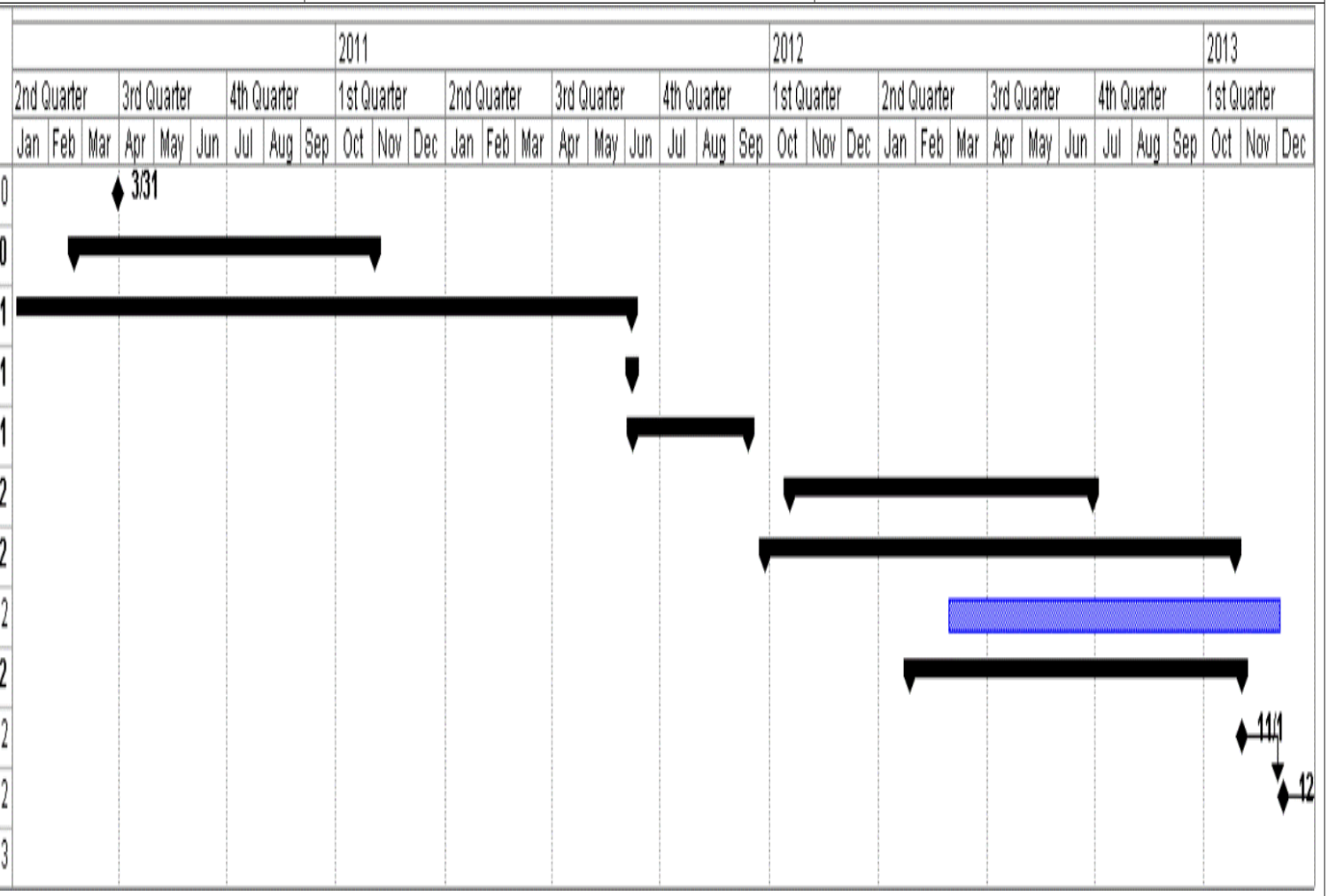

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 4002: *Family of Raid Reconnaissance*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
FRRE JPADS	1	2009	3	2013
FRRE JPADS-ULW RFP Release	2	2010	2	2010
FRRE JPADS-ULW RFP Response	2	2010	2	2010
FRRE JPADS-ULW Source Selection	3	2010	3	2010
FRRE JPADS-ULW Milestone C	3	2010	3	2010
FRRE JPADS-ULW Contract Award	3	2010	3	2010
FRRE JPADS-ULW USMC PAI	2	2010	2	2011
FRRE JPADS-ULW Full Rate Production	2	2010	2	2010
FRRE JPADS-ULW Fielding Decision	4	2011	4	2011
FRRE JPADS-ULW IOC	2	2012	2	2012
FRRE JPADS-ULW FOC	3	2013	3	2013
URC THSE	1	2009	1	2013
URC THSE-DARPA Deliver 2 Production Items	3	2010	3	2010
URC THSE-Milestone C Preparation	1	2009	3	2011
URC THSE-Systems Engineering	2	2010	1	2011
URC THSE-Milestone C	3	2011	3	2011
URC THSE-Contracting	3	2011	4	2011
URC THSE-Program Reviews	1	2012	3	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 4002: *Family of Raid Reconnaissance*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
URC THSE-Logistic Support	4	2011	1	2013
URC THSE-System Deliveries	2	2012	1	2013
URC THSE-Fielding Decision Preparation	2	2012	1	2013
URC THSE-Fielding Decision	1	2013	1	2013
URC THSE-IOC	1	2013	1	2013
URC THSE-FOC	1	2013	1	2013

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	3.989	3.824	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	58.967
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Add

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Expandable Rigid Wall Composite Shelter *FY 2010 Plans:* Expandable Rigid Wall Composite Shelter (C10C188)	0.000	0.797
Congressional Add: Remote Aiming and Sighting Optical Retrofit *FY 2010 Plans:* (C10C189) The program will execute in late FY 10 with an anticipated 12 month technology development effort to modify currently fielded analog Passive Viewing System-14 (PVS-14) optics with appropriate digital imaging, display and referencing modifications to make the PVS-14 compatible with the rest of the SFAS concept.	0.000	3.027
Congressional Add: MARCOM Computer Research	0.997	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: MARCORP Computer Research C9E22A: Design, development of a joint ruggedized modular processing computer portable maintenance (PMA) for use as a a hand-held device to enable enhanced access to total life cycle management tools and data.		
Congressional Add: Marine Corps Shotgun Modernization Program *FY 2009 Accomplishments:* Marine Corps Shotgun Modernization Program C9E23A: Spiral development effort for a M-1014 dedicated field retrofit conversion kit to transition the LRLX-7000 technology to the M-1014 combat shotgun platform.	2.992	0.000
Congressional Adds Subtotals	3.989	3.824

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 9C85: *Marine Personnel Carrier (MPC)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9C85: *Marine Personnel Carrier (MPC)*	0.000	3.121	26.811	0.000	26.811	83.016	86.422	66.796	48.139	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Marine Personnel Carrier (MPC) is part of a portfolio of capabilities that provide closure to real world operational gaps and shortfalls in the ability of the MAGTF to conduct ground based maneuver tasks. The MPC, as the medium capability category platform, provides a bridge in capability between the EFV and JLTV and a balance between the performance, protection and payload attributes. The MPC family of vehicles includes the baseline armored personnel carrier and two supporting mission role variants: a command & control variant and a recovery & maintenance variant. (MPC was previously funded under project C1555).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Marine Personnel Carrier (MPC)	0.000	3.121	26.811	0.000	26.811
FY 2010 Plans: MCP - Continue pre-Milestone A documentation and pass Milestone A gate, release technology development request for proposal.					
FY 2011 Base Plans: MCP - Source Selection Evaluation Board, Technology Development contract award and execution and Milestone B documentation preparation.					
Accomplishments/Planned Programs Subtotals	0.000	3.121	26.811	0.000	26.811

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 9C85: *Marine Personnel Carrier (MPC)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0206623M/C1555G: *Marine Personnel Carrier - MPC*	5.524	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.265

D. Acquisition Strategy

The Marine Personnel Carrier (MPC) program will utilize Full and Open competition. The MPC is a family of vehicles consisting of a personnel carrier, a command and control platform and a maintenance and recovery vehicle. After Milestone A, a source selection will be held to select up to three contractors. Each of these contractors will provide a prototype personnel carrier vehicle that will be subjected to Government evaluation. The results of this evaluation will be used to support both a Milestone B decision as well as another source selection to choose the two best competitors that will be carried through the Engineering & Manufacturing Development (EMD) phase (on the personnel carrier only). The results of the two competitors EMD efforts will be used to support a Milestone C decision as well as another source selection to choose the ultimate personnel carrier source for Low Rate Initial Production. The selected source will also be tasked to perform EMD on the command and control and maintenance and recovery vehicles.
"

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 9C85: *Marine Personnel Carrier (MPC)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Development	Various/ Various	Various Various	0.000	0.373	Mar 2010	11.662	Mar 2011	0.000		11.662	Continuing	Continuing	Continuing
		Subtotal	0.000	0.373		11.662		0.000		11.662			

Remarks

Technology Development contracts will be awarded to 3 contractors. Each contractor will build a full-up MPC prototype vehicle plus one ballistic hull to be subjected to Government testing.

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Various/ Various	TACOM Warren, MI	0.000	1.411	Dec 2009	10.539	Oct 2010	0.000		10.539	Continuing	Continuing	Continuing
		Subtotal	0.000	1.411		10.539		0.000		10.539			

Remarks

In-House PM costs for ACAT I MPC program, Source Selection Evaluation Board for the selection of 3 contractors in the technology development.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 9C85: *Marine Personnel Carrier (MPC)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Devlp/Oper. T&E	Various/ Various	TBD Various	0.000	0.000		2.638	Mar 2011	0.000		2.638	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		2.638		0.000		2.638			

Remarks

Testing of the Technology Development prototype vehicles and ballistic hulls provided by each of the three contractors.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Eng. Services	Various/ TBD	TBD Various	0.000	1.337	Mar 2010	1.972	Mar 2011	0.000		1.972	Continuing	Continuing	Continuing
		Subtotal	0.000	1.337		1.972		0.000		1.972			

Remarks

Milestone B documentation preparation.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	3.121		26.811		0.000		26.811			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 9C85: *Marine Personnel Carrier (MPC)*	

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Remarks								

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	PROJECT 9C85: *Marine Personnel Carrier (MPC)*

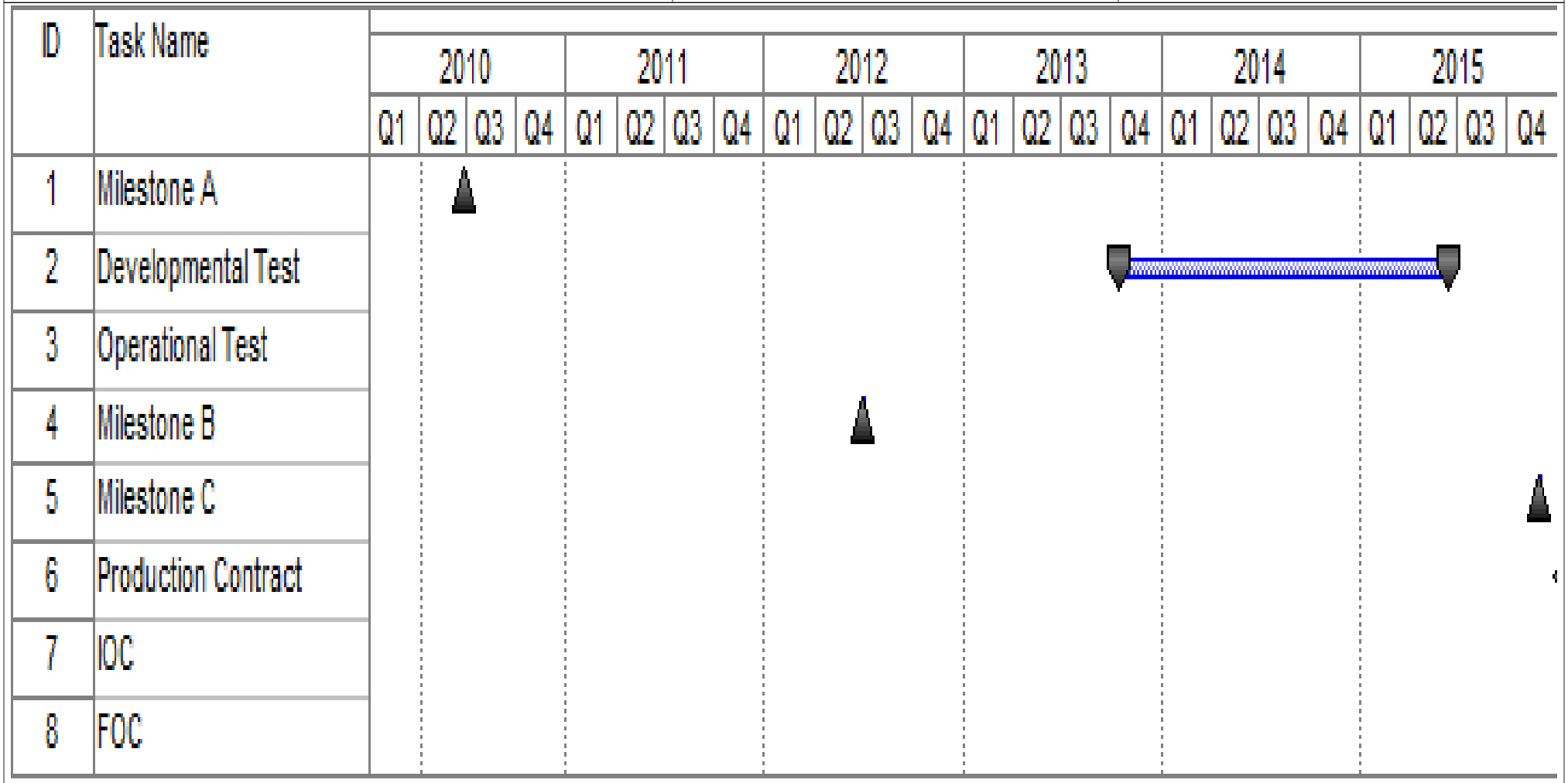

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206623M: *MC Ground Cmbt Spt Arms Sys*	**PROJECT** 9C85: *Marine Personnel Carrier (MPC)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
MS-A	2	2010	2	2010
MS-B	2	2012	2	2012
DT	4	2013	2	2015
MS-C	4	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	10.307	20.479	19.466	0.000	19.466	15.682	12.031	8.295	8.632	Continuing	Continuing
0201: *Logistical Veh Sys Replacement (LVSR)*	2.567	1.482	1.487	0.000	1.487	0.000	0.000	0.000	0.000	0.000	48.205
2316: *Combat Service Support Eng Equip*	0.535	10.263	10.135	0.000	10.135	11.636	7.691	3.891	4.057	Continuing	Continuing
2509: *Motor Transport Mod*	3.233	2.122	4.644	0.000	4.644	0.749	0.961	0.928	1.007	Continuing	Continuing
2929: *Testing Measuring Diag Equip & SE*	3.972	1.488	1.528	0.000	1.528	1.567	1.608	1.646	1.679	Continuing	Continuing
9999: *Congressional Adds*	0.000	3.505	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.251
9C90: *MTVR Mod*	0.000	1.619	1.672	0.000	1.672	1.730	1.771	1.830	1.889	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) provides funding for Marine Air-Ground Task Force requirements for Combat Service Support equipment improvement. It will enhance combat breaching capabilities of the ground combat elements, logistics, maintenance and transportation. The PE also provides improvements in all areas of Combat Service Support Equipment Vehicles by determining the replacement for the heavy, medium and light fleet vehicles. Alternative Power Sources for Communications Equipment (APSCE) is a suite of devices that provide the commander with the capability to use existing power to operate his communication equipment, computers and peripheral equipment instead of using batteries or fossil fuel generators. The Marine Corps Family of Automatic Test Systems (ATS), formerly TETS, provides automatic testing capability for use by technicians both in garrison and forward edge of Battlefield.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206624M: *Marine Corps Cmbt Services Supt*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	9.620	17.057	0.000	0.000	0.000
Current President's Budget	10.307	20.479	19.466	0.000	19.466
Total Adjustments	0.687	3.422	19.466	0.000	19.466
• Congressional General Reductions		-0.086			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.012			
• Congressional Adds		3.520			
• Congressional Directed Transfers		0.000			
• Reprogrammings	1.245	0.000			
• SBIR/STTR Transfer	-0.558	0.000			
• Program Adjustments	0.000	0.000	19.466	0.000	19.466

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *High Performance Capabilities for Military Vehicles Project*	0.000	1.115
Congressional Add: *Marine Personnel Carrier Support System*	0.000	2.390
Congressional Add Subtotals for Project: 9999	0.000	3.505
Congressional Add Totals for all Projects	0.000	3.505

Change Summary Explanation

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 0201: *Logistical Veh Sys Replacement (LVSR)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0201: *Logistical Veh Sys Replacement (LVSR)*	2.567	1.482	1.487	0.000	1.487	0.000	0.000	0.000	0.000	0.000	48.205
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Logistical Vehicle System Replacement (LVSR) program will replace the current Logistical Vehicle System (LVS) fleet. This vehicle will increase mobility, maintainability, and reliability for the heavy fleet, while increasing off-road payload. Three LVSR variants will replace the current five LVS variants. The Cargo variant will be fielded prior to the LVSR Tractor and Wrecker variants which are options on the LVSR cargo variant production contract. The Flatrack Refueling Capability (FRC) program will replace the M970 Semi-Trailer refueling in both the Force Service Support Group (FSSG) and the Marine Air Wings (MAWs) for ground refueling missions.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*LVSR: Test and Evaluation *FY 2009 Accomplishments:* LVSR Corrosion Test and Evaluation; Cargo Safety/Verification Testing;	0.683	0.000	0.000	0.000	0.000
*LVSR: Engineering/Program Management *FY 2009 Accomplishments:* Test Planning, review and analysis *FY 2010 Plans:* Test Planning, review and analysis	0.150	0.200	0.000	0.000	0.000
*LVSR: Engineering Support	1.085	0.000	1.487	0.000	1.487

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 0201: *Logistical Veh Sys Replacement (LVSR)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: LVSR Armor Fire Suppression Testing *FY 2011 Base Plans:* Development of Engineering Change Proposals (ECPs)					
*LVSR: Operational Test and Evaluation *FY 2010 Plans:* IOT&E	0.000	1.282	0.000	0.000	0.000
FRC *FY 2009 Accomplishments:* EMD Contracts	0.649	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	2.567	1.482	1.487	0.000	1.487

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC (BLI# 509300): *LVSR*	255.144	275.941	133.827	109.100	242.927	2.549	2.597	2.642	2.688	0.000	1,030.788

D. Acquisition Strategy

The Logistics Vehicle System Replacement (LVSR) program consists of two separate phases. During the first phase, the System Development and Demonstration (SD&D) phase, two contracts were awarded to procure prototypes for developmental testing. The winner of the SD&D phase was awarded a production contract to produce Low Rate Initial Production (LRIP) vehicles for operational testing. The other two LVSR variants, the Tractor and Wrecker variants have been designed, built and are being tested under the LVSR Cargo production contract.

The Flatrack Refueling Capability (FRC) program original acquisition strategy consisted of a joint procurement contract with the US Army. FY07 RDTE funds were used to procure two prototypes developed by DSR Systems, Inc. After development and initial testing the Army decided not to procure the DSR system. Our revised

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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acquisition strategy will only include US Marine Corps requirements. Further analysis has resulted in the new acquisition strategy focused to contract for Commercially available Items via a Small Business Set Aside procurement. These funds will procure one prototype for Developmental TEsting and Field Users Evaluation (FUE). After successfully testing we will procure the AO.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 0201: *Logistical Veh Sys Replacement (LVSR)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
LVSR Variant Prototypes	Reqn	MCSC Quantico, VA	16.793	0.000		0.000		0.000		0.000	0.000	16.793	Continuing
LVSR Source Selection	Reqn	MCSC Quantico, VA	0.248	0.000		0.000		0.000		0.000	0.000	0.248	Continuing
FRC Prototypes	Reqn	DSR Systems, Inc. Not Specified	3.920	0.000		0.000		0.000		0.000	0.000	3.920	Continuing
FRC Prototypes	Reqn	TBD Not Specified	0.637	0.000		0.000		0.000		0.000	0.000	0.637	Continuing
		Subtotal	21.598	0.000		0.000		0.000		0.000	0.000	21.598	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
LVSR Engineer & Tech Support	WR	NTSC Orlando, FL	0.194	0.000		0.000		0.000		0.000	0.000	0.194	Continuing
LVSR Engineer Change Support	Reqn	MCSC Quantico, VA	1.654	0.000		0.787	Dec 2010	0.000		0.787	0.000	2.441	Continuing
		Subtotal	1.848	0.000		0.787		0.000		0.787	0.000	2.635	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks													

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
LVSR Operational T&E	WR	MCOTEA Not Specified	2.770	1.282	Feb 2010	0.700	Dec 2010	0.000		0.700	0.000	4.752	Continuing
LVSR Operational T&E	WR	Fort Greely and 29 Palms Not Specified	0.100	0.000		0.000		0.000		0.000	0.000	0.100	Continuing
LVSR Operational T&E	Reqn	Oshkosh Corp Oshkosh, WI	0.330	0.000		0.000		0.000		0.000	0.000	0.330	Continuing
LVSR Development Design & Test	Reqn	Oshkosh Corp Oshkosh, WI	0.175	0.000		0.000		0.000		0.000	0.000	0.175	Continuing
LVSR Variant Test	MIPR	TACOM Warren, MI	0.110	0.000		0.000		0.000		0.000	0.000	0.110	Continuing
LVSR Corrosion Test	WR	NSWC Philadelphia, PA	0.217	0.000		0.000		0.000		0.000	0.000	0.217	Continuing
LVSR Development Test	MIPR	Aberdeen Test Center Aberdeen, MD	5.645	0.000		0.000		0.000		0.000	0.000	5.645	Continuing
LVSR Development Test	Reqn	Oshkosh Corp	1.622	0.000		0.000		0.000		0.000	0.000	1.622	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Oshkosh, WI											
LVSR Development and Test	WR	NSWC Indian Head, MD	0.024	0.000		0.000		0.000		0.000	0.000	0.024	Continuing
LVSR Live Fire	Reqn	SURVICE Not Specified	0.410	0.000		0.000		0.000		0.000	0.000	0.410	Continuing
FRC Modeling and Simulation	Reqn	NSWC Carderock, MD	0.355	0.000		0.000		0.000		0.000	0.000	0.355	Continuing
FRC Developmental T&E	Reqn	NATC Carson City, NV	0.605	0.000		0.000		0.000		0.000	0.000	0.605	Continuing
		Subtotal	12.363	1.282		0.700		0.000		0.700	0.000	14.345	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
LVSR Contractor Support	Reqn	TBD Not Specified	4.079	0.100	Feb 2010	0.000		0.000		0.000	0.000	4.179	Continuing
LVSR Program Management Support	WR	MCSC Quantico, VA	0.798	0.100	Feb 2010	0.000		0.000		0.000	0.000	0.898	Continuing
FRC Contractor Support	Reqn	Sverdrup	0.050	0.000		0.000		0.000		0.000	0.000	0.050	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Dumfries, VA											
FRC Program Management Support	WR	MCSC Quantico, VA	0.050	0.000		0.000		0.000		0.000	0.000	0.050	Continuing
		Subtotal	4.977	0.200		0.000		0.000		0.000	0.000	5.177	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	40.786	1.482		1.487		0.000		1.487	0.000	43.755	

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy										DATE: February 2010	
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COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
2316: *Combat Service Support Eng Equip*	0.535	10.263	10.135	0.000	10.135	11.636	7.691	3.891	4.057	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 includes improvements in all areas of the M1A1 main battle tank. The M1A1 tank provides armor protected firepower to the USMC ground combat element. Its advanced thermal sights provide superior target acquisition and target identification. Coupled with its 120mm cannon and suite of ammunition, it is the primary armor defeating weapon on the battlefield, that also provides lethal supporting fires to supported maneuver units. Continued funding is required to address obsolescence and support pre-planned product improvements.
Corrosion Prevention and Control Program (CPAC): Funding will also address corrosion prevention and control issues for all Marine Corps tactical ground and ground support equipment. CPAC RDT&E funding will identify corrosion prone areas of legacy systems against new process, procedure and material solutions and new technologies for implementation during system acquisition. The M1A1 Survivability/Lethality Program effort includes critical product improvements including the application of additional armor, integration of counter-sniper fire technology, and improvement to existing secondary armanment systems. These improvements directly address Marine Corps Lessons Learned, after action reports, and will ensure maximum survivability.

Route Reconnaissance and Clearance (R2C). A spiral development project enhances the capabilities of the R2C systems, a family of systems fielded in support of Operation Iraqi Freedom (OIF) via the Urgent Needs Statement (UNS) process. This research and development effort will integrate future vehicles, robots, and associated equipment to provide standoff detection, marking, and neutralization of Explosive Hazards such as mines and Improvised Explosive Devices (IEDs). Enhancements for R2C will provide capabilities not found in the current inventory to defeat explosive hazards and will protect Marines and equipment while conducting route and area clearance operations. The integration of the next generation of armored security and support vehicles, Vehicle Mounted Mine Detectors (VMMDs), specialized robots, and a new suite of detection, marking, and neutralization systems will enable maneuver commanders to make timely and informed decisions in avoiding or neutralizing explosive hazards that impede their missions. Multiple detection and marking capabilities will detect a broader spectrum of explosive hazards and achieve higher overall effectiveness rates, while standoff and remote-controlled detection, marking, and neutralization capabilities will enhance force protection and system survivability. Operational speeds and rates will increase, which will better support the maneuber force operational tempo.

The Assault Breacher Vehicle (ABV) is a tracked combat engineer vehicle that provides deliberate and in-stride breaching capability of minefields and complex obstacles to the Ground Combat Element (GCE) of the Marine Air Ground Task Force (MAGTF). The ABV combines crew protection and vehicle survivability with the speed and mobility to keep pace with the maneuver force. The ABV is assigned to and employed by the Combat Engineer Battalion (CEB) as part of a synchronized

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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operation to rapidly breach obstacles and create lanes for the MAGTF. FY2010 / FY2011 funding will be used to develop a Counter Improvised Explosive Device (CIED) capability, integrate an Insensitive Munition (IM) compliant line charge and integrate mine roller capability for the system. Standoff CIED capability from under armor will provide a significant increase in system flexibility and lethality while improving crew protection. An IM compliant line charge will permit safe loading of the charge while on the transport vessel well deck, enabling the ABV to begin performing its mission immediately upon touching the beach. Thus, the crew will not be forced to load the line charge on the shore, possibly under fire. Integration of a mine roller will increase the ABVs proofing capability, thus increasing mine clearing performance.

Corrosion Prevention and Control: The useful life of Marine Corps assets will be extended through a comprehensive CPAC RDT&E program aimed at identifying and certifying new corrosion control products, materials, processes and procedures for legacy and new acquisition.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*CSSEE: M1A1 Survivability/Lethality Program	0.000	0.473	1.967	0.000	1.967
FY 2010 Plans: The M1A1 Survivability/Lethality Program effort includes critical product improvements including the application of additional armor, integration of counter-sniper fire technology, and improvement to existing secondary armanment systems. These improvements directly address Marine Corps Lessons Learned, after action reports, and will ensure maximum survivability.					
FY 2011 Base Plans: The M1A1 Survivability/Lethality Program effort includes critical product improvements including the application of additional armor, integration of counter-sniper fire technology, and improvement to existing secondary armanment systems. These improvements directly address Marine Corps Lessons Learned, after action reports, and will ensure maximum survivability.					
*CSSEE: M1A1 Modifications	0.535	1.216	1.453	0.000	1.453
FY 2009 Accomplishments: This project includes improvements in all areas of the M1A1 main battle tank. The M1A1 tank provides armor protected firepower to the USMC ground combat element. Its advanced thermal sights					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
provide superior target acquisition and target identification. Coupled with its 120mm cannon and suite of ammunition, it is the primary armor defeating weapon on the battlefield, that also provides lethal supporting fires to supported maneuver units. Continued funding is required to address obsolescence and support pre-planned product improvements. Modification includes safety, reliability, corrosion control, and technology up-grades to meet Marine Corps requirements. *FY 2010 Plans:* This project includes improvements in all areas of the M1A1 main battle tank. The M1A1 tank provides armor protected firepower to the USMC ground combat element. Its advanced thermal sights provide superior target acquisition and target identification. Coupled with its 120mm cannon and suite of ammunition, it is the primary armor defeating weapon on the battlefield, that also provides lethal supporting fires to supported maneuver units. Continued funding is required to address obsolescence and support pre-planned product improvements. Modification includes safety, reliability, corrosion control, and technology up-grades to meet Marine Corps requirements. *FY 2011 Base Plans:* This project includes improvements in all areas of the M1A1 main battle tank. The M1A1 tank provides armor protected firepower to the USMC ground combat element. Its advanced thermal sights provide superior target acquisition and target identification. Coupled with its 120mm cannon and suite of ammunition, it is the primary armor defeating weapon on the battlefield, that also provides lethal supporting fires to supported maneuver units. Continued funding is required to address obsolescence and support pre-planned product improvements. Modification includes safety, reliability, corrosion control, and technology up-grades to meet Marine Corps requirements.					
*Route Reconnaissance and Clearance (R2C):	0.000	3.485	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: (U) Route Reconnaissance and Clearance (R2C): Support a research and development effort to integrate future R2C vehicles with enhanced mobility and survivability, a suite of improved detection and marking capabilities, and robots with greater detection, marking, and neutralization capabilities.					
*R2C: Program management and engineering support *FY 2010 Plans:* Program management and engineering support. *FY 2011 Base Plans:* Program management and engineering support.	0.000	0.978	0.987	0.000	0.987
*R2C: Conduct Developmental Testing *FY 2010 Plans:* Developmental Testing. *FY 2011 Base Plans:* Developmental Testing.	0.000	0.429	1.914	0.000	1.914
*Assault Breacher Vehicle (ABV) *FY 2010 Plans:* ABV: Three(3) identified system improvements/upgrades: Improve Counter Improvised Explosive Device (CIED) capability, integrity Insensitive Munitions (IM) compliant line charge, and integration of a vehicle width mine roller.	0.000	1.522	1.533	0.000	1.533

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: ABV: Three(3) identified system improvements/upgrades: Improve Counter Improvised Explosive Device (CIED) capability, integrity Insensitive Munitions (IM) compliant line charge, and integration of a vehicle width mine roller.					
Corrosion Prevention and Control *FY 2010 Plans:* 2010 Plans is to use Goverment labs, NSWC and NRL to sccomplish all RDT&E tasking. NSWCCD and NRL have proven expertise in corrosion control and have proven success. Labs will be test various CPC's for implementation in TM-4795-12 *FY 2011 Base Plans:* Based on the success of testing, plan will be too continue to use Goverment labs, NSWC and NRL to sccomplish all RDT&E tasking.	0.000	2.160	2.281	0.000	2.281
Accomplishments/Planned Programs Subtotals	0.535	10.263	10.135	0.000	10.135

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/6520001: *EOD Systems-R2C*	0.000	21.758	19.847	29.722	49.569	33.149	34.317	59.635	65.983	Continuing	Continuing
• PMC/6520002: *EOD Systems-ABV*	25.000	20.691	21.195	0.000	21.195	0.000	0.000	0.000	0.000	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/667000: *CPAC*	0.000	0.490	0.485	0.000	0.485	0.485	0.484	0.579	0.577	0.000	3.100

D. Acquisition Strategy

(U) The M1A1 MODIFICATION Program leverages Army developmental programs to create a system that more readily meets Marine Corps requirements. Modification includes safety, reliability, corrosion control, and technology up-grades to meet Marine Corps requirements. M1A1 Mods will exercise options on existing contracts of varying types to conduct research and analysis associated with the development of modifications and corrosion prevention to the M1A1 Tank and supporting platforms.
(U) The M1A1 Survivability/Lethality Program will utilize Army initiatives and programs (such as Belly Armor and Universal Headrest) as much as possible. However, it will also require modifications to some Army efforts (such as
the Mine Resistant Seat and Rear View Sensor System). Lastly, it involves unilateral USMC efforts to research, develop, and evaluate programs to improve the survivability and lethality of the USMC tank. These efforts include the Improved Loader's Weapon Station, Laser Rangefinder/Designator, Laser Warning System, Tank Commander's Forward Unity Periscope upgrade, and Counter Sniper Protection Systems. When possible, these programs will use existing Army contracts and internal contracting activities when required.

(U) Route Reconnaissance and Clearance (R2C): Starting in FY10, procure a fleet of standardized Route Reconnaissance and Clearance systems based upon the successful route clearance teams operating in Iraq; use Capabilities Production Documents for current systems and leverage contracts already in place. Concurrently support a research and development effort to integrate future vehicles with enhanced mobility and survivability, a suite of improved detection and marking capabilities, and robots with greater detection, marking, and neutralization capabilities.

(U) Corrosion Prevention and Control (CPAC) Program The Program will execute the RDT&E Program through direct allocation of funding to the Naval Surface Warfare Center - Carderock Division Corrosion Research and Engineering Branch for comprehensive program aimed at identifying and certifying new corrosion control products, materials, processes and procedures for legacy and new acquisition.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
M1A1 MODIFICATIONS	C/CPFF	TACOM TACOM	0.640	0.771	Jan 2010	0.892	Jan 2011	0.000		0.892	0.000	2.303	Continuing
M1A1 MODIFICATIONS	C/FFP	ABERDEEN PRV APG, MD	0.725	0.445	Dec 2009	0.561	Dec 2010	0.000		0.561	0.000	1.731	Continuing
M1A1 MODIFICATIONS	C/FFP	YUMA TEST CENTER YUMA, AZ	0.082	0.000		0.000		0.000		0.000	0.000	0.082	Continuing
M1A1 MODIFICATIONS	C/FFP	CEOSS (MCSC) MCB QUANTICO, VA	0.107	0.000		0.000		0.000		0.000	0.000	0.107	Continuing
M1A1 MODIFICATIONS	C/FFP	FORT BELVOIR FORT BELVOIR, VA	0.200	0.000		0.000		0.000		0.000	0.000	0.200	Continuing
M1A1 MODIFICATIONS	SS/FFP	BENET LABS WATERVELIET, NY	0.250	0.000		0.000		0.000		0.000	0.000	0.250	Continuing
M1A1 MODIFICATIONS	C/FFP	PICATINNY ARSENAL PICATINNY, NJ	0.414	0.000		0.000		0.000		0.000	0.000	0.414	Continuing
M1A1 SLES	C/CPFF	NCSC MCB QUANTICO, VA	0.000	0.473	Dec 2009	1.967	Dec 2010	0.000		1.967	0.000	2.440	Continuing
JAB Development	C/FFP	MCSC Quantico, VA	2.225	0.000		0.000	Dec 2010	0.000		0.000	0.000	2.225	Continuing
ABV CIED Dev and Integration	Various/ Various	Various Various	0.000	0.912	Feb 2010	1.533	Nov 2010	0.000		1.533	0.000	2.445	Continuing

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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
R2C Sys Articles & Integration	Various/ Various	Various Various	0.000	3.485	Nov 2009	0.000	Nov 2010	0.000		0.000	0.000	3.485	Continuing
		Subtotal	4.643	6.086		4.953		0.000		4.953	0.000	15.682	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Support-R2C	C/FP	EG&G Stafford, VA	0.000	0.978	Nov 2009	0.987	Dec 2010	0.000		0.987	0.000	1.965	Continuing
		Subtotal	0.000	0.978		0.987		0.000		0.987	0.000	1.965	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ABV Test Support	MIPR	Aberdeen Proving Ground Aberdeen, MD	0.000	0.610	Feb 2010	0.000		0.000		0.000	0.000	0.610	Continuing
R2 Test Support	MIPR	Aberdeen Proving Ground Aberdeen, MD	0.000	0.429	Nov 2009	1.914	Nov 2010	0.000		1.914	0.000	2.343	Continuing
CPAC	WR	Naval Surface Warfare Center - Carderock West Bethesda, MD	0.000	2.160	Feb 2010	2.281	Feb 2011	0.000		2.281	0.000	4.441	Continuing
		Subtotal	0.000	3.199		4.195		0.000		4.195	0.000	7.394	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.643	10.263		10.135		0.000		10.135	0.000	25.041	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206624M: *Marine Corps Cmbt Services Supt*	**PROJECT** 2316: *Combat Service Support Eng Equip*

Exhibit R-4/4a Schedule Profile Detail		DATE: February 2010
Appropriation/Budget Activity RDT&E /BA 7 Operational Sys	PROGRAM ELEMENT 0206624M Marine Corps Combat Services Spt	PROJECT NUMBER AND NAME C2316 Combat Services Support Engineering Equip

Fiscal Year
Quarter

Fiscal Year Quarter	08 I II III IV	09 I II III IV	10 I II III IV					
Spiral 1 Integration & DT								
Spiral 1 LRIP								
Spiral 1 LUE								
Spiral 1 IOT&E								
Spiral 1 Production & Fielding Decision								
Spiral 1 IOC/FOC								

Program Funding Summary

(APPN,BLI #, NOMEN)	FY 2009	FY 2010	FY2011	FY2011 OCO	FY2011 Total	FY2012	FY2013	FY2014	FY2015
(U) RDT&E, C2316, CSSEE	0.000	4.892	2.901	0.000	2.901	6.605	3.909	0.000	0.000
(U) PMC, BLI 6520, Route Clearance	0.000	21.758	19.847	29.722	49.569	33.149	34.317	59.635	65.983

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206624M: *Marine Corps Cmbt Services Supt*	**PROJECT** 2316: *Combat Service Support Eng Equip*

UNCLASSIFIED

Exhibit R-4/4a Schedule Profile Detail		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA 7 Operational Sys Dev	PROGRAM ELEMENT 0206624M Marine Corps Combat Services Spt	PROJECT NUMBER AND NAME C2316 Combat Services Support Engineering Equip

ASSAULT BREACHER VEHICLE

Program Funding Summary

(APPN, BLI #, NOMEN)	FY 2009	FY 2010	FY 2011
(U) PMC BLI 652000 ABV	25.000	20.691	21.195
(U) PMC SPARES BLI700049 BA-7	0.559	0.000	0.000
(U) RDT&E ABV	0.000	1.522	1.533
(U) OMMC 1A2A ABV	0.000	2.058	2.111

Assault Breacher Vehicle Schedule

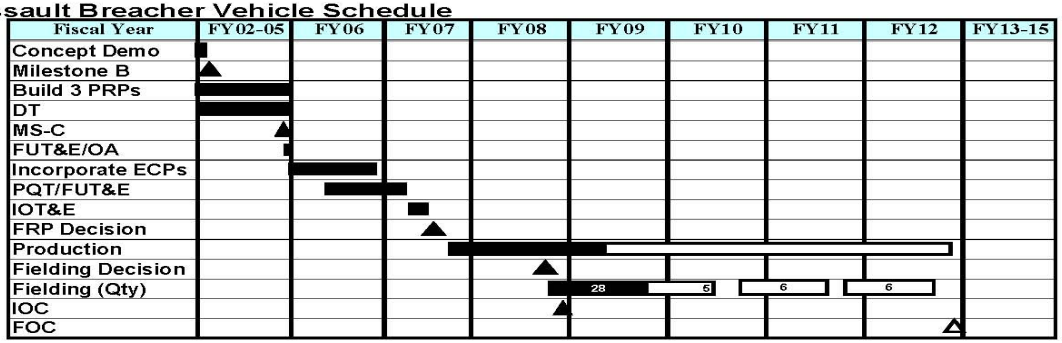

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206624M: *Marine Corps Cmbt Services Supt*	**PROJECT** 2316: *Combat Service Support Eng Equip*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Spiral 1 Integration and Developmental Test	1	2010	4	2010
ABV Production	4	2010	4	2011
ABV Upgrade	2	2010	4	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2509: *Motor Transport Mod*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2509: *Motor Transport Mod*	3.233	2.122	4.644	0.000	4.644	0.749	0.961	0.928	1.007	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Marine Corps Tactical Transportation Program manages procurement and life cycle sustainment for more than 40,000 principle end items divided among four fleets: Light Fleet, Medium Fleet, Heavy Fleet, and Special Fleet. A sustained effort is maintained in the Marine Corps for development and testing in support of fleet Service Life Extension Program (SLEP) initiatives, vehicle quality deficiency resolutions, safety initiatives, environmental/state transportation mandated vehicle changes, and system component refresh modifications efforts. Given transportation asset operational availability declines at a steady rate over time, SLEP, Fleet overhauls, and enhanced depot level modifications are essential in maintaining a viable transportation capability in the Marine Corps Operating Forces.
Improved Recovery Vehicle (IRV) project includes improvements in all areas of the M88A2 Improved Recovery Vehicle. Continued funding is required to address obsolescence and support pre-planned product improvements. Additionally, funding will provide development activity by the original equipment manufacturer (OEM) to address lessons learned and develop safety related engineering change proposals (ECPS) to correct hazards noted during the standard day to day operation of the M88A2 Improved Recovery Vehicle.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*Improved Recovery Vehicle (IRV) *FY 2010 Plans:* Continue joint participation with US Army on evaluation of prospective modifications including realibility, survivivability and safety related vehicle improvements. *FY 2011 Base Plans:* Continue joint participation with US Army on evaluation of prospective modifications including realibility, survivivability and safety related vehicle improvements.	0.000	0.515	0.451	0.000	0.451
*High Mobility Multi-Wheeled Vehicle ECV (HMMWV-ECV)	0.000	0.320	0.324	0.000	0.324

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2509: *Motor Transport Mod*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Test advanced Armoring Materials for the HMMWV. *FY 2011 Base Plans:* Test advanced Armoring Materials for the HMMWV.					
*FRC: Flatrack *FY 2010 Plans:* Development and Test *FY 2011 Base Plans:* Development and Test	0.000	0.694	3.261	0.000	3.261
*Motor Transport Modification (MTM): Program Management *FY 2009 Accomplishments:* Program management and travel in support of Transportation Systems modifications, COTS/NDI modernizations *FY 2010 Plans:* Program management and travel in support of Transportation Systems modifications, COTS/NDI modernizations *FY 2011 Base Plans:* Program management and travel in support of Transportation Systems modifications, COTS/NDI modernizations	0.101	0.101	0.102	0.000	0.102
*Motor Transport Modification (MTM): Test	3.132	0.492	0.506	0.000	0.506

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2509: *Motor Transport Mod*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Testing, integration, evaluation of Transportation Systems modifications *FY 2010 Plans:* Testing, integration, evaluation of Transportation Systems modifications *FY 2011 Base Plans:* Testing, integration, evaluation of Transportation Systems modifications					
Accomplishments/Planned Programs Subtotals	3.233	2.122	4.644	0.000	4.644

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 523000: *Motor T Mod*	4.131	2.756	2.803	0.000	2.803	2.859	2.928	3.009	3.091	0.000	124.277
• 504500: *HMMWV*	130.978	37.602	4.849	12.994	17.843	0.719	2.510	21.817	48.134	0.000	698.303
• 509300: *FRC*	7.467	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.232
• 509700: *FRC*	0.000	2.320	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.320
• 206100: *IRV*	0.000	4.191	5.313	12.000	17.313	4.164	46.047	46.870	3.848	0.000	368.833

D. Acquisition Strategy

The MTM program is a sustained program line for "level of effort" programs. Funding will focus on streamlined acquisitions of Commercial-Off-The-Shelf Non-Developmental Items (COTS/NDI) that can be identified, integrated, and tested in a short amount of time. Successful modifications and tests are intended for follow-on procurement and incorporation into existing system component upgrades, SLEPS, or rapid COTS/NDI fielding for the Fleet Marine Forces (FMF).

The HMMWV Program has procured armor in response to the threats faced in OIF and GWOT operations as needed. Since the initial procurement the HMMWV Program Office has aggressively sought out more advanced and effective armor solutions for the warfighter. This program line allows the HMMWV Program to continualy seek the most advanced materials/concepts that would allow the HMMWV Program Office to continuously respond to the evolving threats.

The Flatrack Refueling Capability (FRC) program original acquisition strategy consisted of a joint procurement contract with the US Army. FY07 RDTE funds were used to procured two protoypes developed by DSR Systems Inc. After development and initial testing the Army decided not to procure the DSR system. Our revised

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2509: *Motor Transport Mod*

acquisition strategy will only include US Marine Corps requirements. Further anaylsis has resulted in the new acquistion strategy focused to contract for Commerically available Items via a Small Business Set Aside procurement. These funds will procure one prototype for Developmental Testing and Field Users Evaluation (FUE). After successfully testing, the Marine Corps will procure the approved acquisition objective (AAO) quantity.

The Improved Recovery Vehicle (IRV) program also leverages Army developmental programs to create a system that more readily meets Marine Corps heavy recovery vehicle requirements. Improvements include safety, reliability, and technology upgrades.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2509: *Motor Transport Mod*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
IMPROVED RECOVERY VEH	C/CPFF	TACOM WARREN, MI	0.000	0.515	Feb 2010	0.451	Dec 2010	0.000		0.451	0.000	0.966	Continuing
FRC	Various/ TBD	TBD TBD	1.000	0.694	Feb 2010	0.000		0.000		0.000	3.304	4.998	Continuing
Live Fire Testing LVS MAK	MIPR	APG MD	0.128	0.000		0.000		0.000		0.000	0.000	0.128	Continuing
MT Armor Testing	Various/ TBD	APG MD	1.753	0.492	Feb 2010	0.506	Nov 2010	0.000		0.506	Continuing	Continuing	Continuing
HMMWV Test	MIPR	NATC NV	1.268	0.320	Feb 2010	0.324	Dec 2010	0.000		0.324	Continuing	Continuing	Continuing
FRC Developmental Testing	Various/ TBD	TBD TBD	0.000	0.000	Feb 2010	3.261	Dec 2010	0.000		3.261	0.000	3.261	Continuing
		Subtotal	4.149	2.021		4.542		0.000		4.542			

Remarks

FY 10 and FY 11 show MT and HMMWV Test To Be Determine (TBD) efforts and cost are determined each year in accordance with the current readiness reports.

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management and travel	WR	MCSC VA	0.101	0.101	Jan 2010	0.102	Dec 2010	0.000		0.102	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2509: *Motor Transport Mod*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.101	0.101		0.102		0.000		0.102			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.250	2.122		4.644		0.000		4.644			

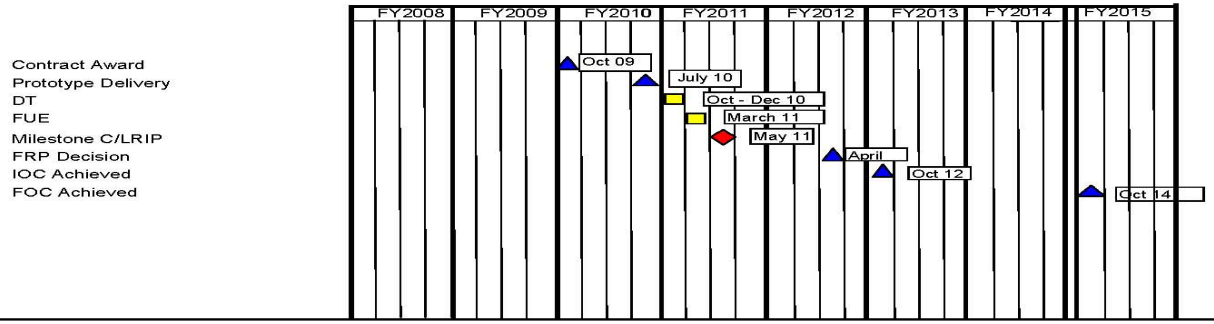
Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206624M: *Marine Corps Cmbt Services Supt*	**PROJECT** 2509: *Motor Transport Mod*

Exhibit R-4-4a Project Schedule/Detail — Date: September 2009

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N /BA 7 Operational Sys Dev	0206624M Marine Corps Combat Services Spt	C2509 Motor Transporation Modification (MTM)

Flatrack Refueling Capability



Program Funding Summary (APPN, BLI #, (Flatrack))	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
(U) RDT&E,N PE 0206624M C0201	0.649	0.000	0.000	0.000	0.000	0.000	0.000
(U) RDT&E,N PE 0206624M C2509	0.000	0.696	0.000	0.000	0.000	0.000	0.000
(U) PMC Line (BLI# 509300) FRC	7.468	0.000	0.000	0.000	0.000	0.000	0.000
(U) PMC Line (BLI# 509700) FRC	0.000	2.320	0.000	0.000	0.000	0.000	0.000

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Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206624M: *Marine Corps Cmbt Services Supt*	**PROJECT** 2509: *Motor Transport Mod*

Exhibit R-4-4a Project Schedule/Detail — Date: September 2009

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N /BA 7 Operational Sys Dev	0206624M Marine Corps Combat Services Spt	C2509 Motor Transporation Modification (MTM)

Flatrack Refueling Capability

FRC SCHEDULE DETAIL	FY 2008	FY 2009	FY 2010	FY 2011	FY2012	FY2013	FY2014	FY2015
Milestone B								
Contract Award			1Q					
Prototype Delivery			4Q					
DT				1Q				
FUE				2Q				
Milestone C/LRIP				3Q				
FRP Decision					3Q			
IOC Achieved						1Q		
FOC Achieved								1Q

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2929: *Testing Measuring Diag Equip & SE*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2929: *Testing Measuring Diag Equip & SE*	3.972	1.488	1.528	0.000	1.528	1.567	1.608	1.646	1.679	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Marine Corps Family of Automatic Test Systems (ATS) formerly called Third Echelon Test Sets (TETS), provides automatic test program capability for use by technicians both in Garrison and the forward edge of the battlefield; specifically in the areas of interactive electronic technical manuals, condition/predicitive based maintenance, and embedded sensors and prognostics.

The Marine Corps Automatic Test Equipment (MCATE) program provides development of sustainment technology for automatic test equipment used in organizational/ intermediate maintenance facilities.

The Autonomic Logistics (AL) program provides weapon system sensor data collection and processing for information conversion to provide situational awareness. FY11 efforts will focus on milestone A activities for Autonomic Logistics Services.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*Marine Corps Automated Test Equipment Overall thrust of this program is to develop advanced technology concepts for automatic test and integrate these subsystems and components into system prototypes for field experiments and/or tests in a simulated environment. The focus is on demonstrating the military utility of technologies and applying them to our ATS acquisition programs. A primary secondary thrust is to prevent obsolescence in our current automatic test systems by identifying new technologies that can be implemented immediately.	0.494	1.238	1.282	0.000	1.282

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2929: *Testing Measuring Diag Equip & SE*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Two major studies looked at EO and parallel testing. One study determined the appropriate size of a common streamlined Electro-Optical (EO) Automatic Test System (ATS) solution with an appropriate blackbody size to accurately test current and future Marine Corps optical systems. The other evaluated the specifications for a synthetic analog test instrument that could reduce test assets, decrease tester footprint, and increase test performance. A capability study was performed for our next generation ATS and defined the alternatives available for a new tester. Consolidated the test requirements for new systems such as the CROWS and our ability to test this weapon platform. Researched different testing techniques such as model based programming and damage characterization of components to improve USMC weapon system sustainability. *FY 2010 Plans:* Will perform further analysis and research on the requirements for a new full capability automatic test system as well as a downsized, specified capability EO tester. Begin initiatives planned for research of new testing techniques, laser safety and system automatic test. *FY 2011 Base Plans:* Plan future analysis and research on the requirements for a new full capability automatic test system as well as a downsized, specified capability EO tester. Continue initiatives planned for research of new testing techniques, laser safety and system automatic test.					
*Automatic Test Systems Overall thrust of this program is to develop advanced technology concepts for automatic test and integrate these subsystems and components into system prototypes for field experiments and/or tests in a simulated environment. The focus is on demonstrating the military utility of technologies and applying them to our ATS acquisition programs. A primary secondary thrust is to prevent obsolescence	1.081	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2929: *Testing Measuring Diag Equip & SE*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
in our current automatic test systems by identifying new technologies that can be implemented immediately. *FY 2009 Accomplishments:* Two major studies looked at EO and parallel testing. One study determined the appropriate size of a common streamlined Electro-Optical (EO) Automatic Test System (ATS) solution with an appropriate blackbody size to accurately test current and future Marine Corps optical systems. A study that evaluated the specifications for a synthetic analog test instrument that could reduce test assets, decrease tester footprint, and increase test performance. A capability study was completed for our next generation ATS and defined the alternatives available for a new tester. The test requirements were studied for new systems such as the CROWS and our ability to test this weapon platform. Different testing techniques were studied such as model based programming and damage characterization of components to improve USMC weapon system sustainability.					
*Autonomic Logistics *FY 2009 Accomplishments:* FY09 focused on LCCE support, a modeling & simulation effort to analyze system & communication architecture in support of EPLS, and to provide engineering, programmatic, science & technology services in support of Autonomic Logistics. *FY 2010 Plans:* FY10 plans are to focus on an economic analysis to address additional study recommendations from the Autonomic Logistics Marine Corps Analysis of Alternatives (AoA) to support milestone A activities for Autonomic Logistics Service Program (AL).	2.397	0.250	0.246	0.000	0.246

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2929: *Testing Measuring Diag Equip & SE*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY11 efforts will focus on milestone A activities in support of Autonomic Logistics Services (AL).					
Accomplishments/Planned Programs Subtotals	3.972	1.488	1.528	0.000	1.528

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/41811: *Calibration*	2.132	9.841	9.918	0.000	9.918	2.176	2.228	2.288	2.350	0.000	57.580
• PMC/41812: *TETS*	11.365	1.324	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	130.564
• PMC/41813: *Autonomic Logistics*	9.852	4.552	1.019	0.000	1.019	1.093	3.270	3.409	3.548	0.000	140.443

D. Acquisition Strategy

Automatic Test Systems (ATS) and Marine Corps Automatic Test Equipment (MCATE) program's work is being done through Marine Corps Systems Command (MCSC) contracts and in-house at Marine Corps Logistics Base (MCLB), Albany, GA, Naval Surface Warfare Center (NSWC), Corona and Seal Beach, CA.

Autonomic Logistics (AL) is Competitive through Marine Corps Systems Command Contracts. All other work is being done in house and at Government Engineering facilities.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2929: *Testing Measuring Diag Equip & SE*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Study & Hardware (MCATE) 1	C/FFP	MCSC Quantico, VA	0.000	0.240	Feb 2010	0.000		0.000		0.000	0.000	0.240	Continuing
Study & Hardware (MCATE) 2	C/FFP	MCSC Quantico, VA	0.000	0.218	Mar 2010	1.007	Dec 2010	0.000		1.007	0.000	1.225	Continuing
Study & Hardware (MCATE) 3	C/TBD	NAVAIR Lakehurst, NJ	0.000	0.189	Mar 2010	0.000		0.000		0.000	0.000	0.189	Continuing
		Subtotal	0.000	0.647		1.007		0.000		1.007	0.000	1.654	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Support (ALS)	C/FFP	MCSC Quantico, VA	3.341	0.250	Feb 2010	0.246	Feb 2011	0.000		0.246	0.000	3.837	Continuing
Program Support (MCATE)	C/FFP	MCSC Quantico, VA	0.000	0.411	Dec 2009	0.000		0.000		0.000	0.000	0.411	Continuing
Engineering Support (MCATE)	WR	MCLB Albany, GA	1.853	0.180	Nov 2009	0.275	Nov 2010	0.000		0.275	0.000	2.308	Continuing
		Subtotal	5.194	0.841		0.521		0.000		0.521	0.000	6.556	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 2929: *Testing Measuring Diag Equip & SE*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks													
ALS FY10 & FY11 funds will focus on milestone A activities for the Autonomic Logistics Service (ALS) Program.													

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.194	1.488		1.528		0.000		1.528	0.000	8.210	

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	3.505	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.251
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

High Performance Capabilities for Military Vehicles Project; Marine Personnel Carrier Support System

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: High Performance Capabilities for Military Vehicles Project *FY 2010 Plans:* (C10C190) High Performance Capabilities for Military Vehicles Project. Currently coordinating to ascertain congressional intent and direction.	0.000	1.115
Congressional Add: Marine Personnel Carrier Support System *FY 2010 Plans:* (C10C191) Marine Personnel Carrier Support System. Currently coordinating to ascertain congressional intent and direction.	0.000	2.390
Congressional Adds Subtotals	0.000	3.505

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206624M: *Marine Corps Cmbt Services Supt*	**PROJECT** 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 9C90: *MTVR Mod*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9C90: *MTVR Mod*	0.000	1.619	1.672	0.000	1.672	1.730	1.771	1.830	1.889	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The MTVR Modication program line funds numerous and very important modifications and initiatives that are required to address operational priorities, engineering change proposals, safety concerns, support equipment inefficiencies, tool malfunctions, product quality deficiencies, beneficial suggestions and other issues that affect vehicle reliability, availability, maintainability and readiness. A proactive and focused approach ensures proper vehicle sustainment and life-cycle management and it allows the program office the flexibility to develop and implement improvements as need to respond to the evolving needs of the Marine Corps

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Medium Tactical Vehicle Replacement (MTVR): ECP	0.000	0.410	0.422	0.000	0.422
FY 2010 Plans: Live Fire Testing and Evaluations *FY 2011 Base Plans:* Transportability test and ECP development					
Medium Tactical Vehicle Replacement (MTVR): Safety	0.000	0.215	0.221	0.000	0.221
FY 2010 Plans: ECP development and Testing *FY 2011 Base Plans:* ECP development and Testing					
Medium Tactical Vehicle Replacement (MTVR): Upgrade	0.000	0.409	0.428	0.000	0.428

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 9C90: *MTVR Mod*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: ECP development and Testing *FY 2011 Base Plans:* ECP development and Testing					
Medium Tactical Vehicle Replacement (MTVR): Obsolesence *FY 2010 Plans:* ECP development and Testing *FY 2011 Base Plans:* ECP development and Testing	0.000	0.370	0.380	0.000	0.380
Medium Tactical Vehicle Replacement (MTVR): Quality *FY 2010 Plans:* ECP development and Testing *FY 2011 Base Plans:* ECP development and Testing	0.000	0.215	0.221	0.000	0.221
Accomplishments/Planned Programs Subtotals	0.000	1.619	1.672	0.000	1.672

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 9C90: *MTVR Mod*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• BLI 5050: *MTVR Modifications*	0.000	2.991	5.253	0.000	5.253	6.414	6.584	6.764	6.949	0.000	34.955

D. Acquisition Strategy

The strategy for the MTVR Modification initiative is to be proactive in our approach. This will aid in the prevention of parts obsolescence, potential safety concerns, and support the needs of the Marine Corps. A proactive and focused approach ensures proper vehicle sustainment and life-cyle management and it allows the program office the flexibility to develop and implement improvements as required to respond to evolving needs. The anticipated life of the MTVR was partially based on the vehicle being at curb weight a large percentage of its life time. Due to the addition of the MTVR Armor System, various other components and the current high optempo, it is anticipated that the MTVR life expectancy will be lessened. It is important to ensure MTVR sustainment in any and all circumstances and this Modification line supports this effort.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ECPs	Various/ Various	Oshkosh Corporation, WI	0.000	0.410		0.422		0.000		0.422	0.000	0.832	Continuing
Engines/Part Obsolescence	Various/ Various	Oshkosh Corporation, WI	0.000	0.370		0.380		0.000		0.380	0.000	0.750	Continuing
Product Quality Deficiencies	Various/ Various	Oshkosh Corporation, WI	0.000	0.215		0.221		0.000		0.221	0.000	0.436	Continuing
Safety Initiatives	Various/ Various	Oshkosh Corporation WI	0.000	0.215		0.221		0.000		0.221	0.000	0.436	Continuing
		Subtotal	0.000	1.210		1.244		0.000		1.244	0.000	2.454	

Remarks

Funding vehicle for the above are RCP's which is not available in the drop down.

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Component Upgrade, Prototype Testing	Various/ Various	NATC NV	0.000	0.409		0.428		0.000		0.428	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206624M: *Marine Corps Cmbt Services Supt*	PROJECT 9C90: *MTVR Mod*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.000	0.409		0.428		0.000		0.428			

Remarks

Funding vehicle for the above is an RCP which is not available in the drop down.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.619		1.672		0.000		1.672			

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206625M: *USMC Intelligence/Electronics Warfare Sys*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	29.776	20.316	0.000	20.316	17.705	18.374	17.704	17.456	Continuing	Continuing
2272: *Intel Command and Control (C2) Sys*	0.000	29.776	20.316	0.000	20.316	17.705	18.374	17.704	17.456	Continuing	Continuing

Note

* Funds for Project C2272 were realigned to PE 0206625M in FY 2010. Prior to that, they were carried in PE 0206313M.
* Topographic Production Capability(TPC),and Tactical Exploitation Group(TEG) have merged into DCGS-MC. Funding for these efforts under PE 0206625M has been realigned to DCGS-MC PE 0305208M effective FY 2011.

A. Mission Description and Budget Item Justification

This Program Element (PE) includes funds for Intelligence Command and Control (C2) which supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that all-source tactical intelligence is tailored to meet specific mission requirements. The systems collect and convert raw intelligence data on the battlefield into processed information and deliver the processed products to the Intelligence Analysis Systems (IAS) for analysis and dissemination.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	30.167	0.000	0.000	0.000
Current President's Budget	0.000	29.776	20.316	0.000	20.316
Total Adjustments	0.000	-0.391	20.316	0.000	20.316
• Congressional General Reductions		-0.124			
• Congressional Directed Reductions		-0.267			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	20.316	0.000	20.316

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
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Change Summary Explanation

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206625M: *USMC Intelligence/Electronics Warfare Sys*	PROJECT 2272: *Intel Command and Control (C2) Sys*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2272: *Intel Command and Control (C2) Sys*	0.000	29.776	20.316	0.000	20.316	17.705	18.374	17.704	17.456	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) Intelligence Command and Control (C2) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that all-source tactical intelligence is tailored to meet specific mission requirements. The systems below collect and convert raw intelligence data on the battlefield into processed information and deliver the processed products to the Intelligence Analysis Systems (IAS) for analysis and dissemination.

Global Command and Control System Integrated Imagery and Intelligence (GCCS I3) is a joint program that is designed to enhance the operational Commander's situation awareness and track management through the use of a standard set of integrated, linked tools and services that maximize commonality and interoperability across the tactical theater, and national communities. GCCS-I3 operates in joint and service specific battlespace and is interoperable, transportable, and compliant with the DoD mandated Common Operating Environment (COE). FY 2011 RDTE funds support the development of GCCS-I3 4.x software enhancements and USMC Intelligence systems interoperability testing and certification program with the Joint Interoperability Test Command(JITC).

Distributed Common Ground System-Marine Corps (DCGS - MC) - formerly known as Distributed Common Ground/Surface-Integration (DCGS-I), is a collection of Service Systems that will contribute to joint and combined warfighter needs for ISR support, with the Global Information Grid (GIG) providing unconstrained communications circa 2012 to support the Department of Defense (DoD) Intelligence, Surevillance and Reconnassiance (ISR) Enterprise end-state. The DCGS Integrated Backbone (DIB) is the architecture that will tie the Service DCGS systems together into one Family of Systems (FOS). The DIB will provide the tools, standards, architecture, and documentation for the DCGS community to achieve a Multi-Intelligence (Multi-INT) (e.g. Imagery Intelligence (IMINT), Signals Intelligence (SIGINT), Measurement and Signature Intelligence (MASINT), Counterintelligence/Human Intelligence (CI/HUMINT)), network centric environment with the interoperability to afford individual nodes' access to the information needed to execute their respective missions to include Irregular Warfare. The Marine Corps will conduct DIB integration reseach and development to meet a congressionally mandated implementation deadline. DCGS funding has been realigned to new PE 0305208M effective FY 2011.

TROJAN SPIRIT II - is an SHF multi-band satellite communications terminal, available in either HMMWV-mounted or transit case configuration, that provides dedicated tactical communications capability at the TS/SCI and Secret Collateral levels to USMC intelligence units. TROJAN SPIRIT terminals provide connectivity into JWICSs, NSANET and SIPRNET via the TROJAN Network Control Center.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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Technical Control Analysis Center (TCAC), consisting of the AN/UYQ-83 TCAC Remote Analysis Workstation (RAWS), AN/MYQ-9 TCAC Transportable Workstation, Multi-Level Security (MLS) and One Roof system, is the focal point of Radio Battalions (RADBN) , Marine Corps Special Operations Command (MARSOC), and Fixed Wing Marine Electronic Attack Squadron (VMAQ) Signals Intelligence (SIGINT) operations. The TCAC automatically collects, stores, retrieves and plays back digital voice signals; fuses and analyzes SIGINT data from tactical, theater and national collectors and dtatbases for dissemination to tactical commanders. TCAC provides SIGINT analysis applications to deployedable MAGTF units capable of directing and managing the technical and operational functions of other RADBN SIGINT/EW assets. The TCAC provides termination of national, theater and tactical data networks for data exchange with the tactical SIGINT/EW assets, the Intelligence Analysis System (IAS), national databases, and provided USMC tactical SIGINT collection and analytical dtat into the Real-Time Regional Gateway (RTRG) and Distributed Common Ground System (DCGS).
Joint Surveillance Target Attack Radar (JSTARS) connectivity program will research and integrate a client software connectivity solution which will allow the JSTARS Moving Target Indicator (MTI), Fixed Target Indication (FTI) and Synthetic Aperture Radar (SAR) data to be passed from the JSTARS Common Ground Station (CGS) to lower echelons within the MAGTF. Additionally, the Marine Corps will continue future MTI, CDL and MTI sensor capabilities research and development.

Tactical Remote Sensor System (TRSS-PIP) - TRSS is a suite of hand emplaced and air-delivered unattended sensors, ground relays, and sensor monitoring stations, which are used by the Intelligence Battalions, Ground Sensor Platoons (GSPs). It provides the MEF/MAGTF Commander with an organic capability to conduct unattended, all-weather, semi-covert, ground surveillance of distant areas within his Area of Operations (AO). Through the use of seismic, acoustic, magnetic, infra-red, and imaging sensors, this suite provides an additional surveillance capability of personnel and/or vehicular activity, during tactical pre-assault, assault and post assault operations. TRSS covers gaps in the overall intelligence collection effort and reduces the requirement to employ Marines behind enemy lines for extended periods of time.

Team Portable Collection System - Multi-Platform Capable (TPCS-MPC) - is a semi-automated, man/team portable system providing intercept, collection, direction-finding, reporting and collection management to MAGTF commander. It provides special signals intercept, and DF capability for each system and is modular, lightweight and team transportable. The next upgrades will be the multi-platform capability and will allow the system to exploit information from more technically advanced target sets and will provide the MAGTF commander with a modular and scalable carry on/carry off suite of equipment.
Wide Field of View Persistent Surveillance (WFVPS) (formerly Angel Fire) is a capability that supports persistent Inelligence, Surveillance and Reconnaissance (ISR), Improvised Explosive Device (IED) mitigation, and actionable intelligence in urban and other operations (e.g. disaster relief, security, etc). It delivers broad area, near real time, geo-registered imagery down to the tactical level of execution. Consisting of airborne and ground components such as the Airborne payload consists of an imager sensor (currently Electro-Optical (EO), on-board processors, and an air-to-ground communication link. Ground distribution network consist of the ground receive station, servers, storage and viewer client stations. AF is hosted on manned platforms, currently the King Air A-90p pilots fly the plane while the sensors can be controlled from the ground through autonomous software. The USMC objective EFVPS system will reside on an UAS.

MAGTF Secondary Imagery Dissemination System (MSIDS) is the only ground prospective Family of Systems (FoS) that provides organic tactical digital imagery collection, transmission and receiving capability to the MAGTF Commander. MSIDS is comprised of components necessary to enable Marines to capture, manipulate,

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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annotate, transmit or receive images in Near Real Time (NRT), internally with subordinate commands that are widely separated throughout the area of operations and externally with higher adjacent commands. MSIDS capability resides with the MAGTF G/S-2 sections and Ground Reconnaissance Battalions, Light Armored Reconnaissance Battalions, Infantry Battalion Scout Sniper Platoons and Marine Special Operations Command. The MSIDS FoS extends the digital imaging capability to all echelons within the MEF, down to and including battalions and squadrons. Captured images are capable of being forwarded throughout the MAGTF through the use of Base Station Workstation/Communication Interface (BW/CI), Out Station Workstation/Communication Interface (OW/CI) or existing C4ISR architecture. Images can also be transmitted to the Tactical Exploitation Group (TEG) for more detailed processing and analysis. A recent increase of the MSIDS Video Exploitation Workstatin (VEW) requirement within Infantry Battaliions and Wing units, down to the squadron level, has grown from 18 to 140 in the past year. The VEW is utilized to import, manipulate, annotate still and video imager, create intelligence products, lift still frames from video, view multi-format TV signals and provide a field briefing capability. MSIDS FoS is currently employed in every location world-wide where the Marine Corps participates in military operations to include Irregular Warfare. MSIDS is currently, or has recently, been employed in Iraq, Kuwait, Afghanistan, Haiti, Philippines, and Horn of Africa.

Intelligence Equipment Readiness (IER) - The IER provides a responsive capability to alleviate Marine Corps intelligence systems shortfalls created by the rapidly evolving missions, threats and command relationships associated with the Overseas Contingencies Operations (OCO). The program provides for rapid technology insertion, as well as quick reaction training and logistics, to meeting the time sensitive intelligence infrastructure requirements of Marine Corps Operating Forces and the theater and service intelligence organizations supporting those forces. IER rapidly mitigates intelligence infrastructure shortfalls through exploitation of COTS, GOTS and Non-Developmental Item technology to the greatest extent practical. This effort also centralizes support for Marine Corps intelligence infrastructure items and systems that are not separately identified within the program funding lines. IER addresses requirements that span the entire Marine Corps intelligence systems architecture.

Intelligence Analysis Systems (IAS) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that tactical intelligence is tailored to meet specific mission requirements to include Irregular Warfare.

Radio Reconnaissance Equipment Program (RREP) provides the Radio Battalions, Radio Reconnaissance Platoons (RRP) and the Marine Corps Forces Special Operations Command (MARSOC) Direct Support Teams with mission unique Signals Intelligence/Ground Electronic Warfare (SIGINT/EW) Equipment suites. The latest suite of equipment, the SIGINT Suite 3 (SS-3) is comprised of technology and equipment necessary to prosecute advanced wireless signals. The RRP Marines are trained and equipped to support the full spectrum of Marine Expeditionary Unit Special Operations Capable (MEU SOC) mission profiles as well as provide real time, imbedded support to any special operations scenario. This provides the supported commander greater flexibility in employing his SIGINT assets when the use of conventional Radio Battalion assets are not feasible. RREP is currently maintaining the SS-3 using a spiral development approach that inserts the latest technology into the suite as it becomes mature. This enables the SS-3 to remain a current platform against emerging threats.

Counterintelligence (CI) and Human Intelligence (HUMINT) Equipment Program (CIHEP) provides the MAGTF with integrated, standardized, and interoperable information (automated data processing), communication, and specialized equipment to conduct the full spectrum of tactical CI/Force Protection to include Irregular

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Warfare, HUMINT, and technical collection operations in accordance with applicable national oversight directives. CIHEP provides each CI/HUMINT Company (CIHCo) with a suite of state-of-the-market equipment comprised of commercial-off-the-shelf, government-off-the-shelf, and non-developmental items (COTS/GOTS/NDI). It integrates audio, video, imagery, communications, technical surveillance and computer equipment into lightweight, modular, scalable, deployable packages. CIHEP enhances the capability to collect, receive, process, and disseminate CI/HUMINT information from overt, sensitive, technical, tactical, and Force Protection, in the service, joint, and combined forces area of operations.

Intelligence Broadcast Receiver (IBR) provides Marine tactical commanders access to National level Near Real-Time intelligence data provided over the Integrated Broadcast Service. IBR is employed across the MAGTF echelons through the following Host Systems: Intelligence Analysis System, Tactical Air Operations Center, Technical Control and Analysis Center, Tactical Air Command Center, Joint STARS Common Ground Station, Tactical Electronic Reconnaissance Processing and Evaluation System,Common Air Command and Control Systems, and Joint Stars Work Station.

Tactical Exploitation of National Capabilities (TENCAP) is a program designed to enhance the ability of tactical Marine Corps forces to exploit the capabilities of national intelligence-gathering systems. Congressionally directed, it requires close liaison with the intelligence community and involves complex and highly-sensitive activities.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*GCCS-I3: Software Engineering Support *FY 2010 Plans:* Planned software engineering support. *FY 2011 Base Plans:* Planned software engineering support.	0.000	0.866	0.856	0.000	0.856
*GCCS-I3: Program Support *FY 2010 Plans:* Planned Program Support. *FY 2011 Base Plans:* Planned Program Support.	0.000	0.597	0.587	0.000	0.587
*GCCS-I3: Acquisition Logistics Support	0.000	0.129	0.129	0.000	0.129

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Planned acquisition logistics support. *FY 2011 Base Plans:* Planned acquisition logistics support.					
*GCCS-I3: Program Testing *FY 2010 Plans:* Planned program testing. *FY 2011 Base Plans:* Planned program testing.	0.000	0.134	0.141	0.000	0.141
*DCGS-MC: Test and Evaluation Support *FY 2010 Plans:* Planned test and evaluation support.	0.000	1.450	0.000	0.000	0.000
*DCGS-MC: Integration *FY 2010 Plans:* Planned integration.	0.000	2.615	0.000	0.000	0.000
*DCGS-MC: Engineering and Technical Support *FY 2010 Plans:* Planned engineering and technical support.	0.000	1.136	0.000	0.000	0.000
*DCGS-MC: Studies and Analysis	0.000	8.978	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Planned design, development, and test support of hardware and enterprise services. Support to include studies, analysis and evaluation.					
*TROJAN SPIRIT: Engineering and Technical Support *FY 2010 Plans:* Planned engineering and technical support. *FY 2011 Base Plans:* Planned engineering and technical support.	0.000	0.414	0.412	0.000	0.412
*Technical Control and Analysis Center PIP (TCAC-PIP): Software Upgrade *FY 2010 Plans:* Planned software development,integration and testing for COE 4.X and future releases. *FY 2011 Base Plans:* Planned Software Upgrade	0.000	1.836	1.827	0.000	1.827
*Technical Control and Analysis Center PIP (TCAC-PIP): Program Management Support *FY 2010 Plans:* Planned program management support. *FY 2011 Base Plans:* Planned program management support.	0.000	0.070	0.077	0.000	0.077
*Joint Surveillance Target Attack Radar System (JSTARS): Engineering and Tech Support	0.000	0.033	0.050	0.000	0.050

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Planned engineering, technical and management support. *FY 2011 Base Plans:* Planned engineering, technical and management support.					
*Joint Surveillance Target Attack Radar System (JSTARS): MTI Integration *FY 2010 Plans:* Planned future MTI integration into ground element. *FY 2011 Base Plans:* Planned MTI integration.	0.000	0.199	0.500	0.000	0.500
*Tactical Remote Sensor System (TRSS): RSMS VER 4.2.2. *FY 2010 Plans:* Planned software development of Remote Sensor Management System(RSMS) VER 4.2.2. *FY 2011 Base Plans:* Planned software upgrade.	0.000	0.375	0.850	0.000	0.850
*Tactical Remote Sensor System (TRSS): Engineering and Tech Support *FY 2010 Plans:* Planned engineering and technical management support. *FY 2011 Base Plans:* Planned engineering and technical management support.	0.000	0.100	0.500	0.000	0.500
*Tactical Remote Sensor System (TRSS): CSR Integration	0.000	1.413	0.700	0.000	0.700

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Planned development of Imaging and Processor Board II/Common Sensor Radio (CSR) integration. *FY 2011 Base Plans:* Planned CSR integration.					
*Tactical Remote Sensor System (TRSS): Urban Sensor System(USS) *FY 2010 Plans:* Planned development of USS. *FY 2011 Base Plans:* Planned devleopment of USS.	0.000	0.681	1.947	0.000	1.947
*Tactical Remote Sensor System (TRSS): IOT&E, Increment II *FY 2010 Plans:* Planned support of initial operational test and evaluation(IOTE) and Increment II efforts. *FY 2011 Base Plans:* Planned upgrades to Increment II.	0.000	0.100	0.120	0.000	0.120
*Team Portable Colllection System (TPCS): System Development *FY 2011 Base Plans:* Planned system development of upgrades.	0.000	0.000	1.213	0.000	1.213
*Team Portable Collection System (TPCS): Training Development and Test Support *FY 2010 Plans:* Planned training development and test support.	0.000	1.415	1.307	0.000	1.307

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Planned training development and test support					
*Team Portable Collection System (TPCS): Program Support *FY 2010 Plans:* Planned program support and management. *FY 2011 Base Plans:* Planned program support and management.	0.000	0.117	1.500	0.000	1.500
*Wide Field of View Persistent Surveillance (WFVPS): Engineering and Technical Support *FY 2010 Plans:* Planned engineering and technical support. *FY 2011 Base Plans:* Planned engineering and technical support.	0.000	0.226	0.490	0.000	0.490
*MAGTF Secondary Imagery Dissemination System: Program and Tech Support *FY 2010 Plans:* Planned program management and technical support for product development of hardware and software refresh. *FY 2011 Base Plans:* Planned program and technical support.	0.000	0.049	0.050	0.000	0.050
*MAGTF Secondary Imagery Dissemination System: Engineering Support	0.000	0.218	0.220	0.000	0.220

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Planned engineering support for program engineering group. *FY 2011 Base Plans:* Planned engineering support.					
*Intelligence Equipment Readiness (IER): Program and Technical Support *FY 2010 Plans:* Planned program management and technical support. *FY 2011 Base Plans:* Planned program management and technical support.	0.000	0.200	0.197	0.000	0.197
*Intelligence Analysis System, Mod Kit: Software Support *FY 2010 Plans:* Planned software engineering and management support. *FY 2011 Base Plans:* Planned software engineering and management support.	0.000	0.866	0.965	0.000	0.965
*Intelligence Analysis System, Mod Kit: Acquisition Logistics Support *FY 2010 Plans:* Planned acquisition logistics and administrative support. *FY 2011 Base Plans:* Planned acquisition logistics Support	0.000	0.519	0.523	0.000	0.523
*Radio Recon Equipment Program: Program and Technical Support	0.000	0.804	0.821	0.000	0.821

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Planned project management and technical support for research and test of new technologies for system upgrades. *FY 2011 Base Plans:* Planned project management and technical support for research and test of new technologies for system upgrades.					
*Counterintel and Human Intel Equip (CIHEP): Engineering and Technical Support *FY 2010 Plans:* Planned engineering, integration and technical support for refresh of program hardware and software. *FY 2011 Base Plans:* Planned engineering, integration and technical support for refresh of program hardware and software.	0.000	0.039	0.040	0.000	0.040
*Counterintel and Human Intel Equip (CIHEP): Program Management Support *FY 2010 Plans:* Planned program management support. *FY 2011 Base Plans:* Planned program management support.	0.000	0.089	0.090	0.000	0.090
*Intelligence Broadcast Receiver (IBR): Engineering and Technical Support *FY 2010 Plans:* Planned engineering and technical support.	0.000	0.495	0.493	0.000	0.493

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Planned engineering and technical support.					
*Intelligence Broadcast Receiver (IBR): Contractor Support *FY 2010 Plans:* Planned contractor program support. *FY 2011 Base Plans:* Planned contractor program support.	0.000	0.138	0.147	0.000	0.147
*Tactical Exploitation of National Capabilities (TENCAP): Program Support *FY 2010 Plans:* Planned program support and management; evaluate National Intelligence data systems for MAGTF applicability. *FY 2011 Base Plans:* Planned program support and management; evaluate National Intelligence data systems for MAGTF applicability.	0.000	3.320	3.372	0.000	3.372
*Tactical Exploitation of National Capabilities (TENCAP): Technical Assessments *FY 2010 Plans:* Planned technical assessments of emerging National data dissemination capabilities. *FY 2011 Base Plans:* Planned technical assessments of emerging National data dissemination capabilities.	0.000	0.155	0.192	0.000	0.192
Accomplishments/Planned Programs Subtotals	0.000	29.776	20.316	0.000	20.316

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC 47471: *DCGS*	0.115	2.535	0.000	21.789	21.789	0.000	0.000	0.000	0.000	0.000	24.439
• PMC 47472: *TROJAN SPIRIT*	8.478	0.107	0.107	11.800	11.907	0.111	0.113	0.116	0.118	Continuing	Continuing
• PMC 47473: *TCAC*	4.007	1.431	12.525	3.212	15.737	7.894	3.038	11.574	6.730	Continuing	Continuing
• PMC 47474: *JSTARS*	2.381	6.338	4.843	0.000	4.843	0.524	4.771	4.385	2.005	Continuing	Continuing
• PMC 47475: *TRSS*	12.307	5.403	5.221	5.028	10.249	5.016	5.674	8.905	9.667	Continuing	Continuing
• PMC 47476: *TPCS*	9.294	0.858	22.792	26.516	49.308	19.279	3.941	4.238	22.339	Continuing	Continuing
• PMC 47477: *WFVPS*	0.000	0.000	4.652	0.000	4.652	3.521	3.571	0.474	0.473	Continuing	Continuing
• PMC 47478: *MSIDS*	5.340	8.492	4.187	12.378	16.565	2.032	1.802	4.245	2.060	Continuing	Continuing
• PMC 47479: *IER*	5.510	11.019	5.434	0.000	5.434	5.272	5.630	5.804	5.967	Continuing	Continuing
• PMC 474710: *IAS*	1.059	4.534	14.352	5.780	20.132	2.210	14.185	13.650	3.583	Continuing	Continuing
• PMC 474711: *RREP*	7.245	1.081	5.982	6.984	12.966	1.348	1.378	1.420	1.468	Continuing	Continuing
• PMC 474712: *CIHEP*	5.091	6.455	9.956	0.000	9.956	7.378	5.418	9.091	7.733	Continuing	Continuing
• PMC 474713: *IBR*	3.148	6.806	1.051	3.199	4.250	0.392	0.437	0.450	0.415	Continuing	Continuing
• PMC/4767: *DCGS*	0.000	0.000	4.582	0.000	4.582	4.488	6.149	2.192	2.114	Continuing	Continuing
• RDTEMC/0305208M: *DCGS*	0.000	0.000	8.377	0.000	8.377	5.533	5.497	5.553	3.731	Continuing	Continuing

D. Acquisition Strategy

(U) ACQUISITION STRATEGY GCCS-I3: This program promotes and ensures interoperability among USMC Intelligence Systems. Engineering and technical support is provided to PM Intel systems integration efforts for incorporation of the COE and GCCS-I3 software baseline. An Intelligence Integration Facility has been established at the Integrated Team Solution Facility. As such, this facility will be used as the hub for the entire integration effort of the GCCS-I3 initiative.

(U) ACQUISITION STRATEGY DCGS-MC: The Marine Corps DCGS-MC project officer will leverage the USAF DCGS 10.2 Research, Development Test and Evaluation (RDT&E) effort and focus on the development of the DCGS Integrated Backbone (DIB) for the DCGS-MC. Additionally, the DCGS-MC will leverage MAGTF Legacy system DIB compliancy efforts.

(U) ACQUISITION STRATEGY TROJAN SPIRIT: Procure and continuously improve USMC TROJAN SPIRIT systems to meet evolving Marine Corps operational needs while maintaining interoperability with the Army TROJAN Network and maintaining, as closely as practical, configuration common to the Army TROJAN SPIRIT systems.

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(U) ACQUISITION STRATEGY TCAC: The acquisition of components for the TCAC will maximize the use of existing equipment, NDI/COTS/GFE equipment/ software. The integration effort for TCAC hardware components will be accomplished under the control of the SSA, MCSC. Software integration and support will be accomplished by contractors under the control of the Project Officer. These activities report to and are directed by the Program Manager, Intelligence Systems, Marine Corps Systems Command (MARCORSYSCOM). Maintenance support will be managed by MARCORLOGBASES Albany and MCSC, Albany and through separate contractual agreements.

(U) ACQUISITION STRATEGY JSTARS: JSTARS will utilize ongoing Army JSTARS contracts for continue development of MTI and MTI Sensor capabilities as well as upgrades to the JSTARS Common Software baseline. IPv6 research is being conducted in conjunction with the Army. Post Deployment Software Support (PDSS) will be provided through the Communications-Electronics Command (CECOM), Ft Monmouth, NJ. Surveillance Control Data Link (SCDL) refresh efforts will conducted in conjunction with the Army JSTARS Program Office. Development of a Moving Target Indicator capability for integration into the Distributed Common Ground System-Marine Corps will continue through MTCSC and a Northrup Grumman sub-contract, via SPAWAR, Charleston SC.
(U) ACQUISITION STRATEGY TRSS: The TRSS are typically Non-Developmental Item (NDI) integration efforts, making maximum use of the efforts of hardware and software initially developed by other DoD organizations and programs. The initial phases of each Increments are cost-plus fixed-fee efforts, while the production phase, which encompasses the production, fielding, training and initial support of the systems, are firm-fixed price efforts.

(U) ACQUISITION STRATEGY TPCS: TPCS, the ever-increasing sophistication of target threats and information technology necessitates an evolutionary acquisition approach. TPCS will make incremental improvements through maximum use of COTS, GOTS and NDI. These technology insertions and product improvements will ensure the Radio Battalions maintain cutting edge technologies and collection capabilities.

(U) ACQUISITION STRATEGY TPC: The TPC will refresh and upgrade the existing TPC equipment as technology advances. As new technology emerges, the current fielded systems will need incremental hardware and software refreshes to sustain operational requirements and to meet the ORD requirement of compliancdee with the NGA US Imagery and Geospatial Information System. The TPC program uses existing Government contracts for hardware/software developmet and integration. Full-time contractor support is provided through the Commercial Enterprise Omnibus Support Services (CEOss) contract. Additionall full time engineering and integration support is provided by Northrop Grumman Information Technology TASC through the Information Technology Omnibus Procurement II (ITOP II) contract under the auspices of the MCSC Information Technology Modernization 2000 (ITM2K) Project Office. Maintenance support will be managed by MARCORLOGBASES Albany and MCSC, Albany and through separate contractual agreements.

(U) ACQUISITION STRATEGY TEG: The TEG Program Office leverages the advantages of its multi-service common software baseline and inherent Joint service interoperability. Development, integration, interoperability, security certification and accreditation and acquisition is divided between three prime contractors: Northrop Grumman Electronic Systems, Baltimore, MD (NGB) (through a classified contract); Space and Naval Warfare Systems Center, Charleston, SC (SSCC), and MTC Services Corporation. An incremental refresh is currently ongoing for the TEG Main.

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(U) ACQUISITION STRATEGY WFVPS: MCCDC maintains sponsorship of the Angel Fire UUNS. Marine Corps funds Air Force Research Lab to support the United States Air Force (USAF) in the development of subsequent sensor spirals as a technology demonstration supporting Marines operating in the CENTCOM AOR. In keeping with the Program Decision Memorandum (PDM) of November 2007. Development, integration, interoperability and testing are divided between AFRL, Los Alamos National Laboratory (LANL) and the NRL.

(U) ACQUISITION STRATEGY MSIDS: Full Operational Capability (FOC) in 2QTR FY03. Subsequent "increment refreshes" are under way in order to keep the systems from becoming unreliable and unsupportable. The increment refresh approach will effectively leverage technological advances. Each increment of upgrades will refresh 1/3 of the fielded components.

(U) ACQUISITION STRATEGY IER: This program seeks to support a wide range of technology solutions based on the requests received from the Operating Forces and/or PM Intelligence Program of Record. The request must require solution evaluation beyond merely acquisition to be recommended as an Intelligence Systems Readiness (ISR) candidate. Each request will be validated by the ISR team and approved by the Project Officer and PM Intel before solution evaluation begins. The ISR program will use COTS/GOTS/NDI solutions to the greatest extent possible.

(U) ACQUISITION STRATEGY IAS: The IAS program uses existing Government contracts for hardware and software development and integration. The system is comprised primarily of Commercial Off-the-Shelf (COTS) and Government Off-The-Shelf (GOTS) equipment. The IAS FoS utilizes an evolutionary strategy to ensure periodic incorporation of state-of-the-art technology that meets both current and future Marine Corps intelligence requirements while maintaining system readiness and reliability.

(U) ACQUISITION STRATEGY RREP: Research, test and integrate new technology will keep pace with the evolving Marine Corps operational needs. Acquisition will maximize the use of NDI/COTS hardware and software to ensure the supporting units maintain cutting edge technology and collection capabilities.

(U) ACQUISITION STRATEGY CIHEP: CIHEP will use the Integrated Team Solutions Facility for hardware and software upgrades as necessary. CIHEP will coordinate acquisition of communications equipment with the Program Manager Communications section for planned upgrades to the Communications Module. SPAWAR, Charleston will be utilized for the technology dictates.

(U) ACQUISITION STRATEGY IBR: In house contracts will be used to conduct engineering studies and test and evaluation activities associated with the Marine Corps implementation of the Integrated Broadcast Service, Common Message Format, ENTR integration and test and evaluation.

(U) ACQUISITION STRATEGY TENCAP: Work will be led in-house. Necessary contractor support will be acquired using already existing contracts.

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E. Performance Metrics

N/A

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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TENCAP	Various/FP	L3 COMM STAFFORD, VA	25.055	3.475	Dec 2009	3.564	Dec 2010	0.000		3.564	0.000	32.094	Continuing
TPCS	C/CPFF	SPAWAR CHARLESTON, SC	5.793	0.350	Dec 2009	2.820	Dec 2010	0.000		2.820	0.000	8.963	Continuing
TRSS	Various/FP	VARIOUS Not Specified	2.668	2.094	Jan 2010	2.647	Nov 2010	0.000		2.647	0.000	7.409	Continuing
JSTARS	Various/FP	SPAWAR CHARLESTON, SC	0.000	0.110	Dec 2009	0.000		0.000		0.000	0.000	0.110	Continuing
TROJAN SPIRIT	MIPR	CECOM FT. MONMOUTH, NJ	0.000	0.414	Dec 2009	0.412	Dec 2010	0.000		0.412	0.000	0.826	Continuing
DCGS	Various/FP	VARIOUS Not Specified	8.101	3.715	Nov 2009	0.000		0.000		0.000	0.000	11.816	Continuing
		Subtotal	41.617	10.158		9.443		0.000		9.443	0.000	61.218	

Remarks

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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GCCS-I3	Various/ Various	VAR VAR	5.325	1.617	Feb 2010	1.609	Feb 2011	0.000		1.609	0.000	8.551	Continuing
TRSS-PIP	Various/ Various	VAR VAR	11.071	0.475	May 2010	1.350	May 2011	0.000		1.350	0.000	12.896	Continuing
DCGS	Various/ Various	VAR VAR	0.000	9.014	May 2010	0.000		0.000		0.000	0.000	9.014	Continuing
MSIDS	Various/ Various	VAR VAR	0.000	0.267	May 2010	0.270	May 2011	0.000		0.270	0.000	0.537	Continuing
TPCS	Various/ CPFF	NSMA STAFFORD, VA	7.916	0.000		0.000		0.000		0.000	0.000	7.916	Continuing
CIHEP	Various/ Various	VAR VAR	0.125	0.128	May 2010	0.130	May 2011	0.000		0.130	0.000	0.383	Continuing
IAS	Various/ Various	VAR VAR	3.818	1.385	Jan 2010	1.488	Jan 2011	0.000		1.488	0.000	6.691	Continuing
TCAC	Various/ Various	VAR VAR	3.418	1.856	Dec 2009	1.847	Dec 2010	0.000		1.847	0.000	7.121	Continuing
IBR	Various/ CPFF	NSMA STAFFORD, VA	0.286	0.633	May 2010	0.640	May 2011	0.000		0.640	0.000	1.559	Continuing
IER	WR	SPAWAR, CHARLESTON CHARLESTON, SC	1.536	0.200	Jan 2010	0.197	Jan 2011	0.000		0.197	0.000	1.933	Continuing
JSTARS	Various/ CPFF	NSMA STAFFORD, VA	0.000	0.122	Dec 2009	0.550	Nov 2010	0.000		0.550	0.000	0.672	Continuing
RREP	Various/ CPFF	NSWC CRANE, IN	0.000	0.467	Dec 2009	0.275	Feb 2011	0.000		0.275	0.000	0.742	Continuing

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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
RREP	Various/ CPFF	NSMA STAFFORD, VA	0.000	0.267	Dec 2009	0.476	Dec 2010	0.000		0.476	0.000	0.743	Continuing
RREP	Various/ FFP	MCSC QUANTICO, VA	0.000	0.070	Dec 2009	0.070	Dec 2010	0.000		0.070	0.000	0.140	Continuing
WFVPS	Various/ CPFF	VAR VAR	0.000	0.226	May 2010	0.490	May 2011	0.000		0.490	0.000	0.716	Continuing
		Subtotal	33.495	16.727		9.392		0.000		9.392	0.000	59.614	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TRSS-PIP	Various/ Various	MCOTEA QUANTICO, VA	0.452	0.100	Jan 2010	0.120	Jan 2011	0.000		0.120	0.000	0.672	Continuing
DCGS	Various/ Various	MCOTEA QUANTICO, VA	0.000	1.450	Dec 2009	0.000		0.000		0.000	0.000	1.450	Continuing
TCAC	Various/ Various	MCOTEA QUANTICO, VA	0.060	0.050	Dec 2009	0.057	Dec 2010	0.000		0.057	0.000	0.167	Continuing
GCCS-I3	MIPR	JITC FT HUACHUCA, AZ	0.199	0.109	Mar 2010	0.104	Mar 2011	0.000		0.104	0.000	0.412	Continuing

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Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TPCS	Various/ Various	MCOTEA QUANTICO, VA	1.137	0.500	Dec 2009	0.000		0.000		0.000	0.000	1.637	Continuing
		Subtotal	1.848	2.209		0.281		0.000		0.281	0.000	4.338	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DCGS	Various/ Various	VAR VAR	2.280	0.000		0.000		0.000		0.000	0.000	2.280	Continuing
TPCS	MIPR	IEWTD VAR	0.000	0.532	Dec 2009	0.000		0.000		0.000	0.000	0.532	Continuing
TPCS	WR	SPAWAR CHARLESTON, SC	0.000	0.150	Dec 2009	1.200	Dec 2010	0.000		1.200	0.000	1.350	Continuing
TCAC	WR	Naval Air Warfare Center Pax River, MD	0.506	0.000		0.000		0.000		0.000	0.000	0.506	Continuing
		Subtotal	2.786	0.682		1.200		0.000		1.200	0.000	4.668	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206625M: *USMC Intelligence/Electronics Warfare Sys*	PROJECT 2272: *Intel Command and Control (C2) Sys*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	79.746	29.776		20.316		0.000		20.316	0.000	129.838	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206625M: *USMC Intelligence/Electronics Warfare Sys*	PROJECT 2272: *Intel Command and Control (C2) Sys*

GCCS

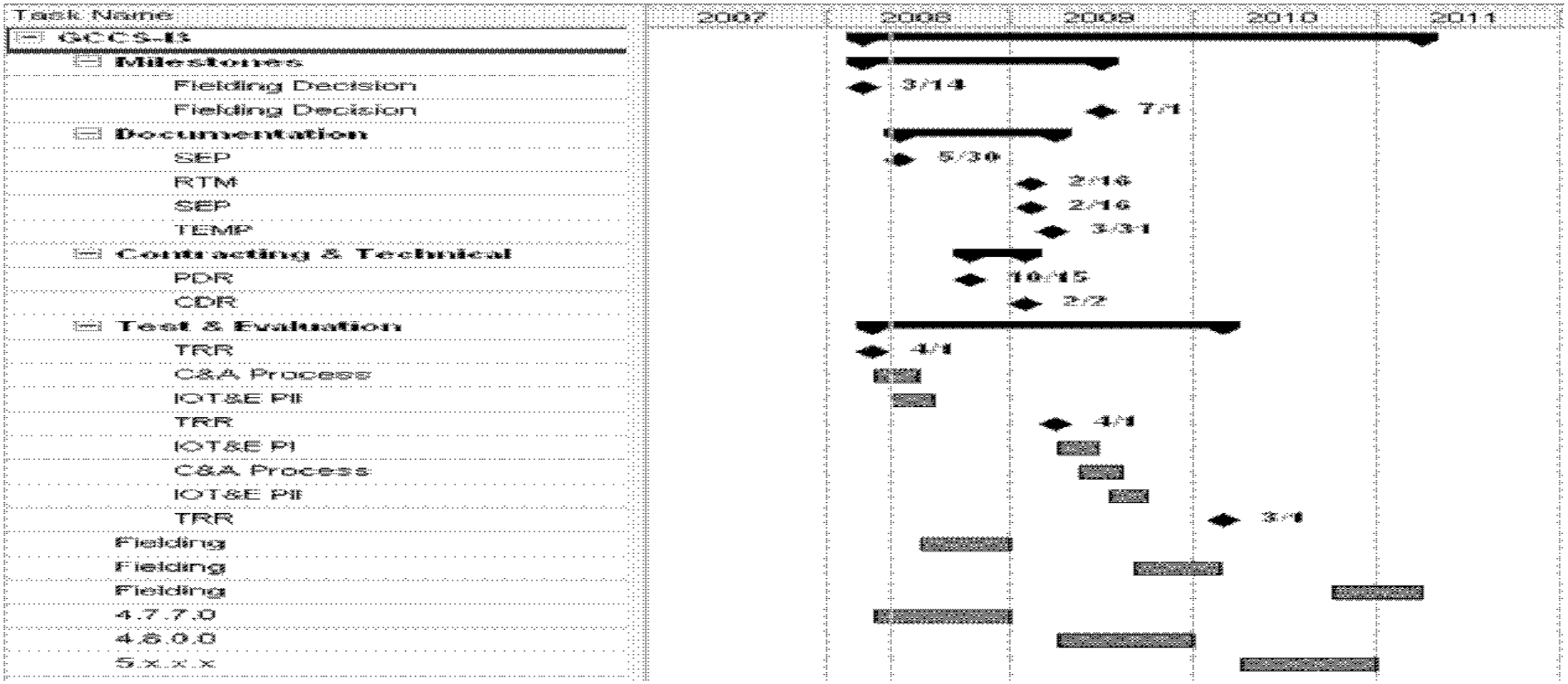


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206625M: *USMC Intelligence/Electronics Warfare Sys*	**PROJECT** 2272: *Intel Command and Control (C2) Sys*

TCAC

Task Name	Duration	Start	Finish
TCAC	**2154 days?**	**Mon 10/1/07**	**Thu 12/31/15**
TCAC 4.1 TS/SCI	**284 days?**	**Mon 12/1/08**	**Thu 12/31/09**
TCAC 4.2 TS/SCI	**871 days?**	**Mon 10/1/07**	**Mon 1/31/11**
Procurement	174 days?	Thu 1/1/09	Tue 9/1/09
Software	**595 days?**	**Mon 10/1/07**	**Fri 1/8/10**
SW Integration	**97 days?**	**Mon 7/20/09**	**Tue 12/1/09**
Fielding Decision	6 days?	Mon 11/23/09	Mon 11/30/09
SW Fielding	20 days?	Mon 1/4/10	Fri 1/29/10
FOC	1 day?	Fri 2/5/10	Fri 2/5/10
HW Fielding	67 days?	Mon 11/2/09	Tue 2/2/10
PDSS	305 days?	Tue 12/1/09	Mon 1/31/11
Quarterly SW Updates/Technology	220 days?	Mon 3/1/10	Fri 12/31/10
TCAC 5.0	**521 days?**	**Fri 1/1/10**	**Fri 12/30/11**
Research, Analysis, Engineering	174 days?	Fri 1/1/10	Wed 9/1/10
Procurement & Integration	174 days?	Fri 1/1/10	Wed 9/1/10
Fielding Decision	1 day?	Mon 8/2/10	Mon 8/2/10
Fielding	66 days?	Fri 10/1/10	Fri 12/31/10
FOC	1 day?	Mon 1/3/11	Mon 1/3/11
PDSS	326 days?	Fri 10/1/10	Fri 12/30/11
Quarterly SW Updates/Technology	261 days?	Fri 10/1/10	Fri 9/30/11
TCAC 5.X	**831 days?**	**Tue 10/26/10**	**Tue 12/31/13**
Research, Analysis, Engineering	265 days	Tue 10/26/10	Mon 10/31/11
Fielding	88 days?	Fri 9/30/11	Tue 1/31/12
PDSS	588 days?	Fri 9/30/11	Tue 12/31/13
TCAC 6.0	**760 days?**	**Fri 2/1/13**	**Thu 12/31/15**
Research, Analysis, Engineering	239 days?	Fri 2/1/13	Wed 1/1/14
Fielding	64 days?	Fri 1/31/14	Wed 4/30/14
PDSS	436 days?	Thu 5/1/14	Thu 12/31/15

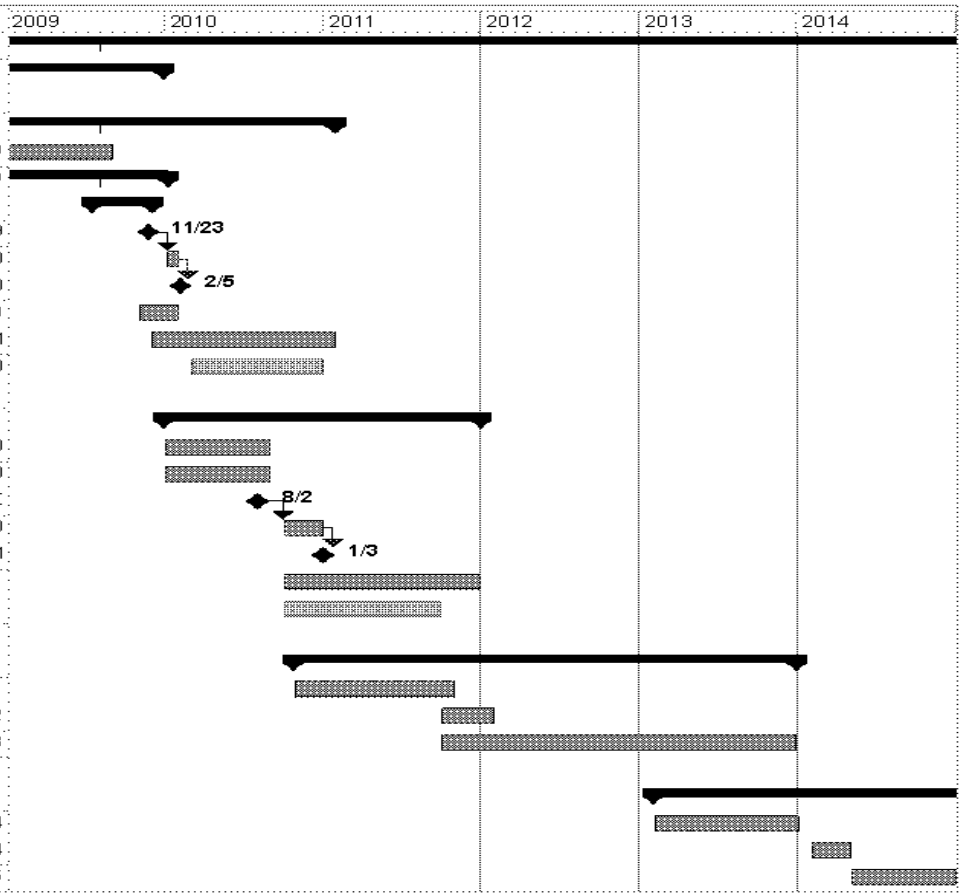


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206625M: *USMC Intelligence/Electronics Warfare Sys*	**PROJECT** 2272: *Intel Command and Control (C2) Sys*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
GCCS DOCUMENTATION	2	2009	2	2009
GCCS SEP UPDATE	2	2009	2	2009
GCCS TEMP REVIEW	2	2009	2	2009
GCCS CDR	2	2009	2	2009
GCCS TRR	3	2009	3	2009
GCCS C&A	3	2009	4	2009
GCCS IOT& E PII	3	2009	4	2009
GCCS SEP	2	2010	2	2010
TCAC 4.2 RESEARCH, ANLYSIS AND ENG	1	2009	3	2009
TCAC 4.2 FIELDING DECISION	1	2009	3	2009
TCAC 4.2 SW FIELDING	3	2009	4	2009
TCAC 4.2 FOC	3	2009	4	2009
TCAC 4.2 HW FIELDING	1	2010	2	2010
TCAC 4.2 PDSS	3	2009	4	2010
TCAC 4.2 QTRLY S/W UPDATES/TECHNOLOGY	2	2010	1	2011
TCAC 5.0 RESEARCH, ANLYSIS AND ENG	2	2010	4	2010
TCAC 5.0 PRO/INTEGRATION	2	2010	4	2010
TCAC 5.0 FIELDING DECISION	3	2010	4	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0206625M: *USMC Intelligence/Electronics Warfare Sys*	PROJECT 2272: *Intel Command and Control (C2) Sys*

	Start		End	
Event	Quarter	Year	Quarter	Year
TCAC 5.0 FOC	4	2010	4	2011
TCAC 5.0 PDSS	1	2011	1	2011
TCAC 5.0 QTRLY S/W UPDATES/TECHNOLOGY	1	2011	4	2011
TCAC 5.X RESEARCH, ANLYSIS AND ENG	1	2011	1	2012
TCAC 5.X FIELDING	4	2012	2	2013
TCAC 5.X PDSS	4	2012	1	2014
TCAC 6.0 RESEARCH, ANLYSIS AND ENG	2	2013	1	2014
TCAC 6.0 FIELDING	2	2014	3	2014
TCAC 6.0 PDSS	3	2014	4	2015
TPCS BLOCK 1 SUITES UPGRADE	3	2009	2	2010
TPCS BLOCK 1 IOT& E	3	2010	3	2010
TPCS BLOCK 1 MS -C	4	2010	4	2010
TPCS BLOCK 1 PROD	1	2011	4	2012
TPCS BLOCK 1 IOC	3	2010	3	2010
TPCS BLOCK II G-PIK	4	2012	2	2014
TPCS BLOCK II G=PIK OT&E	3	2014	3	2014
TPCS BLOCK II G-PIK MS-C	4	2014	4	2014
TPCS BLOCK II PRODUCTION	1	2015	1	2015
IAS CONTRACT AND TECH	2	2009	2	2009
IAS PDR	2	2009	2	2009

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0206625M: *USMC Intelligence/Electronics Warfare Sys*	**PROJECT** 2272: *Intel Command and Control (C2) Sys*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
IAS CDR	3	2009	3	2009
IAS TEST AND EVALUATION IOSV2A	3	2009	3	2009
IAS IV&V	3	2009	3	2009
IAS IV&V TIER II	1	2009	1	2009
IAS TRR	1	2009	1	2009
IAS MARINE LINK SAT	3	2009	3	2009
IAS C&A TIER I	4	2009	4	2009
IAS TEST AND EVALUATION	1	2010	1	2010
IAS S/W INTE AND TEST 2.O	2	2010	2	2010
IAS MARINE LINK SAT C&A TIER I	1	2010	2	2010
IAS SWF VT 1.0.3	1	2010	1	2010
TRSS - ISR DCGS INTE SENSOR	1	2010	4	2010
TRSS SYS INTE	1	2010	3	2010
TRSS MS -B	4	2010	1	2011
TRSS URBAN SENSOR DEV	2	2010	4	2010
TRSS INTERNAL PROCESSOR BOARD III	1	2010	3	2010
TRSS TEST AND DEV	1	2011	4	2011
TRSS IOT&E	4	2011	1	2012
TRSS PROD USS LRIP	2	2012	4	2014
TRSS FOC USS	3	2014	4	2014

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0207161N: *Tactical Aim Missiles*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	8.419	2.288	0.912	0.000	0.912	0.931	0.954	0.976	0.996	Continuing	Continuing
0457: *AIM-9X*	8.419	2.288	0.912	0.000	0.912	0.931	0.954	0.976	0.996	Continuing	Continuing

A. Mission Description and Budget Item Justification

The AIM-9X Sidewinder short-range air-to-air missile is a long term evolution of the AIM-9 series of fielded missiles. The AIM-9X missile program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air missile (AMRAAM). Air superiority in the short-range air-to-air missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common with the AIM-9M (fuze, rocket motor and warhead). Anti-Tamper features have been incorporated to protect improvements inherent in this design. AIM-9X is a Post Milestone III, Acquisition Category IC (ACAT - IC) joint service program with Navy lead.

The program is in full rate production (FRP) with Lot 9 contract awarded June 2009. Beginning with the Lot 9 contract award, the missile will include the preplanned product improvements (P3I) that resolve critical obsolescence issues such as the Active Optical Target Detector (ie Fuze) and new CPU processor, as well as improvements to the performance of the missile such as data link capabilities, battery improvements, safety improvements and appropriate software updates. This budget line item will fund the development, test and integration of software updates to the missile, as well as aircraft platform integration, to ensure these capabilities perform in accordance with established requirements. Includes efforts to update missile components in order to comply with Insensitive Munitions requirements as established by Joint Requirements Oversight Council memo dated 11 February 2009.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207161N: *Tactical Aim Missiles*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	6.629	2.298	0.000	0.000	0.000
Current President's Budget	8.419	2.288	0.912	0.000	0.912
Total Adjustments	1.790	-0.010	0.912	0.000	0.912
• Congressional General Reductions		-0.010			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	1.990	0.000			
• SBIR/STTR Transfer	-0.200	0.000			
• Program Adjustments	0.000	0.000	0.912	0.000	0.912

Change Summary Explanation

Technical: Not applicable.

Schedule:
Deliveries in FY 2009 have been updated to reflect actuals
Deliveries in 4th Quarter FY 2010 reduced from 20 to 4 due to change in FY 2009 quantities from 144 to 114.

Qualification of the Tactical missile Active Optical Target Detector (AOTD) is not complete. This results in extension of the DT-IIIC schedule, which leads to moving the OT-IIIC, DT-IIID, IT-IIID and OT-IIID schedule to the right.

FY 2010 Production Contract (FRP6) has been delayed 3 months due to extended contract negotiations associated with Block II missiles. The program expects to award in June 2010.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207161N: *Tactical Aim Missiles*	PROJECT 0457: *AIM-9X*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0457: *AIM-9X*	8.419	2.288	0.912	0.000	0.912	0.931	0.954	0.976	0.996	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

AIM-9X (Sidewinder) is a long-term evolution of the AIM-9, a fielded system, qualifying this as a research category operational systems development. The AIM-9X short range Air-to-Air missile modification program provides a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the short range Air-to-Air Missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. The AIM-9X employs several components common with the AIM-9M (fuze, rocket motor and warhead).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continued Test and Evaluation of System	0.197	0.705	0.606	0.000	0.606
Funding required for Test & Evaluation (T&E) and associated Governmental support required to ensure the AIM-9X missile integration with threshhold US Navy aircraft platforms. *FY 2009 Accomplishments:* Initiated Block II (v9.2) Developmental Test for the AIM-9X missile integration. *FY 2010 Plans:* Funding required in association with continuation of Block II (v.9.2) Developmental Test, and initiate the Block II (v.9.3) Developmental Test for the AIM-9X missile integration. *FY 2011 Base Plans:* Funding required in association with the Block II (v.9.3) Developmental Test for the AIM-9X missile integration.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207161N: *Tactical Aim Missiles*	PROJECT 0457: *AIM-9X*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continued Product Development	7.656	1.427	0.150	0.000	0.150
Continuation of Primary Hardware Development/Pre-Planned Product Improvement (P3I) efforts for the AIM-9X fuze. Systems Engineering / Program management, as well as support required to ensure AIM-9X missile integration with threshhold US Navy aircraft platforms. Includes efforts to update missile components in order to comply with Insensitive Munitions requirements as established by Joint Requirements Oversight Council memo dated 11 February 2009. *FY 2009 Accomplishments:* Continued efforts for the Active Optical Target Detector (AOTD) / Fuze Development. *FY 2010 Plans:* Funding required for the v.9.3 Alogorithm and Code Development in support of the AIM-9X missile integration effort. *FY 2011 Base Plans:* Funding required for the v.9.4 Alogorithm and Code Development in support of the AIM-9X missile integration effort.					
Continued Transportation & Travel for Program Management	0.566	0.156	0.156	0.000	0.156
Transportation / Travel for AIM-9X effort. *FY 2009 Accomplishments:* Funding provided for the transportation and travel costs associated with supporting the AIM-9X Blk II missile. *FY 2010 Plans:* Funding provided for the transportation and travel costs associated with supporting the AIM-9X Blk II missile.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207161N: *Tactical Aim Missiles*	PROJECT 0457: *AIM-9X*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Funding provided for the transportation and travel costs associated with supporting the AIM-9X Blk II missile.					
Accomplishments/Planned Programs Subtotals	8.419	2.288	0.912	0.000	0.912

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• WPN 2209: *Sidewinder*	57.327	53.679	52.293	2.923	55.216	51.930	52.551	61.564	62.619	678.900	1,337.086
• MPAF 3479: *Sidewinder*	76.995	78.527	64.523	0.000	64.523	59.723	58.645	56.691	56.379	605.583	1,389.666
• RDTE, AF 4131: *Sidewinder*	5.585	5.915	6.040	0.000	6.040	6.135	6.235	6.330	6.423	0.222	299.050

D. Acquisition Strategy

The Low-Rate Initial Production (LRIP) 4, LOT 4, Firm-Fixed-Price (FFP) contract was awarded 4/04. ASN(RD&A) approved the Full-Rate Production (FRP) decision in May 2004. FRP 1, LOT 5 contract was awarded 11/04. FRP 1, LOT 5 through FRP 3 LOT 7 contracts were awarded 11/06. Rewards or penalties are provided depending on Raytheon Missile Systems (RMS) Performance relative to the Procurement Price Commitment Curve (PPCC) for LOTs 5 through 7 (FY 2005 through FY 2007). FRP 4 LOT 8 (FY 2008) contract was re-negotiated outside of the PPCC, and was awarded in JAN 2008. The FRP 5 LOT 9 (FY 2009) contract was awarded in June 2009, and is the first lot incorporating Captive Air Training Missile (CATM) Block II for USG only (no FMS), and is incorporating preplanned product improvements (P3I) that resolve critical obsolescence issues.

E. Performance Metrics

The AIM-9X Sidewinder program is meeting the cost, schedule, performance, funding and life cycle sustainment in accordance with the Acquisition Program Baseline. Contractor is meeting production schedule.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207161N: *Tactical Aim Missiles*	PROJECT 0457: *AIM-9X*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Development (Navy Fuze/OFS)	C/CPIF	Raytheon Missile Systems Tucson, AZ	3.100	0.000		0.000		0.000		0.000	0.000	3.100	Continuing
Primary Hdw Development (Fuze P3I)	SS/CPFF	Raytheon Missile Systems Tucson, AZ	14.279	0.000		0.000		0.000		0.000	0.000	14.279	Continuing
Aircraft Integration	C/CPFF	McDonnell Douglas St.Louis, MO	6.168	1.040	Jan 2010	0.000		0.000		0.000	0.000	7.208	Continuing
Aircraft Integration	WR	NAWC WD China Lake, CA	2.940	0.266	Nov 2009	0.000		0.000		0.000	0.666	3.872	Continuing
Systems Eng (WD)	WR	NAWC WD China Lake, CA	36.675	0.121	Nov 2009	0.150	Nov 2010	0.000		0.150	0.000	36.946	Continuing
All Prod DevCost from program implementation thru FY2002	Various/ Various	Not Specified Not Specified	192.194	0.000		0.000		0.000		0.000	0.000	192.194	Continuing
		Subtotal	255.356	1.427		0.150		0.000		0.150	0.666	257.599	

Remarks

Remarks: Prior year award fees earned is 93%. Total prior years - FY95 and prior under PE 0603715D.
FY96 and out are funded under PE 0207161N.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207161N: *Tactical Aim Missiles*	PROJECT 0457: *AIM-9X*	

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev Test & Eval (WD)	WR	NAWC WD China Lake, CA	29.843	0.160	Nov 2009	0.071	Nov 2010	0.000		0.071	0.440	30.514	Continuing
Navy Test & Eval (Gov Op Test - WD)	WR	NAWC WD China Lake, CA	0.279	0.545	Nov 2009	0.535	Nov 2010	0.000		0.535	2.318	3.677	Continuing
Navy Test & Eval (Cont Dev Test)	SS/CPFF	Raytheon Missile Systems Tucson, AZ	0.210	0.000		0.000		0.000		0.000	0.000	0.210	0.210
Oper Test & Eval (OPTEVFOR)	WR	OPTEVFOR Norfolk, VA	2.846	0.000		0.000		0.000		0.000	0.000	2.846	Continuing
All Prod dev Cost from Program Implementation thru FY2002	Various/ Various	Various Various	4.927	0.000		0.000		0.000		0.000	0.000	4.927	Continuing
		Subtotal	38.105	0.705		0.606		0.000		0.606	2.758	42.174	0.210

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Transportation - Material	WR	NAVAIR Patuxent River, MD	0.065	0.016	Nov 2009	0.016	Nov 2010	0.000		0.016	0.064	0.161	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207161N: *Tactical Aim Missiles*	PROJECT 0457: *AIM-9X*

Management Services ($ in Millions)

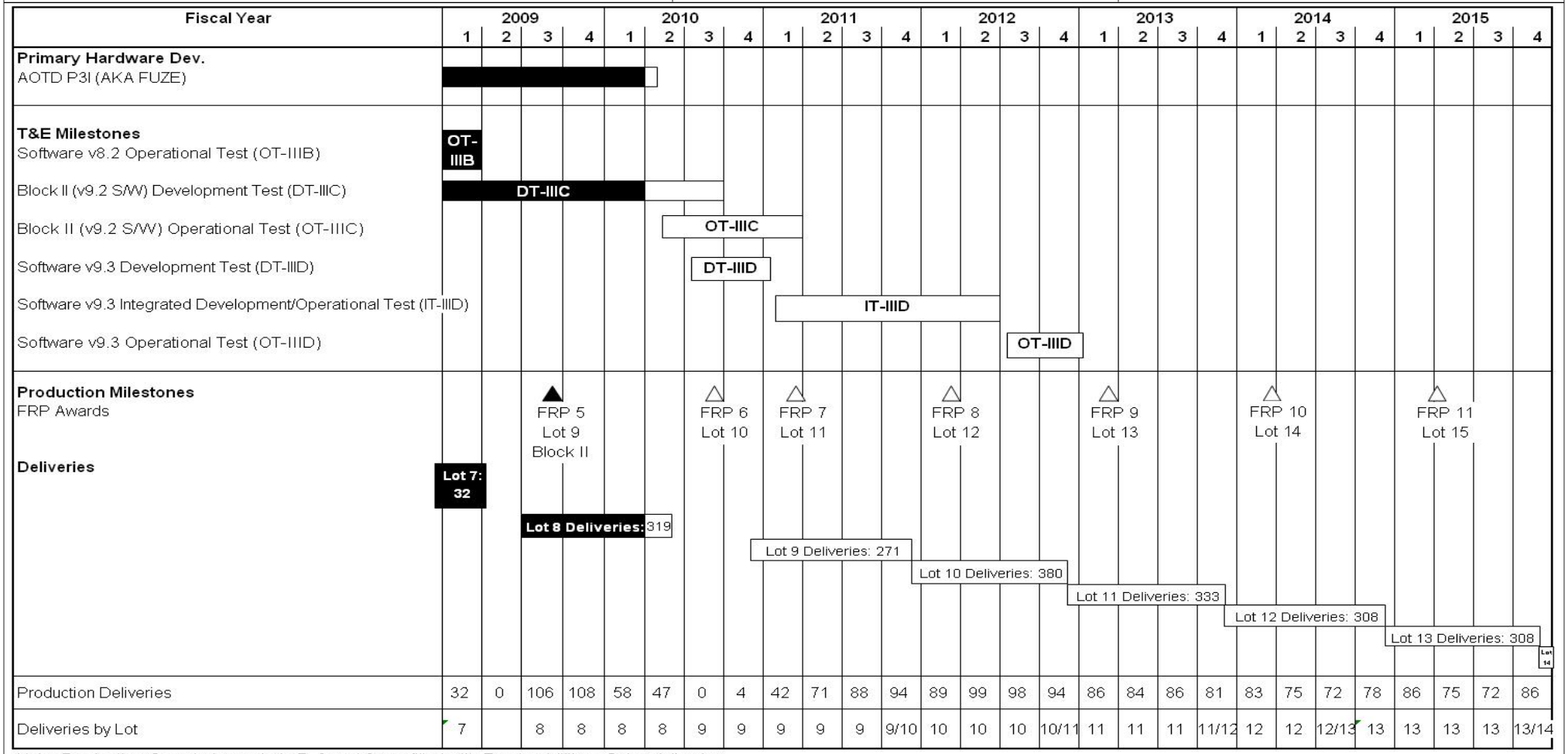
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel - Obligation throughout Year	WR	NAWCAD Patuxent River, MD	2.102	0.140	Oct 2009	0.140	Oct 2010	0.000		0.140	0.600	2.982	Continuing
Management & Support Services	C/CPFF	Jorge Scientific Corp Lexington Park, MD	0.507	0.000		0.000		0.000		0.000	0.000	0.507	0.507
All Prod Dev Cost from Program Implementation thru FY 2002	Various/ Various	Various Various	7.526	0.000		0.000		0.000		0.000	0.000	7.526	Continuing
		Subtotal	10.200	0.156		0.156		0.000		0.156	0.664	11.176	0.507

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	303.661	2.288		0.912		0.000		0.912	4.088	310.949	0.717

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207161N: *Tactical Aim Missiles*	**PROJECT** 0457: *AIM-9X*



Fiscal Year	2009				2010				2011				2012				2013				2014				2015			
	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
Production Deliveries	32	0	106	108	58	47	0	4	42	71	88	94	89	99	98	94	86	84	86	81	83	75	72	78	86	75	72	86
Deliveries by Lot	7		8	8	8	8	9	9	9	9	9	9/10	10	10	10	10/11	11	11	11	11/12	12	12	12/13	13	13	13	13	13/14

Note: Production Gaps between Lots 7, 8 and 9 are filled with Foreign Military Sales deliveries

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207161N: *Tactical Aim Missiles*	PROJECT 0457: *AIM-9X*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
AOTD P3I	1	2009	2	2010
Block II v8.2 Operational Test (OT-IIIB)	1	2009	1	2009
Block II Development Test (DT-IIIC)	1	2009	3	2010
Block II Operational Test (OT-IIIC)	2	2010	1	2011
Block II v9.3 Development Test (DT-IIID)	3	2010	1	2011
Block II v9.3 Integrated Development/Operational Test (IT-IIID)	1	2011	2	2012
Block II v9.3 Operational Test (OT-IIID)	3	2012	1	2013
Full Rate Production (FRP 5) Award Lot 9	3	2009	3	2009
Full Rate Production (FRP 6) Award Lot 10	3	2010	3	2010
Full Rate Production (FRP 7) Award Lot 11	1	2011	1	2011
Full Rate Production (FRP 8) Award Lot 12	1	2012	1	2012
Full Rate Production (FRP 9) Award Lot 13	1	2013	1	2013
Full Rate Production (FRP 10) Award Lot 14	1	2014	1	2014
Full Rate Production (FRP 11) Award Lot 15	1	2015	1	2015
Full Rate Production Deliveries Lot 8	3	2009	2	2010
Full Rate Production Deliveries Lot 9	4	2010	4	2011
Full Rate Production Deliveries Lot 10	4	2011	4	2012
Full Rate Production Deliveries Lot 11	4	2012	4	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207161N: *Tactical Aim Missiles*	PROJECT 0457: *AIM-9X*

	Start		End	
Event	Quarter	Year	Quarter	Year
Full Rate Production Deliveries Lot 12	4	2013	4	2014
Full Rate Production Deliveries Lot 13	4	2014	4	2015
Full Rate Production Deliveries Lot 14	4	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0207163N: *AMRAAM*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	6.902	3.589	2.633	0.000	2.633	2.984	2.994	3.063	3.126	Continuing	Continuing
0981: *AMRAAM*	6.902	3.589	2.633	0.000	2.633	2.984	2.994	3.063	3.126	Continuing	Continuing

A. Mission Description and Budget Item Justification

This joint Navy/Air Force program is structured in response to the Joint Service Operational Requirement and Mission Element Need Statement to develop an air superiority air-to-air missile with significant improvements in operational utility and combat effectiveness. This program supports the integration of the AMRAAM into Navy aircraft with analysis of Navy unique applications, aircraft missile integration tasks, product improvement efforts including missile software upgrade development and procurement of hardware to support Navy test and evaluation tasks.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	8.509	3.604	0.000	0.000	0.000
Current President's Budget	6.902	3.589	2.633	0.000	2.633
Total Adjustments	-1.607	-0.015	2.633	0.000	2.633
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-1.350	0.000			
• SBIR/STTR Transfer	-0.257	0.000			
• Program Adjustments	0.000	0.000	2.633	0.000	2.633
• Rate/Misc Adjustments	0.000	-0.015	0.000	0.000	0.000

Change Summary Explanation

Technical: Not Applicable

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207163N: *AMRAAM*

Schedule: Delays integrating developmental hardware into flight testing and lower than planned flight test efficiencies extended the completion date for Engineering and Manufacturing Development (EMD) to September 2009. This resulted in a corresponding change to the forecasted OT start/complete dates.

FY2010 missile contract award has been moved from February to March per executive service (USAF) schedule decision.

Phase 4 SIP/SWUP start delayed to 4th quarter FY2009 due to schedule adjustments.

MRM Concept Development start delayed to 4th quarter FY2009 due to revisions in task definition.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207163N: *AMRAAM*	PROJECT 0981: *AMRAAM*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0981: *AMRAAM*	6.902	3.589	2.633	0.000	2.633	2.984	2.994	3.063	3.126	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This joint Navy/Air Force program is structured in response to the Joint Service Operational Requirement and Mission Element Need Statement to develop an air superiority air-to-air missile with significant improvements in operational utility and combat effectiveness. This program supports the integration of the AMRAAM into Navy aircraft with analysis of Navy unique applications, aircraft missile integration tasks, product improvement efforts including missile software upgrade development and procurement of hardware to support Navy test and evaluation tasks.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continued aircraft integration	0.704	1.292	0.873	0.000	0.873
Continue Aircraft integration activities and test and evaluation for Navy unique requirements. *FY 2009 Accomplishments:* Continued aircraft integration activities and test and evaluation for Navy unique requirements. *FY 2010 Plans:* Continue aircraft integration activities and test and evaluation for Navy unique requirements. *FY 2011 Base Plans:* Continue aircraft integration activities and test and evaluation for Navy unique requirements.					
Continued to identify potential improvements	2.507	0.850	0.400	0.000	0.400

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207163N: *AMRAAM*	PROJECT 0981: *AMRAAM*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continue engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems. *FY 2009 Accomplishments:* Continued engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems. Conducted Operational Flight Program (OFP) efforts. *FY 2010 Plans:* Continue engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems. Conducted Operational Flight Program (OFP) efforts. *FY 2011 Base Plans:* Continue engineering support of AMRAAM, including investigation and analysis of technologies that offer potential improvements in AMRAAM lethality/performance and compatibility with related weapons systems. Conducted Operational Flight Program (OFP) efforts.					
Continued Phase 4 EMD efforts System engineering and test activities in AMRAAM Phase 4 program which include conducting Proof of Manufacturing (POM) testing, final testing of Phase 4 software, aircraft integration/aircraft Operational Flight Program (OFP) efforts and Phase 4 test/equipment tasks. Continue system engineering/ aircraft integration activities for System Improvement Program (SIP) with emphasis on Navy unique compatibility requirements and Navy aircraft integration/compatibility requirements. Commence Medium Range Missile (MRM) Concept Development to fund the initial exploratory efforts for future technological advancements to combat evolving threats.	3.691	1.447	1.360	0.000	1.360

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207163N: *AMRAAM*	**PROJECT** 0981: *AMRAAM*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued system engineering and test activities in AMRAAM Phase 4 program which include conducting Proof of Manufacturing (POM) testing, final testing of Phase 4 software, aircraft integration/ aircraft Operational Flight Program (OFP) efforts and Phase 4 test/equipment tasks. Began system engineering/aircraft integration activities for System Improvement Program (SIP) with emphasis on Navy unique compatibility requirements and Navy aircraft integration/compatibility requirements. Commenced Medium Range Missile (MRM) Concept Development to fund the initial exploratory efforts for future technological advancements to combat evolving threats. *FY 2010 Plans:* Continue system engineering and test activities in AMRAAM Phase 4 program which includes aircraft integration/aircraft Operational Flight Program (OFP) efforts and Phase 4 test/equipment tasks. Continue system engineering/aircraft integration activities for System Improvement Program (SIP) with emphasis on Navy unique compatibility requirements and Navy aircraft integration/compatibility requirements. *FY 2011 Base Plans:* Continue system engineering and test activities in AMRAAM Phase 4 program which includes aircraft integration/aircraft Operational Flight Program (OFP) efforts and Phase 4 test/equipment tasks. Continue system engineering/aircraft integration activities for System Improvement Program (SIP) with emphasis on Navy unique compatibility requirements and Navy aircraft integration/compatibility requirements.					
Accomplishments/Planned Programs Subtotals	6.902	3.589	2.633	0.000	2.633

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207163N: *AMRAAM*	**PROJECT** 0981: *AMRAAM*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• WPN/ 220600: *AMRAAM*	88.525	138.079	155.553	0.000	155.553	191.018	230.197	238.201	262.368	1,807.545	4,605.190
• MPAF/3479: *AMRAAM*	202.741	272.714	355.358	0.000	355.358	311.456	473.683	458.075	462.619	4,556.857	13,986.103
• RDTE,AF/673777: *AMRAAM*	48.633	49.971	63.252	0.000	63.252	61.322	58.078	77.145	58.898	0.000	837.399

D. Acquisition Strategy

Annualized AMRAAM production procurements will continue across the FYDP with periodic pre-planned product improvements and Value Engineering Change Proposals (VECP). The 328th Armament Systems Group (328 ARSG) will revisit instituting a Long Term Pricing Agreement (LTPA) upon Raytheon's ability to consistently achieve monthly deliveries of 30 - 35 AIM120Ds.

E. Performance Metrics

The AIM-120 AMRAAM program is meeting cost, schedule, performance, funding and life cycle sustainment in accordance with the Acquisition Program Baseline. Contractor is meeting the production schedule.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207163N: *AMRAAM*	PROJECT 0981: *AMRAAM*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Development (EGLIN))	SS/CPAF	RAYTHEON COMPANY Tucson AZ	42.453	0.789	Jan 2010	0.701	Jan 2011	0.000		0.701	4.050	47.993	47.993
Award Fees (EGLIN)	SS/CPAF	Various Various	5.990	0.139	Jan 2010	0.124	Jan 2011	0.000		0.124	0.715	6.968	6.968
Primary Hdw Development (DAHLGREN)	WR	NSWC DAHLGREN D C XDM1 Dahlgren VA	0.067	0.025	Nov 2009	0.025	Nov 2010	0.000		0.025	0.107	0.224	Continuing
Primary Hdw Development	Various/ Various	Various Various	2.150	0.000		0.000		0.000		0.000	0.000	2.150	Continuing
Primary Hdw Development (NAWCAD)	WR	NAWCAD Patuxent River MD	0.562	0.207	Nov 2009	0.221	Nov 2010	0.000		0.221	0.866	1.856	Continuing
Primary Hdw Development (NAWCWD)	WR	NAWCWD China LakeCA	0.540	0.087	Nov 2009	0.089	Nov 2010	0.000		0.089	0.361	1.077	Continuing
Prior Years Hardware Dev	Various/ Various	Various Various	20.520	0.000		0.000		0.000		0.000	0.000	20.520	Continuing
		Subtotal	72.282	1.247		1.160		0.000		1.160	6.099	80.788	54.961

Remarks

Remarks: Percentage of award fees actually awarded in past award fee periods is 15%

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207163N: *AMRAAM*	PROJECT 0981: *AMRAAM*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support (BOEING)	SS/CPAF	MCDONNELL DOUGLAS CORP St Louis MO	5.654	0.400	Jan 2010	0.000		0.000		0.000	0.000	6.054	6.054
Development Support (NSMA)	WR	NAVY SYST MGT ACT Arlington VA	2.597	0.250	Dec 2009	0.200	Dec 2010	0.000		0.200	0.842	3.889	Continuing
Studies & Analyses - JHU/APL	SS/FFP	NAVSEASYSCOM Washington DC	0.860	0.200	Jan 2010	0.200	Jan 2011	0.000		0.200	0.846	2.106	2.106
Prior Years Dev/Acft Integ	Various/ Various	Various Various	11.366	0.000		0.000		0.000		0.000	0.000	11.366	Continuing
		Subtotal	20.477	0.850		0.400		0.000		0.400	1.688	23.415	8.160

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev Test & Eval (NAWCWD)	WR	NAWCWD China LakeCA	5.806	1.292	Nov 2009	0.873	Nov 2010	0.000		0.873	3.574	11.545	Continuing
		Subtotal	5.806	1.292		0.873		0.000		0.873	3.574	11.545	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0207163N: *AMRAAM*	PROJECT 0981: *AMRAAM*

Management Services ($ in Millions)

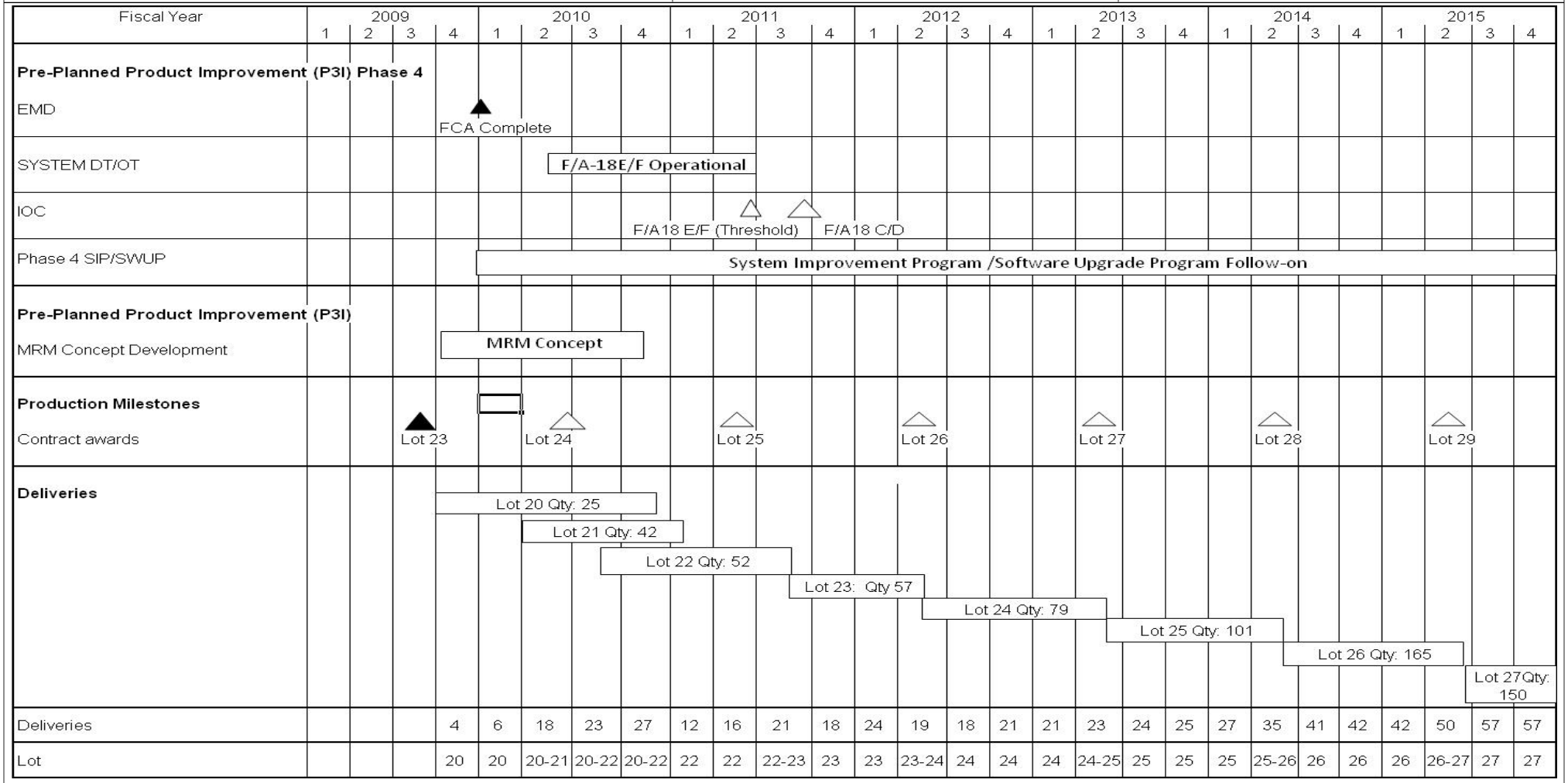
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	MIPR	PMA-259 Eglin AFB FL	2.369	0.200	Oct 2009	0.200	Oct 2010	0.000		0.200	0.844	3.613	Continuing
Prior Years Management	Various/ Various	Various Various	4.002	0.000		0.000		0.000		0.000	0.000	4.002	Continuing
		Subtotal	6.371	0.200		0.200		0.000		0.200	0.844	7.615	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	104.936	3.589		2.633		0.000		2.633	12.205	123.363	63.121

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207163N: *AMRAAM*	**PROJECT** 0981: *AMRAAM*



Deliveries				4	6	18	23	27	12	16	21	18	24	19	18	21	21	23	24	25	27	35	41	42	42	50	57	57
Lot				20	20	20-21	20-22	20-22	22	22	22-23	23	23	23-24	24	24	24	24-25	25	25	25	25-26	26	26	26	26-27	27	27

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207163N: *AMRAAM*	**PROJECT** 0981: *AMRAAM*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
EMD Completion Phase 4	4	2009	4	2009
Phase 4 SIP/SWUP Start (P3I Follow-0n)	4	2009	4	2015
System DT/OT (F/A-18 E/F)	2	2010	2	2011
IOC F/A18 E/F (Threshold)	2	2011	2	2011
IOC F/A18 C/D	3	2011	3	2011
Medium Range Missile Concept Development	4	2009	4	2010
Production Lot 23 Contract Award	3	2009	3	2009
Production Lot 24 Contract Award	2	2010	2	2010
Production Lot 25 Contract Award	2	2011	2	2011
Production Lot 26 Contract Award	2	2012	2	2012
Production Lot 27 Contract Award	2	2013	2	2013
Production Lot 28 Contract Award	2	2014	2	2014
Production Lot 29 Contract Award	2	2015	2	2015
Production Deliveries - Lot 20	4	2009	4	2010
Production Deliveries - Lot 21	2	2010	4	2010
Production Deliveries - Lot 22	3	2010	3	2011
Production Deliveries - Lot 23	3	2011	2	2012
Production Deliveries - Lot 24	2	2012	2	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0207163N: *AMRAAM*	**PROJECT** 0981: *AMRAAM*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Production Deliveries - Lot 25	2	2013	2	2014
Production Deliveries - Lot 26	2	2014	2	2015
Production Deliveries - Lot 27	2	2015	4	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058N: *Joint High Speed Vessel (JHSV)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	11.594	8.396	3.586	0.000	3.586	0.000	0.000	0.000	0.000	0.000	55.656
3131: *Intratheater Connectors (Concept Studies)*	3.838	1.745	1.618	0.000	1.618	0.000	0.000	0.000	0.000	0.000	23.627
3134: *Intratheater Connectors (Contract Design)*	7.756	6.651	1.968	0.000	1.968	0.000	0.000	0.000	0.000	0.000	32.029

A. Mission Description and Budget Item Justification

Future joint forces will be responsive, deployable, agile, versatile, lethal, survivable and sustainable. The nation will need lift assets that can provide for assured access, decrease predictability and dwell time, and have the capacity to quickly deliver troops and equipment together in a manner that provides for unit integrity. Joint High Speed Vessel (JHSV) will provide Combatant Commanders high-speed, intra-theater sealift mobility with inherent cargo handling capability and the agility to achieve positional advantage over operational distances. Not limited to major ports, the JHSV will be able to operate in austere port environments.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	11.910	8.431	0.000	0.000	0.000
Current President's Budget	11.594	8.396	3.586	0.000	3.586
Total Adjustments	-0.316	-0.035	3.586	0.000	3.586
• Congressional General Reductions		-0.035			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.316	0.000			
• Program Adjustments	0.000	0.000	3.586	0.000	3.586

Change Summary Explanation

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3131: *Intratheater Connectors (Concept Studies)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3131: *Intratheater Connectors (Concept Studies)*	3.838	1.745	1.618	0.000	1.618	0.000	0.000	0.000	0.000	0.000	23.627
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Joint High Speed Vessel (JHSV) Program is a Navy led acquisition for a high-speed, shallow draft, commercial-based ship capable of intra-theater personnel and cargo lift for the Armed Services. The ship is not intended to be a combatant and must operate in benign or secured environments. The technologies supporting this capability were evaluated during the completed Analysis of Alternatives.

JHSV capability is intended to bridge the gap between low-speed sea lift and high-speed airlift by transporting personnel, equipment, and supplies over operational distances with access to littoral offload points including austere, minor and degraded ports while in support of the Overseas Contingency Operations (OCO)/Theater Security Cooperation Program (TSCP); Intra-theater Operational/Littoral Maneuver and Sustainment; and Seabasing.

The program is guided by four principles/assumptions:
1) Leverage previous Navy, Marine Corps, Army, and SOF work with high speed vessels, including both ACTDs and leased demonstrators.
2) Focus on commercially available, non-developmental item (NDI) platform designs and subsystems.
3) Incorporate survivability features that meet commercial Safety of Life at Sea (SOLAS) requirements for personnel onboard and commercial (T-Ship) Anti-Terrorism/ Force Protection (AT/FP) requirements.
4) Affordability will be a prime consideration.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishment/Effort/Subtotal Cost	3.819	1.745	1.618	0.000	1.618
R&D efforts for the Joint High Speed Vessel (JHSV) - addressing spiral technology development and risk mitigation efforts through demonstration of tools and monitoring systems for hull fatigue unique to					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3131: *Intratheater Connectors (Concept Studies)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
lightweight hull forms. Continuing to conduct R&D in areas involving lightweight aluminum flight decks and safe transport of ammunition and dangerous goods aboard lightweight vessels and production prototypes. *FY 2009 Accomplishments:* Update the Test and Evaluation Master Plan (TEMP). Continue Fire Fighting Testing for safe transport of ammunition and dangerous goods aboard JHSVs. Use the Dynamic Position Multi-Vessel Simulation (DP-MVS) tool to model and analyze the ability of the JHSV to conduct UNREP. Conduct Preliminary Developmental Testing & Evaluation (DT&E) assessments. *FY 2010 Plans:* Develop the Interoperability Certification Plan (ICEP). Continue efforts in support of DT&E. Continue modeling and simulation in support of LFT&E. Support Integrated Testing opportunities. *FY 2011 Base Plans:* Continue efforts in support of DT&E. Continue Modeling and Simulation in support of LFT&E. Support Integrated Testing opportunities.					
Defense Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded the Defense Acquisition Workforce Fund	0.019	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	3.838	1.745	1.618	0.000	1.618

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3131: *Intratheater Connectors (Concept Studies)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0208058N: *SCN/BLI 3043 Joint High Speed Vessel*	181.260	177.407	180.703	0.000	180.703	206.855	377.817	390.143	399.330	605.175	2,518.690

D. Acquisition Strategy

Two-phased strategy with competitive preliminary design effort leading to downselect to a single contractor. FPI contract is being used for construction.

E. Performance Metrics

Complete the development of plans and efforts associated with the Development Test & Evaluation (DT&E) in order to successfully begin the Initial Operational Test and Evaluation (IOT&E) in FY12.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3131: *Intratheater Connectors (Concept Studies)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Modeling & Simulation	C/CPIF	Alion/CSC VAR	1.992	0.125	Jan 2010	0.130	Jan 2011	0.000		0.130	0.000	2.247	Continuing
Risk Mitigation Efforts	C/CPIF	Alion VAR	0.710	0.025	Jan 2010	0.027	Jan 2011	0.000		0.027	0.000	0.762	Continuing
		Subtotal	2.702	0.150		0.157		0.000		0.157	0.000	3.009	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	C/Various	Alion/ NAVSEALOGCEN VAR	1.422	0.000		0.000		0.000		0.000	0.000	1.422	Continuing
Technical Data	C/TBD	NSWC-CD/NRL VAR	1.598	0.000		0.000		0.000		0.000	0.000	1.598	Continuing
Studies & Analyses	C/TBD	NSWC-CD/ NATICK/OSD VAR	1.524	0.100	Jan 2010	0.100	Jan 2011	0.000		0.100	0.000	1.724	Continuing
		Subtotal	4.544	0.100		0.100		0.000		0.100	0.000	4.744	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3131: *Intratheater Connectors (Concept Studies)*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/TBD	COTF/JITC VAR	0.369	0.250	Jan 2010	0.075	Jan 2011	0.000		0.075	0.000	0.694	Continuing
		Subtotal	0.369	0.250		0.075		0.000		0.075	0.000	0.694	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPIF	CSC VAR	2.628	0.382	Jan 2010	0.390	Jan 2011	0.000		0.390	0.000	3.400	Continuing
Government Engineering Support	C/TBD	NSWC-CD/ NSWC-DD VAR	5.469	0.382	Jan 2010	0.440	Jan 2011	0.000		0.440	0.000	6.291	Continuing
Program Management Support	C/CPIF	Alion VAR	4.190	0.381	Jan 2010	0.356	Jan 2011	0.000		0.356	0.000	4.927	Continuing
Travel	C/TBD	NAVSEA VAR	0.350	0.100		0.100		0.000		0.100	0.000	0.550	Continuing
DAWDF	C/TBD	Not Specified Not Specified	0.019	0.000		0.000		0.000		0.000	0.000	0.019	Continuing
		Subtotal	12.656	1.245		1.286		0.000		1.286	0.000	15.187	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3131: *Intratheater Connectors (Concept Studies)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks													

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	20.271	1.745		1.618		0.000		1.618	0.000	23.634	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3131: *Intratheater Connectors (Concept Studies)*

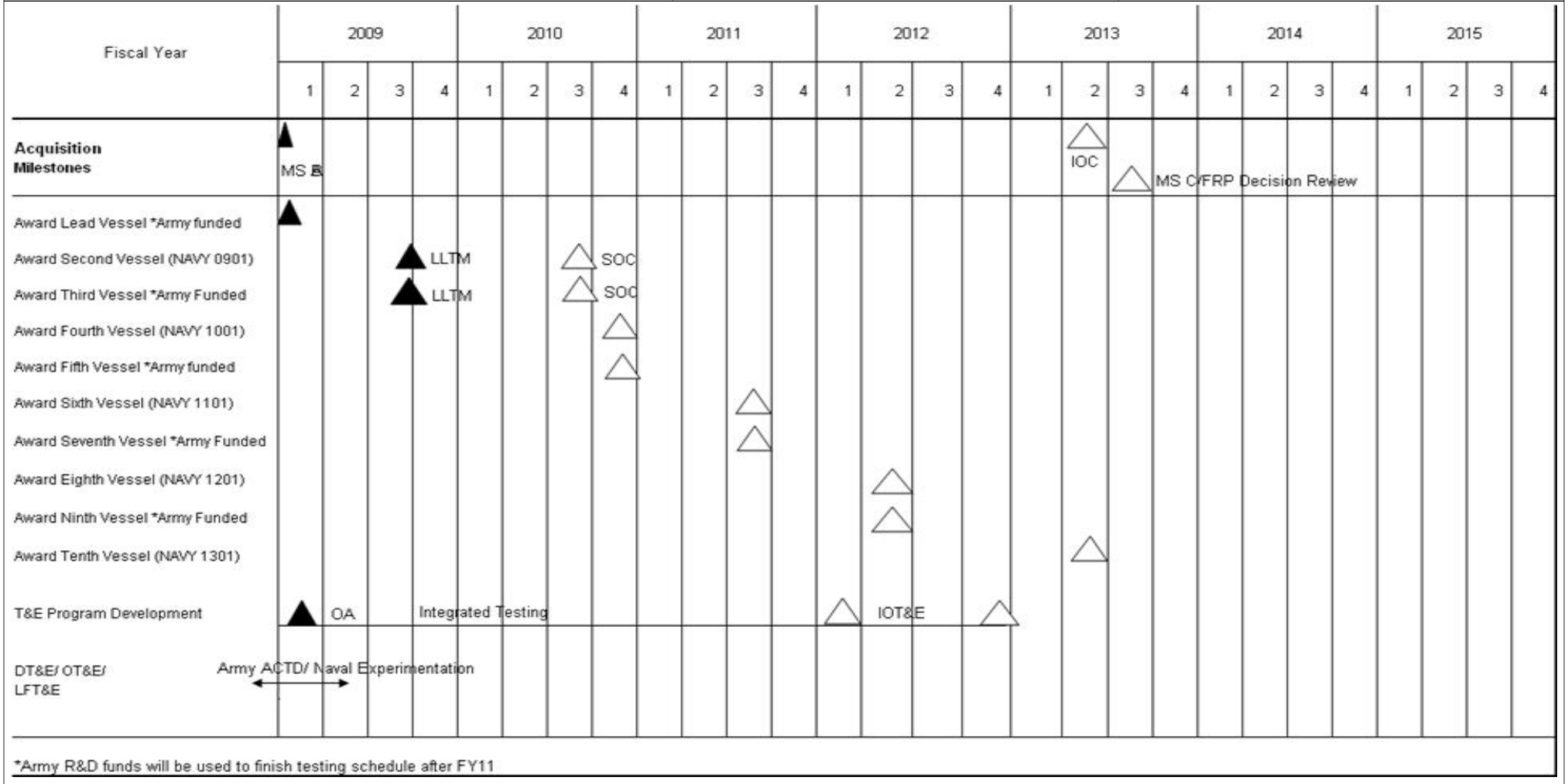


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058N: *Joint High Speed Vessel (JHSV)*	**PROJECT** 3131: *Intratheater Connectors (Concept Studies)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Milestone B	1	2009	1	2009
IOC	2	2013	2	2013
Milestone C/FRP Decision	3	2013	3	2013
Award Lead Vessel *Army Funded	1	2009	1	2009
Award Second Vessel (NAVY 0901); LLTM-3Q FY 2009; SOC-3Q FY 2010	3	2009	3	2010
Award Third Vessel *Army Funded; LLTM-3Q FY 2009; SOC-3Q FY 2010	3	2009	3	2010
Award Fourth Vessel (NAVY 1001)	4	2010	4	2010
Award Fifth Vessel *Army Funded	4	2010	4	2010
Award Sixth Vessel (NAVY 1101)	3	2011	3	2011
Award Seventh Vessel *Army Funded	3	2011	3	2011
Award Eighth Vessel (NAVY 1201)	2	2012	2	2012
Award Ninth Vessel *Army Funded	2	2012	2	2012
Award Tenth Vessel (NAVY 1301)	2	2013	2	2013
OA	1	2009	1	2009
IOT&E	1	2012	4	2012
Finish Army/ACTD/Naval Experimentation	1	2009	2	2009
Integrated Testing	3	2009	1	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3134: *Intratheater Connectors (Contract Design)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3134: *Intratheater Connectors (Contract Design)*	7.756	6.651	1.968	0.000	1.968	0.000	0.000	0.000	0.000	0.000	32.029
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Joint High Speed Vessel Program is a Navy led acquisition for a high-speed, shallow draft, commercial-based ship capable of intra-theater personnel and cargo lift for the Armed Services. The ship is not intended to be a combatant and must operate in benign or secured environments. The technologies supporting this capability were evaluated during the completed Analysis of Alternatives.

JHSV capability is intended to bridge the gap between low-speed sea lift and high-speed airlift by transporting personnel, equipment, and supplies over operational distances with access to littoral offload points including austere, minor and degraded ports while in support of the Overseas Contingency Operations (OCO)/Theater Security Cooperation Program (TSCP); Intra-theater Operational/Littoral Maneuver and Sustainment; and Seabasing.

The program is guided by four principles/assumptions:
1) Leverage previous Navy, Marine Corps, Army, and SOF work with high speed vessels, including both ACTDs and leased demonstrators.
2) Focus on commercially available, non-developmental item (NDI) platform designs and subsystems.
3) Incorporate survivability features that meet commercial Safety of Life at Sea (SOLAS) requirements for personnel onboard and commercial (T-Ship) Anti-Terrorism/ Force Protection (AT/FP) requirements.
4) Affordability will be a prime consideration.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Intratheater Connectors (Contract Design)	7.717	6.651	1.968	0.000	1.968

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0208058N: *Joint High Speed Vessel (JHSV)*	**PROJECT** 3134: *Intratheater Connectors (Contract Design)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Conduct the JHSV Operational Assessment, which is to assess the JHSV by identifying significant areas of risk to the program's successful completion of Initial Operational Test and Evaluation (IOT&E). Update the LFT&E management plan and complete the Verification, Validation and Accreditation report (VV&A). Continue work on the Detailed Survivability Assessment Report (DSAR), which includes modeling the JHSV and its threats, in order to model and simulate the survivability of the JHSV. Implemented production prototyping as risk mitigation of the new modular manufacturing technologies at the shipyard. *FY 2010 Plans:* Continue efforts for the Detail Survivability Assessment Report (DSAR). Begin test plan development for the Total Ship Survivability Trial (TSST). Support Integrated Testing opportunities. *FY 2011 Base Plans:* Continue efforts for the DSAR. Complete test plan development for the TSST. Support Integrated testing opportunities. Begin detailed test plan development for IOT&E.					
Defense Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded the Defense Acquisition Workforce Fund	0.039	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	7.756	6.651	1.968	0.000	1.968

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3134: *Intratheater Connectors (Contract Design)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0208058N: *SCN/BLI 3043 Joint High Speed Vessel*	181.260	177.407	180.703	0.000	180.703	206.855	377.817	390.143	399.330	605.175	2,518.690

D. Acquisition Strategy

Two-phased strategy with competitive preliminary design effort leading to downselect to a single contractor. FPI contract type will be used for detail design and construction.

E. Performance Metrics

Complete the test plan development for the Total Ship Survivability Trial (TSST). Complete the efforts and tasks for Operational Test & Evaluation (OT&E) and Live Fire Test & Evaluation (LFT&E) necessary to successfully begin Initial Test and Evaluation (IOT&E) in FY12.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3134: *Intratheater Connectors (Contract Design)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Integration	C/CPIF	Alion/CSC VAR	4.638	2.000	Jan 2010	0.000		0.000		0.000	0.000	6.638	Continuing
Systems Engineering	C/CPIF	CSC VAR	3.024	0.960	Jan 2010	0.000		0.000		0.000	0.000	3.984	Continuing
Studies & Analysis	C/FP	Austal Mobile, AL	1.300	0.000		0.000		0.000		0.000	0.000	1.300	Continuing
		Subtotal	8.962	2.960		0.000		0.000		0.000	0.000	11.922	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	C/TBD	NSWC-CD Carderock, MD	2.000	0.000		0.000		0.000		0.000	0.000	2.000	Continuing
Integrated Logistics Support	C/CPIF	Alion VAR	1.276	0.000		0.000		0.000		0.000	0.000	1.276	Continuing
Configuration/Acquisition Management	C/CPIF	Alion/CSC VAR	1.888	0.885	Jan 2010	0.000		0.000		0.000	0.000	2.773	Continuing
Technical Data	C/TBD	NSWC-CD Carderock, MD	0.755	0.000		0.000		0.000		0.000	0.000	0.755	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3134: *Intratheater Connectors (Contract Design)*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	5.919	0.885		0.000		0.000		0.000	0.000	6.804	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	C/TBD	COTF/MCOTEA/ ATEC VAR	1.482	0.681	Jan 2010	0.881	Jan 2011	0.000		0.881	0.000	3.044	Continuing
Live Fire Test & Evaluation	C/TBD	VAR VAR	2.333	0.752	Jan 2010	0.802	Jan 2011	0.000		0.802	0.000	3.887	Continuing
		Subtotal	3.815	1.433		1.683		0.000		1.683	0.000	6.931	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3134: *Intratheater Connectors (Contract Design)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPIF	CSC VAR	1.252	0.446	Jan 2010	0.000		0.000		0.000	0.000	1.698	Continuing
Government Engineering Support	C/TBD	NSWC-CD/ NSWC-DD VAR	1.700	0.552	Jan 2010	0.000		0.000		0.000	0.000	2.252	Continuing
Program Management Support	C/CPIF	Alion VAR	1.490	0.275	Jan 2010	0.199	Jan 2011	0.000		0.199	0.000	1.964	Continuing
Travel	C/TBD	NAVSEA VAR	0.250	0.100	Jan 2010	0.086	Jan 2011	0.000		0.086	0.000	0.436	Continuing
DAWDF	C/TBD	Not Specified Not Specified	0.039	0.000		0.000		0.000		0.000	0.000	0.039	Continuing
		Subtotal	4.731	1.373		0.285		0.000		0.285	0.000	6.389	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	23.427	6.651		1.968		0.000		1.968	0.000	32.046	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3134: *Intratheater Connectors (Contract Design)*

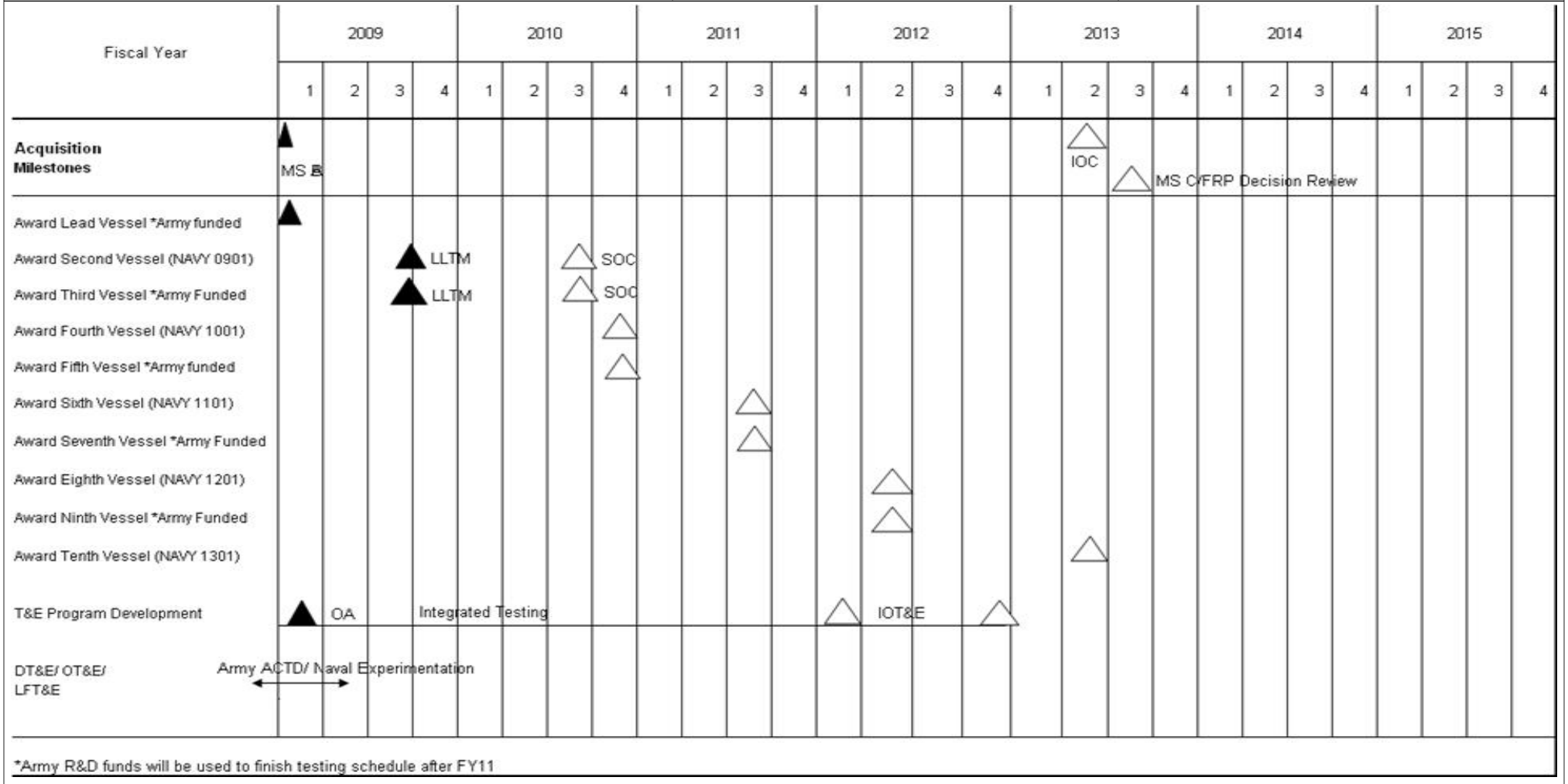


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0208058N: *Joint High Speed Vessel (JHSV)*	PROJECT 3134: *Intratheater Connectors (Contract Design)*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Milestone B	1	2009	1	2009
IOC	2	2013	2	2013
Milestone C/FRP Decision	3	2013	3	2013
Award Lead Vessel *Army Funded	1	2009	1	2009
Award Second Vessel (NAVY 0901); LLTM-3Q FY 2009; SOC-3Q FY 2010	3	2009	3	2010
Award Third Vessel *Army Funded; LLTM-3Q FT 2009; SOC-3Q FY 2010	3	2009	3	2010
Award Fourth Vessel (NAVY 1001)	4	2010	4	2010
Award Fifth Vessel *Army Funded	4	2010	4	2010
Award Sixth Vessel (NAVY 1101)	3	2011	3	2011
Award Seventh Vessel *Army Funded	3	2011	3	2011
Award Eighth Vessel (NAVY 1201)	2	2012	2	2012
Award Ninth Vessel *Army Funded	2	2012	2	2012
Award Tenth Vessel (NAVY 1301)	2	2013	2	2013
OA	1	2009	1	2009
IOT&E	1	2012	4	2012
Finish Army/ACTD/Naval Experimentation	1	2009	2	2009
Integrated Testing	3	2009	1	2012

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	625.193	471.917	422.268	0.000	422.268	267.740	155.504	6.761	7.225	Continuing	Continuing
0728: *EHF SATCOM Terminals*	113.931	82.476	16.145	0.000	16.145	20.773	28.257	6.564	7.026	Continuing	Continuing
0731: *FLTSATCOM*	10.280	1.062	0.424	0.000	0.424	1.328	1.247	0.197	0.199	Continuing	Continuing
2472: *Mobile User Objective Sys (MUOS)*	499.973	385.864	405.699	0.000	405.699	245.639	126.000	0.000	0.000	0.000	3,962.057
9122: *Adv Wideband System Integrated Term Prog*	0.212	2.515	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	64.402
9999: *Congressional Adds*	0.797	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.485

A. Mission Description and Budget Item Justification

The Navy Multiband Terminal (NMT) Program is the required Navy component to the Advanced Extremely High Frequency (AEHF) Program for enhancing protected and survivable satellite communications to Naval forces. The NMT system provides an increase in single service capability from 1.5 Megabits per second (Mbps) to 8 Mbps, increases the number of coverage areas and retains Anti-Jam/Low Probability of Intercept (AJ/LPI) protection characteristics. It is compatible with today's Navy Low Data Rate/Medium Data Rate (LDR/MDR) terminals and will sustain the Military Satellite Communications (MILSATCOM) architecture by providing connectivity across the spectrum of mission areas, to include land, air and naval warfare, special operations, strategic nuclear operations, strategic defense, theater missile defense, and space operations and intelligence. The NMT system will replenish and improve on Navy terminal capabilities of the Military Strategic, Tactical & Relay System (MILSTAR), Defense Satellite Communications System (DSCS), Wideband Global Satellite (WGS) and Global Broadcast System (GBS). The new system will equip the warfighters with the assured, jam resistant, secure communications as described in the joint AEHF Satellite Communications System and WGS Operational Requirements Documents (ORD). Mission requirements specific to Navy operations, including threat levels and scenarios, are contained in the ORD. The NMT will provide multiband Satellite Communications (SATCOM) capability for ship, submarine, and shore platforms.

The Commercial Broadband Satellite Program (CBSP) will support satellite communications terminals and shore connectivity to the Navy Points of Presence through the use of commercial off-the-shelf (COTS) terminals, commercial satellite land earth stations, and terrestrial fiber services. Program efforts include investigation of emergent technologies through studying, development, and testing of insertion feasibility.

The Joint Ultra High Frequency (UHF) Military Satellite Communications (MILSATCOM) Network Integrated (JMINI) Control System provides replacement of all non-Chairman Joint Chiefs Staff Instruction (CJCSI) 6251.01 UHF MILSATCOM legacy equipment at Naval Computer & Telecommunications Area Master Station

(NCTAMS) Atlantic (LANT), NCTAMS Pacific (PAC), Naval Computer & Telecommunications Station (NCTS) Naples and NCTS Guam. It also replaces non-supportable aging WSC-5 terminals. It provides centralized control of full UHF Follow-On (UFO) satellite constellation. It expands channel control capacity with Digital Modular Radio (DMR) at NCTAMS/NCTS; each site will control up to 152 non-processed UHF MILSATCOM channels in adjacent satellite coverage areas using both physical and virtual channel control techniques. It remains backward compatible with all versions of all Demand Assigned Multiple Access (DAMA) waveforms and supports future waveform modifications and additions. It implements decentralized management of UHF SATCOM communications assets. It provides automated planning and management of UHF MILSATCOM resources with the Network Management System (NMS). It maintains planning reference data: terminals, networks, configuration codes. It defines and ranks communications service requirements. CJCSI 6251.01 Rev B states MILSTD-188-181C/182B/183B (Integrated Waveform or IW) as optional waveforms for terminals.

The Sensitive Compartmented Information Networks (SCI Networks) will provide enabling technology for Intelligence, Cryptologic, and Information Warfare Systems with protected and reliable delivery of Special Intelligence (SI)/SCI data through a secure, controllable network interface with the Automated Digital Network System (ADNS) architecture. Specifically, SCI Networks shall ensure the availability of networks in defiance of hostile Information Warfare (IW). Technical, physical, and procedural security will control access, protect Department of Navy (DoN) information technology resources, and ensure continuous operation of the system within an accredited security posture. This network connectivity will expand the capability of cryptologic and intelligence personnel to fully interact with shore based nodes to provide expanding support to their commanders, including situational awareness, indications and warning (I&W), enemy force intentions, intelligence preparation for the Battlefield, and Battle Damage Assessment (BDA). SCI Networks will provide real time indications and warning support to joint and component commanders through reliable high-speed transfer of sensor data and intelligence information. Enhanced interoperability with other services, agencies, and allies will permit a level of integration of Sensitive Information (SI) operations not achievable with current systems.

The SCI Networks program began migrating to the Integrated Shipboard Network System (ISNS) Increment 2/Consolidated Afloat Network Enterprise Services (CANES) in FY09. ISNS Inc 2/CANES will serve to transition numerous Fleet networks to a single, adaptive, available, and secure computing network infrastructure while delivering enhanced technologies in: Integrated Voice, Video, and Data; Common Computing Environment (CCE); Afloat Core Services (ACS) and Multi-Level Security (MLS)/Cross Domain Solutions (CDS). CANES Increment 1 transition begins in FY 2010.

Maritime Integrated Broadcast Service (MIBS) (formerly Tactical Data Information Exchange Subsystem Broadcast (TADIXS-B)) Program Charter is to deliver Integrated Broadcast Service (IBS) data to operational and tactical decision makers aboard US Navy ships, submarines, aircraft, and other joint platforms. It will provide means to disseminate organically derived data from Navy platforms to other theater tactical, operational, and strategic users. MIBS will give the Navy a capability to deliver near real time data, enhancing the Common Operational Picture (COP) to support warfare areas including: Ballistic Missile Defense (BMD), Anti-Air Warfare (AAW), Anti-Surface Warfare (ASUW), Undersea Warfare (USW), and Electronic Warfare (EW). The program encompass all Maritime (Navy, Coast Guard, and Air Force) IBS systems (Joint Tactical Terminal - Maritime (JTT-M) and a Radiant Ether (RE) follow-on like system known as Network Enabled IBS (NEIBS)). These systems will provide the Navy, Coast Guard and other joint platforms with a coherent approach to fielding maritime IBS systems.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*

NEIBS (RE follow-on): An IBS network solution that provides IBS data to users via SIPRNET, while minimizing utilized bandwidth. NEIBS is a concept for net-centric software-based processing of Integrated Broadcast Service-Simplex (IBS-S) and Integrated Broadcast Service-Interactive (IBS-I) data. The software will receive IBS data through the shipboard network. It will reside on the ship's General Secret (GENSER) Local Area Network (LAN), providing data to required Tactical Data Processors (TDPs) via Transmission Control Protocol/Internet Protocol (TCP/IP).

Internet Protocol version 6 (IPv6): Manage and resource/coordinate resourcing of experiments and pilot testing of IPv6 technologies to reduce acquisition and operational risk associated with the IPv6 Transition. Experiments identified are in direct support of and identified in the Navy Technical Transition Strategy for IPv6.

2472 Mobile User Objective System:
The Mobile User Objective System (MUOS) program provides for the development of the next generation Department of Defense (DoD) advanced narrowband communications satellite constellation. The current Ultra-High Frequency (UHF) Follow-On (UFO) constellation is projected to degrade below acceptable availability parameters in 2011. The MUOS Program requirements are baselined to the 15 January 2008 Capability Production Document (CPD) Increment 1 validated by Joint Requirements Oversight Council Memorandum (JROCM) 015-08, which was derived from the 17 July 2001 MUOS Operational Requirements Documents (ORD) as modified by JROCM 187-03, dated 23 September 2003.

This MUOS Research Development Test & Evaluation, Navy (RDT&E,N) effort supports an On-Orbit Capability (OOC) in calender year (CY) 2011 and Full Operational Capability (FOC) in CY2015. A MUOS Risk Reduction & Design Development (RRDD) contract was awarded in September 2004 to Lockheed Martin after Key Decision Point (KDP) B. The approval at KDP-B in September 2004 officially designated the MUOS Program as a DoD Space Major Defense Acquisition Program.

In FY 2011, MUOS efforts will be focused on completion of work on the assembly, integration and testing of satellite 1, satellite 1 shipment and launch vehicle mate operations and launch. Continue work on assembly, integration and testing of satellite 2. Complete development and test of follow-on versions of the CAI waveform. Complete ground systems software development/final qualification tests, as well as assembly/integration/factory acceptance tests. Complete site acceptance test at Wahiawa and Australia ground stations.

Note: The Navy anticipates requesting a reprogramming to meet FY10 requirements.

The UHF SATCOM Hosted Payload effort was funded to mitigate some of the long-term legacy UHF gap caused by projected UFO failures and the availability of the MUOS-compatible Joint Tactical Radio System (JTRS). FY09 funding supported the acquisition strategy development and contract planning efforts for the development of a UHF Hosted Payload capability. In February 2009, the Hosted Payload program was cancelled. Studies have identified methods to obtain a cost-effective, low risk path to implement legacy payload changes to mitigate any on-orbit losses of UHF capability and ensure continuity of legacy requirements. FY10 plan is to pursue additional UHF capability and incorporate into the MUOS spacecraft's final assembly and integration for Flight 1 and Flight 2.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303109N: *Satellite Communications (Space)*

9122 Advanced Wideband System/Transformational Communications: The Navy Transformational Communications (NTC) terminal program was to provide US Navy ships, submarines and shore sites with access to the Transformational Communications Satellite. SECDEF has recommended this program for termination. As a consequence the basis for the NTC is no longer valid. Navy will utilize remaining funds to close out the program and properly document the research and development done to date.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	651.227	474.009	0.000	0.000	0.000
Current President's Budget	625.193	471.917	422.268	0.000	422.268
Total Adjustments	-26.034	-2.092	422.268	0.000	422.268
• Congressional General Reductions		-1.967			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.125			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-6.966	0.000			
• SBIR/STTR Transfer	-19.068	0.000			
• Program Adjustments	0.000	0.000	422.268	0.000	422.268

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *JOINT INTEGRATED SYSTEMS FOR ADVANCED DIGITAL NETW*	0.797	0.000
Congressional Add Subtotals for Project: 9999	0.797	0.000
Congressional Add Totals for all Projects	0.797	0.000

Change Summary Explanation

Schedule:
EHF Satcom Terminals (project 0728)
Milestone C has shifted from April to June 2010.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303109N: *Satellite Communications (Space)*

Fleet Satellite Comm. (project 0731)
Digital Modular Radio (DMR) Fleet Satellite Comm: The decision to incorporate the Mobile User Objective System (MUOS) waveform into the existing DMR software infrastructure is a requirement identified late in FY09. The full developmental timeline is anticipated to be 24 to 36 months after award of contract.

Sensitive Compartmented Information (SCI) Networks: Minor software delivery and testing updates. Events added for migration to Integrated Shipboard Network System (ISNS) Inc 2/Consolidated Adaptive Network Edge Services (CANES) began in FY 2009 to move to a Common Computing Environment (CCE) and Service Oriented Architecture (SOA). System development for AN/USQ 148A(V)5 and B(V) and B(V)3 shifts from 4Q/FY09 to 2Q/FY10 with associated Development Test Assist (DTA) from 4Q/FY09 to 3Q/FY10 and equipment delivery from 4Q/FY09 to 3Q/FY10. Full transition to CANES Inc 1 occurs in FY 2010.

Mobile User Objective System (project 2472)
MUOS schedule reflects changes to the test plan, launch, and On-Orbit Capability dates for Satellites 1 and 2. Changes result from technical design & development challenges for spacecraft 1, causing contractor schedule margin erosion.

Deleted Hosted Payload program from schedule.

Technical:
Mobile User Objective System (project 2472): No significant technical changes.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 0728: *EHF SATCOM Terminals*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0728: *EHF SATCOM Terminals*	113.931	82.476	16.145	0.000	16.145	20.773	28.257	6.564	7.026	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Navy Multiband Terminal (NMT) Program is the required Navy component to the Advanced Extremely High Frequency (AEHF) Program for enhancing protected and survivable satellite communications to Naval forces. The NMT system provides an increase in single service capability from 1.5 Megabits per second (Mbps) to 8 Mbps, increases the number of coverage areas, and retains Anti-Jam/Low Probability of Intercept (AJ/LPI) protection characteristics. It is compatible with today's Navy Low Data Rate / Medium Data Rate (LDR/MDR) terminals and will sustain the Military Satellite Communications (MILSATCOM) architecture by providing connectivity across the spectrum of mission areas, to include land, air and naval warfare, special operations, strategic nuclear operations, strategic defense, theater missile defense, and space operations and intelligence. The NMT system will replenish and improve on Navy terminal capabilities of the Military Strategic, Tactical & Relay System (MILSTAR), Defense Satellite Communications System (DSCS), Wideband Global Satellite (WGS), and Global Broadcast System (GBS). The new system will equip the warfighters with assured, jam resistant, secure communications as described in both the joint AEHF Satellite Communications System and the WGS Operational Requirement Documents (ORD). Mission requirements specific to Navy operations, including threat levels and scenarios, are contained in the ORD. The NMT will provide multiband Satellite Communications (SATCOM) capability for ship, submarine, and shore platforms.

The Commercial Broadband Satellite Program (CBSP) will support satellite communications terminals and shore connectivity to the Navy Points of Presence through the use of Commercial off-the-shelf (COTS) terminals, commercial satellite land earth stations, and terrestrial fiber services.

FY11 Base Funding will be used to continue the development of X-band capability and conduct associated development and operational testing.

FY11 OCO: N/A.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NMT Development	109.317	82.476	16.145	0.000	16.145

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 0728: *EHF SATCOM Terminals*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Overall program efforts include investigation of emerging technologies through study, development, and associated testing for feasibility of satellite communications-related program insertion. They also include first and second phases of Navy Multiband Terminal (NMT) development for System Design and Development (SDD) for ship, shore, and submarine platforms. *FY 2009 Accomplishments:* Completed design and development of 20 Q/Ka capable engineering development models (EDMs), X-band add-ons for submarines, and continued development of X/Ka upgrade kits for ships. Additional security measures included in terminal software and hardware were incorporated and tested via DITSCAP (Defense Information Technology Security Certification and Accredidation Process) testing. Two EDMs were delivered and installed on a ship or submarine platform, and a shore site that supported DT/OT and preparations for Milestone C. *FY 2010 Plans:* Conduct DT/Operational Assessment (OA) of Q/Ka-band capabilities and perform associated system modifications as merited by test results. Receive Milestone C approval. Develop X-band capability. The remaining eighteen EDMs will be delivered in the 1st quarter and installed on ships and submarine platforms and shore sites to support DT/OT and preparations for Milestone C. *FY 2011 Base Plans:* Continue development of X-band capability and conduct associated DT/OT. Perform associated system modifications as merited by test results.					
Commercial Broadband Satellite Program (CBSP) *FY 2009 Accomplishments:* Completed development of acquisition documentation and testing of commercial off the shelf terminals.	4.614	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 0728: *EHF SATCOM Terminals*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	113.931	82.476	16.145	0.000	16.145

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/3215: *CBSP*	30.002	11.545	12.402	0.000	12.402	9.262	6.374	7.212	7.557	0.000	84.354
• OPN/3216: *NMT*	0.000	62.973	161.021	0.000	161.021	195.541	200.673	253.902	271.893	0.000	1,146.003

D. Acquisition Strategy

Navy Multiband Terminal concept exploration contracts were awarded in FY 2001. Two System Development and Demonstration (SDD) contracts were competitively awarded in FY 2004 for the development and demonstration of four prototype terminals per vendor (eight total). In FY 2007, a down select to Raytheon occurred for the development, demonstration and procurement of 20 Engineering Development Models (EDMs) which will incorporate integrated multi-band capabilities for Q/Ka band, Submarine X-Band, and Ship X/Ka frequency band communication requirements.

Commercial Broadband Satellite Program (CBSP) will support satellite communication terminals and shore connectivity to the Navy Points of Presence through the use of commercial off-the-shelf (COTS) terminals, commercial satellite land earth stations, and terrestrial fiber services. Acquisition documentation development and concept studies and analyses will be accomplished using existing contracts.

E. Performance Metrics

The RDT&E goal for the NMT program is to create a military satellite communications system that consolidates capabilities of current and future satellite systems in a single terminal.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 0728: *EHF SATCOM Terminals*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/CPAF	Various Various	177.754	0.000		0.000		0.000		0.000	0.000	177.754	Continuing
Hardware Development	C/FFP	Harris Melbourne, FL	6.551	0.000		0.000		0.000		0.000	0.000	6.551	Continuing
NMT EDM Development	C/CPAF	Raytheon Marlborough, MA	158.106	47.275	Oct 2009	7.448	Oct 2010	0.000		7.448	0.000	212.829	Continuing
Hardware Development	WR	SSC PAC San Diego, CA	1.077	0.000		0.000		0.000		0.000	0.000	1.077	Continuing
Ancillary Hardware Development	C/CPAF	Raytheon Marlborough, MA	57.790	0.000		0.000		0.000		0.000	0.000	57.790	Continuing
Software Development	WR	NUWC Newport, RI	9.161	0.000		0.000		0.000		0.000	0.000	9.161	Continuing
Software Development	C/CPAF	Raytheon Marlborough, MA	26.372	12.214	Oct 2009	2.174	Oct 2010	0.000		2.174	0.000	40.760	Continuing
Systems Engineering	WR	SSC PAC San Diego, CA	20.861	2.759	Oct 2009	0.245	Oct 2010	0.000		0.245	0.000	23.865	Continuing
Systems Engineering	WR	NUWC Newport, RI	20.833	5.411	Oct 2009	0.500	Oct 2010	0.000		0.500	0.000	26.744	Continuing
Systems Engineering	Various/ Various	Various Various	34.224	3.576	Oct 2009	0.000	Oct 2009	0.000		0.000	0.000	37.800	Continuing
Government Furnished Equipment	Various/ Various	Various Various	10.124	0.000		0.000		0.000		0.000	0.000	10.124	Continuing
		Subtotal	522.853	71.235		10.367		0.000		10.367	0.000	604.455	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 0728: *EHF SATCOM Terminals*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	Various Various	9.637	1.375	Oct 2009	0.400	Oct 2010	0.000		0.400	0.000	11.412	Continuing
Logistics Support	Various/ Various	Various Various	2.603	0.702	Oct 2009	0.250	Oct 2010	0.000		0.250	0.000	3.555	Continuing
Studies & Analysis	WR	Various Various	6.702	0.167	Oct 2009	0.000		0.000		0.000	0.000	6.869	Continuing
Information Assurance	Various/ Various	Various Various	2.752	0.734	Oct 2009	0.400	Oct 2010	0.000		0.400	0.000	3.886	Continuing
		Subtotal	21.694	2.978		1.050		0.000		1.050	0.000	25.722	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	SSC PAC San Diego, CA	15.341	0.000		2.000	Oct 2010	0.000		2.000	0.000	17.341	Continuing
Operational Test & Evaluation	WR	Various Various	1.956	0.000		1.800	Oct 2010	0.000		1.800	0.000	3.756	Continuing
		Subtotal	17.297	0.000		3.800		0.000		3.800	0.000	21.097	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 0728: *EHF SATCOM Terminals*

Management Services ($ in Millions)

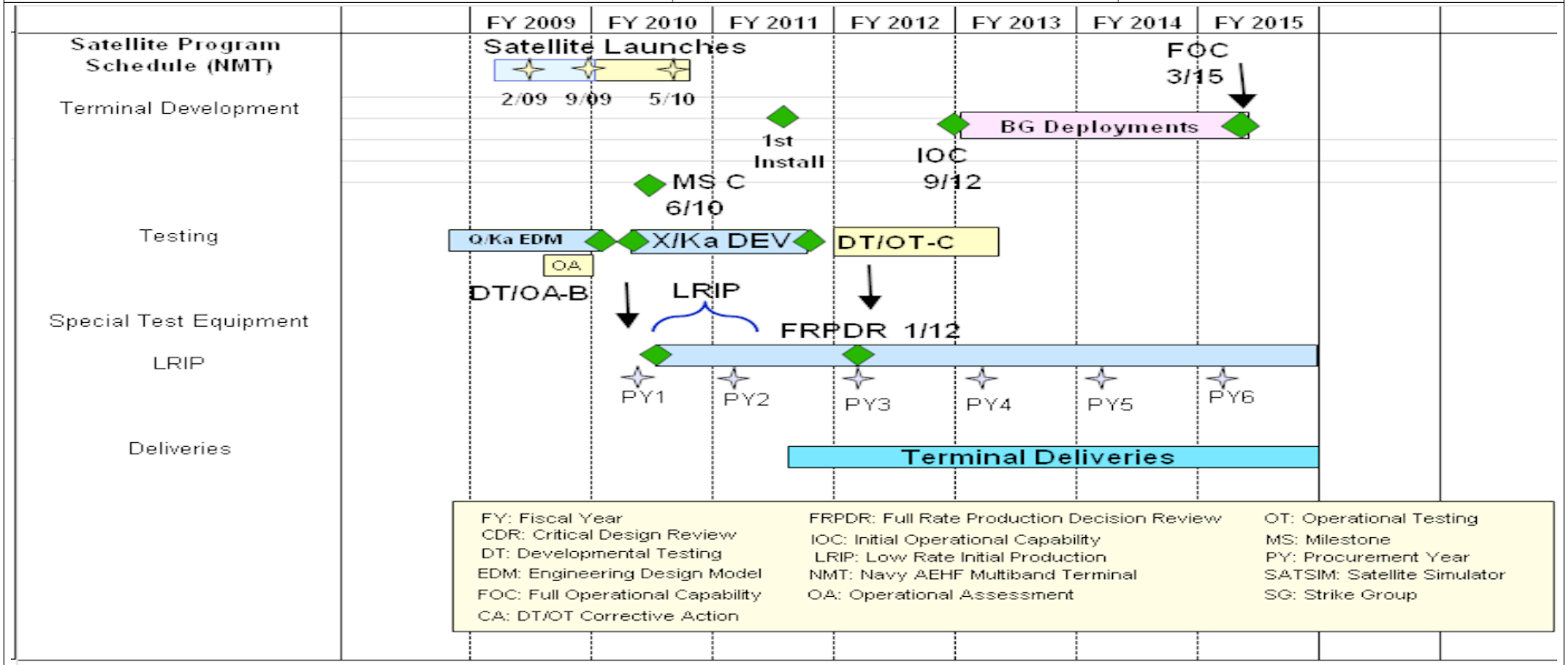
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract Management	Various/ Various	Various Various	8.403	1.666	Oct 2009	0.125	Oct 2010	0.000		0.125	0.000	10.194	Continuing
Program Management	Various/ Various	Various Various	12.605	3.270	Oct 2009	0.245	Oct 2010	0.000		0.245	0.000	16.120	Continuing
Acquisition Management	Various/ Various	Various Various	8.177	3.020	Oct 2009	0.245	Oct 2010	0.000		0.245	0.000	11.442	Continuing
Acquisition Management	WR	NCCA Various	0.653	0.000		0.000		0.000		0.000	0.000	0.653	Continuing
Travel	Various/ Various	Govt Travel Various	0.987	0.307		0.313		0.000		0.313	0.000	1.607	Continuing
Acquisition Workforce	Allot	Not Specified Not Specified	0.000	0.000		0.000		0.000		0.000	0.000	0.000	Continuing
		Subtotal	30.825	8.263		0.928		0.000		0.928	0.000	40.016	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	592.669	82.476		16.145		0.000		16.145	0.000	691.290	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 0728: *EHF SATCOM Terminals*



Note:
Reflects development of 20 Engineering Development Models (EDMs).
Milestone C changed from April to June 2010.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303109N: *Satellite Communications (Space)*	**PROJECT** 0728: *EHF SATCOM Terminals*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Prototype Complete	1	2009	1	2009
Engineering Development Model (EDM) Begins (Quantity = 20)	1	2009	1	2009
Developmental Testing (DT)	4	2009	4	2009
Operational Assessment (OA)	4	2009	4	2009
Milestone C	3	2010	3	2010
Start Low-Rate Initial Production I (LRIP I)	3	2010	3	2010
Start LRIP II	1	2011	1	2011
LRIP I Delivery	2	2011	2	2011
DT	1	2012	1	2012
Operational Testing (OT)	2	2011	2	2011
Full Rate Production Decision Review (FRPDR)	2	2011	2	2011
Procurement Year III	2	2011	2	2011
Initial Operational Capability (IOC)	4	2011	4	2011
Procurement Year IV	2	2013	2	2013
Procurement Year V	2	2014	2	2014
Procurement Year VI	2	2015	2	2015
Full Operational Capability (FOC)	2	2015	2	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 0731: *FLTSATCOM*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0731: *FLTSATCOM*	10.280	1.062	0.424	0.000	0.424	1.328	1.247	0.197	0.199	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Joint Ultra High Frequency (UHF) Military Satellite Communications (MILSATCOM) Network Integrated (JMINI) Control System provides replacement of all non-Chairman Joint Chiefs Staff Instruction (CJCSI) 6251.01 UHF MILSATCOM legacy equipment at Naval Computer & Telecommunications Area Master Station (NCTAMS) Atlantic (LANT), NCTAMS Pacific (PAC), Naval Computer & Telecommunications Station (NCTS) Naples and NCTS Guam. It replaces non-supportable aging WSC-5 terminals and provides centralized control of full UHF Follow-On (UFO) satellite constellation. It expands channel control capacity with Digital Modular Radio (DMR) at NCTAMS/NCTS. Each site will control up to 152 non-processed UHF MILSATCOM channels in adjacent satellite coverage areas using both physical and virtual channel control techniques. It remains backward compatible with all versions of all Demand Assigned Multiple Access (DAMA) waveforms; supports future waveform modifications and additions. It implements decentralized management of UHF SATCOM communications assets. Automated planning and management of UHF MILSATCOM resources with the Network Management System (NMS). It maintains planning reference data including terminals, networks, and configuration codes. It defines and ranks communications service requirements. CJCSI 6251.01 Rev B states MILSTD-188-181C/182B/183B (Integrated Waveform or IW) as optional waveforms for terminals.

Sensitive Compartmented Information Networks (SCI Networks) will provide enabling technology necessary for Intelligence, Cryptologic, and Information Warfare Systems with protected and reliable delivery of Special Intelligence (SI)/SCI data through a secure, controllable network interface with the Automated Digital Network System (ADNS) architecture. Specifically, SCI Networks shall ensure the availability of networks in defiance of hostile Information Warfare (IW). Technical, physical, and procedural security will control access, protect Department of Navy (DoN) information technology resources, and ensure continuous operation of the system within an accredited security posture. This network connectivity will expand the capability of cryptologic and intelligence personnel to fully interact with shore based nodes to provide expanding support to their commanders, including situational awareness, indications and warning (I&W), enemy force intentions, intelligence preparation for the Battlefield, and Battle Damage Assessment (BDA). SCI Networks will provide real time indications and warning support to joint and component commanders through reliable high-speed transfer of sensor data and intelligence information. Enhanced interoperability with other services, agencies, and allies will permit a level of integration of Sensitive Information (SI) operations not achievable with current systems.

The SCI Networks program began migrating to the Integrated Shipboard Network System (ISNS) Increment 2/Consolidated Afloat Network Enterprise Services (CANES) in FY09. ISNS Inc 2/CANES will transition Fleet networks to a single, adaptive, available, and secure computing network infrastructure while delivering

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technologies in: Integrated Voice, Video, and Data; Common Computing Environment (CCE); Afloat Core Services (ACS) and Multi-Level Security (MLS)/Cross Domain Solutions (CDS). CANES Increment 1 transition begins in FY 2010.

Maritime Integrated Broadcast Service (MIBS) (formerly Tactical Data Information Exchange Subsystem Broadcast (TADIXS-B)): Program Charter is to deliver Integrated Broadcast Service (IBS) data to operational and tactical decision makers aboard US Navy ships, submarines, aircraft, and other joint platforms. It will provide means to disseminate organically derived data from Navy platforms to other theater tactical, operational, and strategic users. MIBS will give the Navy a capability to deliver near real time data, enhancing the Common Operational Picture (COP), to support operations in all warfare areas, including; Ballistic Missile Defense (BMD), Anti-Air Warfare (AAW), Anti-Surface Warfare (ASUW), Undersea Warfare (USW), Electronic Warfare (EW). The program encompass all Maritime (Navy, Coast Guard, and Air Force) IBS systems (Joint Tactical Terminal - Maritime (JTT-M) and Radiant Ether (RE)). The systems will provides the Navy, Coast Guard other joint platforms with a coherent approach to fielding maritime IBS systems to take advantage of all available pathways and services, minimizes the waste of resources by doing away with duplication of development and fielding of different IBS systems. Radiant Ether (RE) is an IBS network solution that provides IBS data to users via SIPRNET, while minimizing utilized bandwidth. RE is a concept for net-centric software-based processing of Integrated Broadcast Service-Simplex (IBS-S) and Integrated Broadcast Service-Interactive (IBS-I) data. The software will transmit and receive all IBS data through the shipboard network. It is envisioned to reside on the ship's GENSER SECRET LAN, providing IBS data to required Tactical Data Processors (TDPs) via Transmission Control Protocol/Internet Protocol (TCP/IP) or specific cable interfaces with possible transmit capabilities. FY 2010 funding continues to support RE application/architecture integration for Navy IP IBS capabilities. Efforts include completing developmental testing (DT), beginning operational testing (OT) incorporation of changes in architecture, technical documentation, & training curriculum resulting from DT, and obtain network certification. FY 2011 funding continues to support RE application/architecture integration for Navy IP IBS capabilities. Efforts include conducting operational testing (OT), Joint Interoperability Test Command (JITC) interoperability certification and finalizing of all technical documentation.

Internet Protocol version 6 (IPv6): Manage and resource / coordinate resourcing of experiments and pilot testing of IPv6 technologies to reduce acquisition and operational risk associated with the IPv6 Transition. Experiments identified are in direct support of and identified in the Navy Technical Transition Strategy for IPv6.

FY 2011 will be utilized for continued SCI Networks 148G (V)2 and COMPOSE 4.0 Lab Development Test, MIBS, and IPv6 Transition development.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
JMINI IW Development	6.525	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Completed IW Technology and software development into Joint Ultra High Frequency (UHF) Military Satellite Communications (MILSATCOM) Network Integrated (JMINI) control system architecture. Completed software development of the next JMINI control system to replace non-supported equipment, reduce system components, support tech insertion and system re-architecture. Effort transferred to DISA in FY 2010.					
MIBS / Radiant Ether *FY 2009 Accomplishments:* Supported the integration of Network Enabled Integrated Broadcast Service (NEIBS) (formerly Radiant Ether (RE)) Internet Protocol (IP) based architecture to receive, process, display Integrated Broadcast Service (IBS) data for the Navy. Efforts entailed design architecture testing, documentation, Integrated Logistics Support (ILS) certification and training documentation. *FY 2010 Plans:* Continue to support the integration of NEIBS to receive, process, display IBS data for the Navy. Efforts will entail completing platform integration and developmental testing (DT), incorporate changes in architecture, technical documentation, & training curriculum resulting from DT. *FY 2011 Base Plans:* Continue to support NEIBS to receive, process, display IBS data for the Navy. Efforts will entail conducting developmental testing (DT)/operational testing (OT), Joint Interoperability Test Command (JITC) interoperability certification and finalizing of all technical documentation.	0.617	0.201	0.116	0.000	0.116
SCI Networks	1.162	0.656	0.176	0.000	0.176

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued integration and implementation of SCI Networks and associated Special Intelligence Communications. Completed development of AN/USQ-148A(V)5 and AN/USQ-148B(V)3 systems. Continued development of AN/USQ-148G(V)2 and AN/USQ-148H(V)2 systems. Started migration to ISNS Inc 2/CANES. *FY 2010 Plans:* Complete development of AN/USQ-148G(V)2 and AN/USQ-148H(V)2 systems. Conduct DT of COMPOSE 3.5 with AN/USQ-148G(V)2 system. Conduct DT for AN/USQ-148H(V)2. Program continues transition to CANES Increment 1. Conduct AN/USQ-148A(V)5 and AN/USQ-148B(V)3 Lab DTA. *FY 2011 Base Plans:* Conduct 148G(V)2 and COMPOSE 4.0 Lab DTA. Conduct 148H(V)2 and COMPOSE 4.0 Lab DTA. Begin 148G(V)2 and COMPOSE 4.0 DT/OT.					
IPv6 Transition *FY 2009 Accomplishments:* Managed and resourced / coordinated resourcing of experiments and pilot testing of IPv6 technologies. Navy programs of record supported and were expanded to start including software application migration and transition mechanism support. *FY 2010 Plans:* Manage and resource / coordinate resourcing of experiments and pilot testing of IPv6 technologies. The projected work products will include continuation of FY 2009 efforts. Additionally, Navy programs of record supported will continue to include software application migration and transition mechanism support.	1.937	0.205	0.132	0.000	0.132

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Manage and resource / coordinate resourcing of experiments and pilot testing of IPv6 technologies. The projected work products will include continuation of FY 2010 efforts. Additionally, Navy programs of record supported will continue to include software application migration and transition mechanism support.					
Acquisition Workforce Fund	0.039	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Funded acquisition workforce fund.					
Accomplishments/Planned Programs Subtotals	10.280	1.062	0.424	0.000	0.424

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/2900: *Maritime Integrated Broadcast Service (MIBS)*	4.345	0.790	6.909	0.000	6.909	8.151	0.896	0.940	0.858	Continuing	Continuing
• OPN/3050: *Comm Auto - SCI NETWORKS*	19.367	34.329	24.618	0.000	24.618	10.333	1.808	0.000	0.000	0.000	90.455
• OPN/3215: *Sat Comm - JMINI*	2.342	0.000	3.362	0.000	3.362	1.624	0.000	0.000	0.000	0.000	7.328

D. Acquisition Strategy

JMINI: The Integrated Waveform upgrade will be performed. It was jointly developed with Defense Information Systems Agency (DISA) with a planned software upload date of June 2009. The JMINI Control System provides channel control to all ultra high frequency satellite communications demand assigned mulitple access (UHF SATCOM DAMA) waveforms globally. The Integrated Waveform capability is an enhancement to those military satellite communications waveforms. Per Net-Centric Functional Capabilities (NC FCB), JMINI Program and DISA are jointly developing technology for emergent delivery to the joint warfighter in June 2009. Technology transition to final implementation into the JMINI architecture has not been determined.

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SCI Networks: Sensitive Compartmented Information (SCI) Networks variants are comprised of Commercial Off the Shelf (COTS) equipment and Government Off the Shelf (GOTS) software integrated into SCI Networks designs associated with each class of ship. Next Generation versions are being considered for acquisition via the Lockheed Martin Q-70 contract vehicle.

MIBS: The Radiant Ether (RE) will be comprised of software developed by the Air Force and commercial hardware. RE will provide Internet Protocol (IP) based Integrated Broadcast Service (IBS) capability to the fleet. The efforts include Development Test and Evaluation (DT&E) conducted in existing laboratory environment to ensure software maturity prior to Operational Test and Evaluation (OT&E).

IPv6: IPv6 testing and experimentation will be used to manage the risk of transition within existing Programs of Record (PORs). Ultimately, the results of the testing and experimentation will influence the acquisition of IPv6 capable products.

E. Performance Metrics

Sensitive Compartmented Information (SCI) Networks: Develops a consolidated SCI architecture that reduces total ownership cost (TOC) of the afloat SI Local Area Network (LAN) systems and reduces the risk for implementation of CANES by introducing a Common Computing Environment (CCE) and an Afloat Cores Services (ACS) Architecture. SCI Networks will begin migrating to ISNS Inc 2/Consolidated Afloat Networks and Enterprise Services (CANES) in FY10. ISNS Inc 2/CANES will serve to transition numerous Fleet networks to a single, adaptive, available, secure computing network infrastructure while delivering enhanced technologies in: Integrated Voice, Video and Data; Common Computing Environment (CCE); Service Oriented Architecture (SOA); and Multi-Level Security (MLS)/Cross Domain Solutions (CDS).

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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2472: *Mobile User Objective Sys (MUOS)*	499.973	385.864	405.699	0.000	405.699	245.639	126.000	0.000	0.000	0.000	3,962.057
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Mobile User Objective System (MUOS) program provides for the development of the next generation Department of Defense (DoD) advanced narrowband communications satellite constellation. The current Ultra-High Frequency (UHF) Follow-On (UFO) constellation is projected to degrade below acceptable availability parameters in 2011. The MUOS Program requirements are baselined to the 15 January 2008 Capability Production Document (CPD) Increment 1 validated by Joint Requirements Oversight Council Memorandum (JROCM) 015-08, which was derived from the 17 July 2001 MUOS Operational Requirements Documents (ORD) as modified by JROCM 187-03, dated 23 September 2003.

This MUOS Research Development Test & Evaluation, Navy (RDT&E,N) effort supports an On-Orbit Capability (OOC) in calender year (CY) 2011 and Full Operational Capability (FOC) in CY2015. A MUOS Risk Reduction & Design Development (RRDD) contract was awarded in September 2004 to Lockheed Martin after Key Decision Point (KDP) B. The approval at KDP-B in September 2004 officially designated the MUOS Program as a DoD Space Major Defense Acquisition Program.

In FY 2011, MUOS efforts will be focused on completion of work on the assembly, integration and testing of satellite 1, satellite 1 shipment and launch vehicle mate operations and launch. Continue work on assembly, integration and testing of satellite 2. Complete development and test of follow-on versions of the CAI waveform. Complete ground systems software development/final qualification tests, as well as assembly/integration/factory acceptance tests. Complete site acceptance test at Wahiawa and Australia ground stations.

Note: The Navy anticipates requesting a reprogramming to meet FY10 requirements.

The UHF SATCOM Hosted Payload effort was funded to mitigate some of the long-term legacy UHF gap caused by projected UFO failures and the availability of the MUOS-compatible Joint Tactical Radio System (JTRS). FY09 funding supported the acquisition strategy development and contract planning efforts for the development of a UHF Hosted Payload capability. In February 2009, the Hosted Payload program was cancelled. Studies have identified methods to obtain a cost-effective, low risk path to implement legacy payload changes to mitigate any on-orbit losses of UHF capability and ensure continuity of legacy requirements. FY10 plan is to pursue additional UHF capability and incorporate into the MUOS spacecraft's final assembly and integration for Flight 1 and Flight 2.

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Mobile User Objective Sys (MUOS)	497.028	353.480	405.699	0.000	405.699
FY 2009 Accomplishments: Continued work on fabrication, assembly, integration and testing of the first two satellites. Continued fielding and testing of the ground segment. *FY 2010 Plans:* Continue work on the assembly, integration and testing of satellite 1, continue fabrication of satellite 2, and develop and test early versions of the Common Air Interface (CAI) waveform, including spectrum and certification testing. Design and test additional engineering changes to the contract baseline primarily due to additional National Security Agency (NSA) requirements. Continue software development and testing for the integrated ground system, which includes the MUOS CAI, as well as continue fielding and testing of the equipment for the ground infrastructure. *FY 2011 Base Plans:* Complete work on the assembly, integration and testing of satellite 1, satellite 1 shipment and launch vehicle mate operations, and launch. Continue work on assembly, integration and testing of satellite 2. Complete development and test of follow-on versions of the CAI waveform. Complete ground systems software development/final qualification tests, as well as assembly/integration/factory acceptance tests. Complete site acceptance test at Wahiawa and Australia ground stations.					
UHF Augmentation (formerly known as UHF Hosted Payload)	0.491	32.384	0.000	0.000	0.000
FY 2009 Accomplishments: Developed acquisition strategy and documentation to support contract award for the development of the Ultra-High Frequency (UHF) Satellite Communications (SATCOM) Hosted Payload.					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: In February 2009, the Hosted Payload program was cancelled. Studies have identified methods to obtain a cost-effective, low risk path to implement legacy payload changes to mitigate any on-orbit losses of UHF capability and ensure continuity of legacy requirements. FY10 plan is to pursue additional UHF capability and incorporate into the MUOS spacecraft's final assembly and integration for Flight 1 and Flight 2.					
Acquisition Workforce Funding *FY 2009 Accomplishments:* Funded acquisition workforce fund.	2.454	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	499.973	385.864	405.699	0.000	405.699

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 2433: *Mobile User Objective System (MUOS) (WPN Funding)*	342.942	509.863	505.734	0.000	505.734	208.250	206.086	25.678	11.700	Continuing	Continuing

D. Acquisition Strategy

Concept Exploration contracts were awarded in early FY 2000 and completed in late FY 2001. Two Component Advancement Development (CAD) contracts were awarded in Q4 FY 2002. A Risk Reduction & Design Development (RRDD) contract was awarded in September 2004 for the first two satellites, system engineering and associated ground infrastructure. Research Development Test & Evaluation, Navy (RDT&E,N) funds will be used to procure the first two satellites and to prepare the MUOS ground site located in Australia. Weapons Procurement, Navy (WPN) funds will be used to procure the remaining four satellites and launch services for all six satellites. Military Construction (MILCON) funds were required to prepare MUOS ground sites located in Sicily (Niscemi location), Virginia (Northwest location) and Hawaii (Wahiawa location).

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Program Office initiated acquisition strategy and discussions with potential vendors capable of developing the Hosted Payload in FY 2009. The technology development, design and build efforts were planned for FY 2010. In February 2009, the Hosted Payload program was cancelled. Studies have identified methods to obtain a cost-effective, low risk path to implement legacy payload changes to mitigate any on-orbit losses of UHF capability and ensure continuity of legacy requirements. FY10 plan is to pursue additional UHF capability and incorporate into the MUOS spacecraft's final assembly and integration for Flight 1 and Flight 2.

E. Performance Metrics

Earned Value Management (EVM) is used for metrics reporting and risk management.

The MUOS Risk Reduction & Design Development (RRDD) contract was awarded to Lockheed Martin in September 2004. Completion of the RDT&E,N funded portion of the contract (CLIN 1) is expected in FY12.
The RDT&E,N funding profile from contract award to completion is represented by the following efforts:

FY05-06: System Engineering efforts associated with preparation and completion of the Preliminary Design Review (PDR); and preparation for the Critical Design Review (CDR).

FY07-08: Completion of CDR phase; procure material and begin fabrication of satellites (Qty 2); and begin design and development of entire ground segment.

FY09-12: Continue assembly, integration and testing, launch and achieve On-Orbit Capability of satellites 1 and 2; develop and test Common Air Interface (CAI) waveform; complete ground system software development/final qualification and acceptance testing. Complete site acceptance test at all ground stations.

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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
RRDD AOS Contract	C/CPAF	Lockheed Martin (LM) Sunnyvale, CA	2,409.609	335.785	Jan 2010	390.160	Nov 2010	0.000		390.160	Continuing	Continuing	Continuing
CE Contracts & Demos	C/FFP	LM / Raytheon / Spec Astro / Boeing VAR	21.320	0.000		0.000		0.000		0.000	0.000	21.320	Continuing
CAD Contracts	C/FFP	LM / Raytheon VAR	105.154	0.000		0.000		0.000		0.000	0.000	105.154	Continuing
AoA for MUOS	MIPR	Aerospace El Segundo, CA	2.782	0.000		0.000		0.000		0.000	0.000	2.782	Continuing
Government Studies	Various/ Various	VAR VAR	0.711	0.000		0.000		0.000		0.000	0.000	0.711	Continuing
Crypto Procurement	MIPR	NSA Fort Meade, MD	3.703	0.000		0.000		0.000		0.000	0.000	3.703	Continuing
UHF Hosted Payload	Various/ Various	VAR VAR	0.000	0.000		0.000		0.000		0.000	0.000	0.000	Continuing
UHF Augmentation	C/CPAF	Lockheed Martin (LM) Sunnyvale, CA	0.491	32.384	Jan 2010	0.000		0.000		0.000	0.000	32.875	Continuing
		Subtotal	2,543.770	368.169		390.160		0.000		390.160			

Remarks

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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
UFO TT&C Terminal Upgrades	Various/ Various	VAR VAR	10.691	0.000		0.000		0.000		0.000	0.000	10.691	Continuing
Facilities Modifications	Various/ Various	VAR VAR	2.260	0.203	Apr 2010	0.207	Apr 2011	0.000		0.207	0.000	2.670	Continuing
Australian Site Prep	C/FFP	Boeing Brisbane, AUS	23.594	1.400	Apr 2010	0.000		0.000		0.000	0.000	24.994	Continuing
Leased Lines	C/FFP	Australian Government Brisbane, AUS	0.000	2.000	Apr 2010	0.000		0.000		0.000	0.000	2.000	Continuing
Studies & Analyses (EELV)	MIPR	SMC/FMAIC El Segundo, CA	0.825	0.000		0.000		0.000		0.000	0.000	0.825	Continuing
ISCS Integration	WR	NAVSOC Point Mugo, CA	6.765	0.223	Apr 2010	0.227	Apr 2011	0.000		0.227	0.000	7.215	Continuing
Narrowband SATCOM SE Group (NSSEG) - MUOS N2N	WR	SSC LANT Charleston, SC	0.623	0.623	Apr 2010	0.623	Apr 2011	0.000		0.623	0.000	1.869	Continuing
		Subtotal	44.758	4.449		1.057		0.000		1.057	0.000	50.264	

Remarks

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Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various/ Various	VAR VAR	3.821	3.377	Jan 2010	3.481	Jan 2011	0.000		3.481	Continuing	Continuing	Continuing
Operational Test & Evaluation	Various/ Various	VAR VAR	2.505	0.450	Jan 2010	1.500	Jan 2011	0.000		1.500	Continuing	Continuing	Continuing
		Subtotal	6.326	3.827		4.981		0.000		4.981			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	VAR VAR	122.744	5.470	Oct 2009	5.398	Oct 2010	0.000		5.398	Continuing	Continuing	Continuing
Government Engineering Support	Various/ Various	VAR VAR	25.568	2.041	Oct 2009	2.307	Oct 2010	0.000		2.307	Continuing	Continuing	Continuing
Program Management Support	Various/ Various	VAR VAR	34.405	1.708	Oct 2009	1.156	Oct 2010	0.000		1.156	Continuing	Continuing	Continuing
Travel	Various/ Various	VAR VAR	2.241	0.200	Oct 2009	0.200	Oct 2010	0.000		0.200	Continuing	Continuing	Continuing
Frequency Filing	C/FFP	ITU Geneva, CH	0.855	0.000		0.440	Oct 2010	0.000		0.440	Continuing	Continuing	Continuing

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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
IPA/ICAT	Various/ Various	VAR VAR	0.390	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Acquistion Workforce Fund	Various/ Various	VAR VAR	2.454	0.000		0.000		0.000		0.000	0.000	2.454	Continuing
		Subtotal	188.657	9.419		9.501		0.000		9.501			

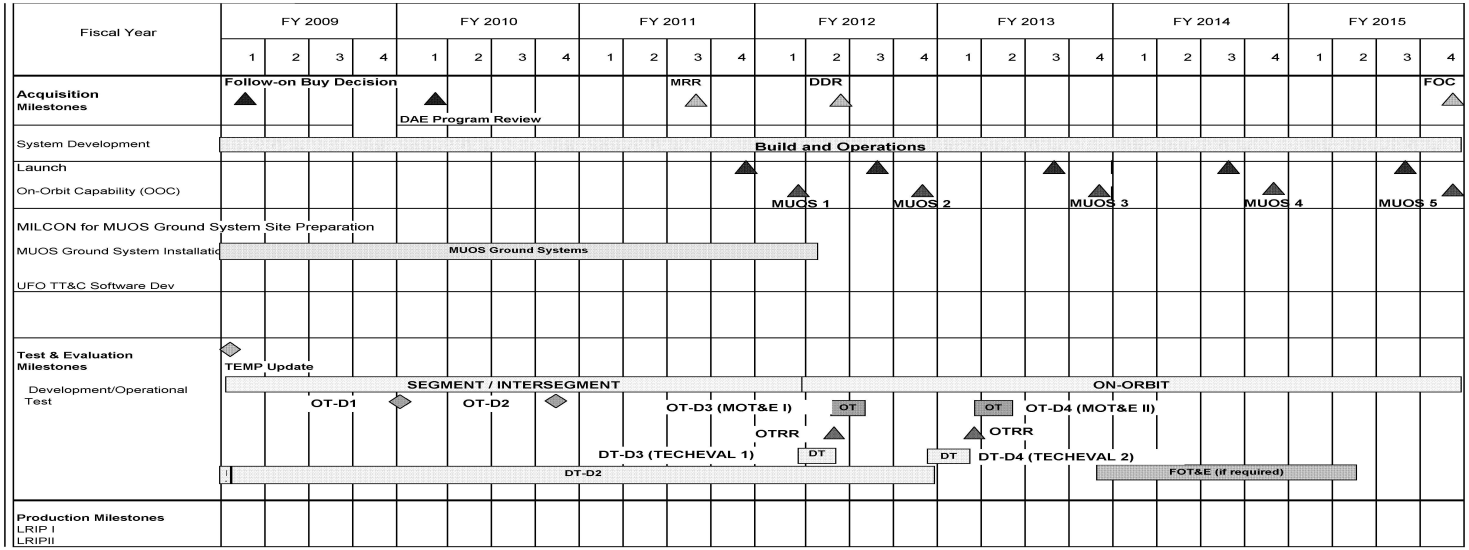
Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2,783.511	385.864		405.699		0.000		405.699			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303109N: *Satellite Communications (Space)*	**PROJECT** 2472: *Mobile User Objective Sys (MUOS)*

UNCLASSIFIED



Note: Acronyms are spelled out on R-4a

Exhibit R4, Schedule Profile

Change Descriptions:

(1) As a result of loss of all schedule margin and contractor cost overruns, the projected Launch and OOC dates for MUOS Satellites #1-5 have shifted beyond the Prime Contractor's baseline schedule.
(2) Test events reflect the latest notional schedule based on recent change in Launch/OOC dates

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303109N: *Satellite Communications (Space)*	**PROJECT** 2472: *Mobile User Objective Sys (MUOS)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Test and Evaluation Master Plan (TEMP)	1	2009	1	2009
Segment/Intersegment Testing	1	2009	1	2012
Build and Operations Phase	1	2009	4	2015
Operational Assessment (OT-D1)	1	2010	1	2010
Operational Test Readiness Review (OTRR)	2	2012	1	2013
DT-D2	1	2009	4	2012
Follow-On Buy Decision	1	2009	1	2009
Defense Acquisition Executive (DAE) Review	1	2010	1	2010
DT-D3 Tech Eval 1	1	2012	2	2012
Mission Readiness Review (MRR)	3	2011	3	2011
Operational Assessment (OT-D2)	4	2010	4	2010
Launch of Satellite #1 (MUOS 1)	4	2011	4	2011
On-Orbit Capability for Satellite #1 (MUOS 1)	1	2012	1	2012
MUOS Ground System Installation	1	2009	2	2012
On-Orbit Testing	1	2012	4	2015
OT-D3 Multi-Service Operational Testing & Evaluation (MOT&E 1)	2	2012	3	2012
OT-D4 Multi-Service Operational Testing & Evaluation (MOT&E 2)	1	2013	2	2013
Launch of Satellite #2 (MUOS 2)	3	2012	3	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303109N: *Satellite Communications (Space)*	**PROJECT** 2472: *Mobile User Objective Sys (MUOS)*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
On-Orbit Capability for Satellite #2 (MUOS 2)	4	2012	4	2012
DT-D4 Tech Eval 2	4	2012	1	2013
Follow-On Test Evaluation (FOT&E)	4	2013	2	2015
Deployment Decision Review (DDR)	2	2012	2	2012
Launch of Satellite #3 (MUOS 3)	3	2013	3	2013
On-Orbit Capability for Satellite #3 (MUOS 3)	4	2013	4	2013
Launch of Satellite #4 (MUOS 4)	3	2014	3	2014
On-Orbit Capability for Satellite #4 (MUOS 4)	4	2014	4	2014
Launch of Satellite #5 (MUOS 5)	3	2015	3	2015
On-Orbit Capability for Satellite #5 (MUOS 5)	4	2015	4	2015
Full Operational Capability (FOC)	4	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 9122: *Adv Wideband System Integrated Term Prog*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9122: *Adv Wideband System Integrated Term Prog*	0.212	2.515	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	64.402
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Navy Transformational Communications (NTC) terminal program provides for the development and production of terminals to provide high capacity, reliable, Anti-Jam/Low Probability of Intercept (AJ/LPI) communications capability to the fleet. Terminals will support multiple data streams over Q-band, Ka-band, and X-band. The Secretary of Defense (SECDEF) recommended this program for termination. As a consequence the basis for the NTC is no longer valid. Navy will utilize remaining funds to close out the program and properly document the research and development done to date.

FY11 OCO: N/A

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Adv Wideband System Integrated Term Prog	0.212	2.515	0.000	0.000	0.000
Overall program efforts include investigation of emerging technologies through study, development, and associated testing for feasibility of satellite communications-related program insertion. *FY 2009 Accomplishments:* Participated in Joint TSAT system and terminal development activities. Continued system level engineering process related to Navy TSAT Terminal development with space, TSAT Mission Operations System (TMOS), and joint service activities.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 9122: *Adv Wideband System Integrated Term Prog*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: The Secretary of Defense (SECDEF) recommended this program for termination. As a consequence the basis for the NTC is no longer valid. Navy will utilize remaining funds to close out the program and properly document the research and development done to date.					
Accomplishments/Planned Programs Subtotals	0.212	2.515	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0303109N/9122: *Acquisition Workforce Fund*	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021

D. Acquisition Strategy

System architecture is defined by the ongoing Transformational Communication Study. Acquisition documentation includes the development of a complete set of documentation required to support a MS A decision, including, a terminal specification, Statement of Work (SOW), Acquisition Strategy Report (ASR), and Source Selection Plan.

E. Performance Metrics

N/A.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 9122: *Adv Wideband System Integrated Term Prog*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	Various/ Various	Various Various	39.619	0.669	Oct 2009	0.000		0.000		0.000	0.000	40.288	Continuing
Systems Engineering1	Various/ Various	Various Various	5.764	0.250	Oct 2009	0.000		0.000		0.000	0.000	6.014	Continuing
Systems Engineering2	WR	Various Various	4.418	0.450		0.000		0.000		0.000	0.000	4.868	Continuing
		Subtotal	49.801	1.369		0.000		0.000		0.000	0.000	51.170	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	Various Various	4.665	0.200	Oct 2009	0.000		0.000		0.000	0.000	4.865	Continuing
Studies & Analysis	WR	Various Various	3.735	0.190		0.000		0.000		0.000	0.000	3.925	Continuing
Information Assurance	WR	Various Various	1.040	0.400	Oct 2009	0.000		0.000		0.000	0.000	1.440	Continuing
		Subtotal	9.440	0.790		0.000		0.000		0.000	0.000	10.230	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 9122: *Adv Wideband System Integrated Term Prog*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	Various Various	0.349	0.000		0.000		0.000		0.000	0.000	0.349	Continuing
Program Management Support	Various/ Various	Various Various	1.922	0.100	Oct 2009	0.000		0.000		0.000	0.000	2.022	Continuing
Acquisisiton Management Support	Various/ Various	Various Various	0.853	0.200	Oct 2009	0.000		0.000		0.000	0.000	1.053	Continuing
Travel	Various/ Various	Various Various	0.318	0.056		0.000		0.000		0.000	0.000	0.374	Continuing
Acquistion Workforce	Allot	Not Specified Not Specified	0.000	0.000		0.000		0.000		0.000	0.000	0.000	Continuing
		Subtotal	3.442	0.356		0.000		0.000		0.000	0.000	3.798	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	62.683	2.515		0.000		0.000		0.000	0.000	65.198	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303109N: *Satellite Communications (Space)*	**PROJECT** 9122: *Adv Wideband System Integrated Term Prog*

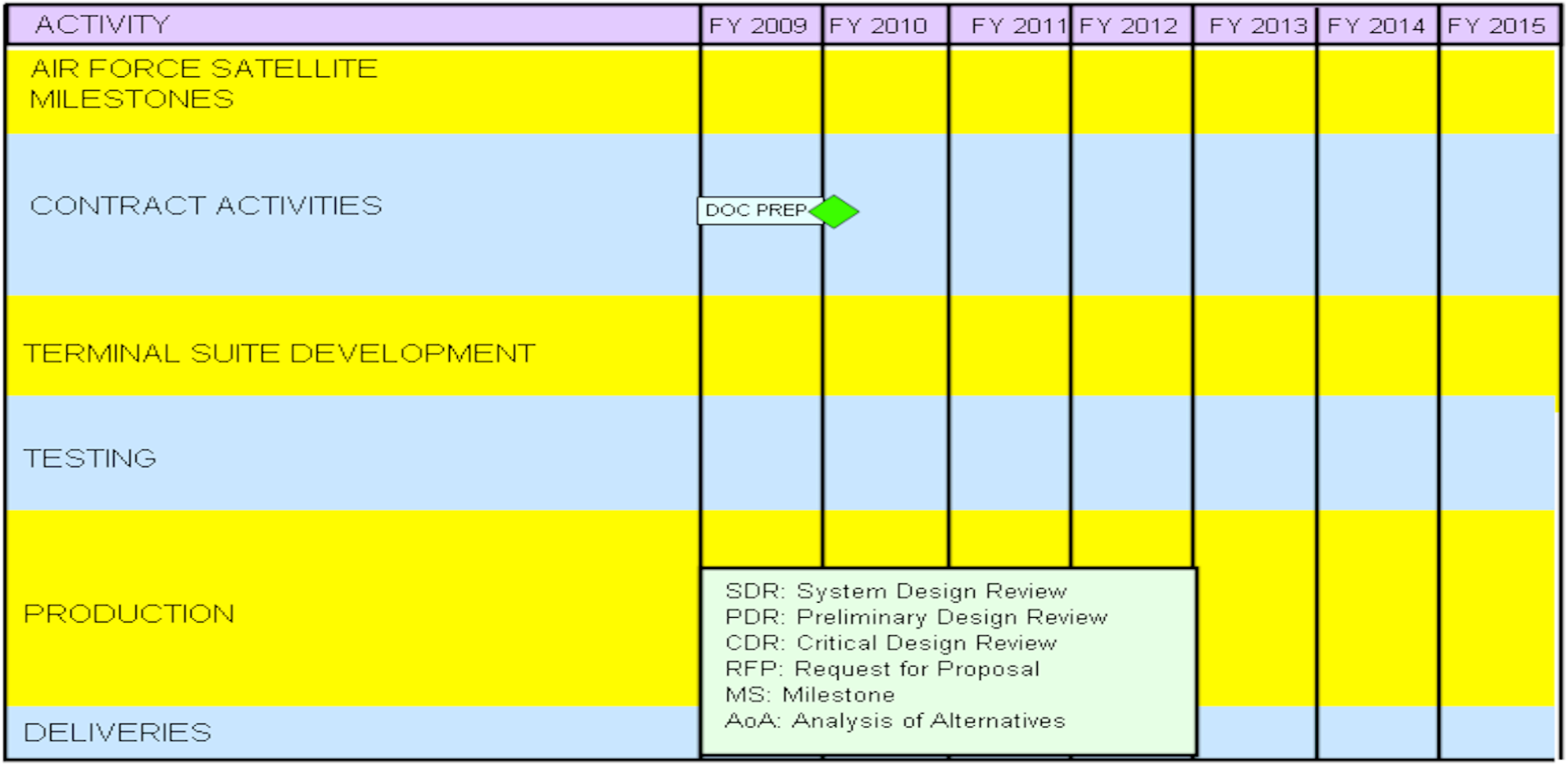


Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303109N: *Satellite Communications (Space)*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.797	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.485
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional adds.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: JOINT INTEGRATED SYSTEMS FOR ADVANCED DIGITAL NETW *FY 2009 Accomplishments:* Completed development of JIST software (V3S2), hardware refresh and transition final JIST product to USSTRATCOM (includes training, shipping and intitial set-up).	0.797	0.000
Congressional Adds Subtotals	0.797	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Adds.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303138N: *Consoldiated Afloat Network Ent Services(CANES)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	45.324	63.563	0.000	63.563	10.270	12.659	14.022	14.255	Continuing	Continuing
9C87: *CANES Integration*	0.000	45.324	63.563	0.000	63.563	10.270	12.659	14.022	14.255	Continuing	Continuing

Note

FY-11 Military Intelligence Program related funding transitions to PE 0303238N.

A. Mission Description and Budget Item Justification

CANES will consolidate and reduce the number of Navy afloat networks with state-of-the-art, high-speed networks and infrastructure. CANES will provide a robust, survivable, secure, scalable Afloat Core Services (ACS) enabled Common Computing Environment (CCE) for ships, submarines, and selected shore sites in addition to providing some proportional capability for aircraft. CANES will provide this ACS enabled CCE capability across all security domains from unclassified through Sensitive Compartmented Information (SCI). CANES is the physical single Program of Record (POR) replacement for the existing afloat networks PORs, Integrated Shipboard Network Systems (ISNS), Combined Enterprise Regional Information Exchange Systems Maritime (CENTRIXS-M), SCI Networks and Submarine LAN (SubLAN). In addition, CANES will provide functionality currently provided in the Video Information Exchange System (VIXS) and portions of Computer Network Defense (CND). CANES will field on a four year hardware baseline and a two year rolling software baseline providing application. The CANES vision is based on the overarching concept of reducing the number of afloat networks and providing enhanced efficiency through a single engineering focus on integrated technical solutions. This will allow for streamlined acquisition, contracting, and test events, and significant lifecycle efficiencies through consolidation of multiple current configuration management baselines, logistics and training efforts into a unified support structure. The primary goals of the CANES program are to: 1) reduce the number of networks through the use of mature, certified, cross domain technologies; 2) reduce the infrastructure footprint and associated costs for hardware afloat; and 3) provide increased capability to meet current and projected warfighter requirements.

CANES will enable application developers to begin decoupling applications and services software away from independent, unique hardware stacks and host them on a common interoperable environment. This approach will incrementally deploy and will provide a basis for overall Navy Return on Investment (ROI) over the existing strategies.

With the evolution of afloat network programs migrating into the CANES program, funding increases will provide even more comprehensive technology capabilities across the fleet. While the networks capabilities of the ISNS, CENTRIXS-M, SubLAN, Automated Digital Network System, and their associated personal computer hardware and software continue to be supported, CANES will reduce the infrastructure footprint and collapse a significant amount of Afloat Networks through the use of mature cross domain technologies. FY11 will focus on CANES System Design and Development (SDD), close out of the SDD phase for transition to Low-

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303138N: *Consoldiated Afloat Network Ent Services(CANES)*

Rate Initial Production (LRIP) phase and LRIP contract development. Initiate acquisition and Capabilities Production Document (CPD) for Milestone (MS) C. Procure two Engineering Development Models (EDM) units in FY11. The EDM units function as pre-production units for Environmental Qualification Test and operational assessment, which require funding for necessary installation design and installation costs.

FY09 funded in PE 0604231N, project 2307 and PE 0305208N, project 2174.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	45.513	0.000	0.000	0.000
Current President's Budget	0.000	45.324	63.563	0.000	63.563
Total Adjustments	0.000	-0.189	63.563	0.000	63.563
• Congressional General Reductions		-0.189			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	63.563	0.000	63.563

Change Summary Explanation

Technical: CANES Increment and Configuration Build (C(B)2) language have been removed and acquisition strategy has been modified to identify new versions as Technical Insertion (TI-1, TI-2, etc.).

Schedule: Program initiation occurs at MS B, following pre-acquisition risk reduction efforts to refine the technological approach. CANES System Design and Development (SDD) contract award shifted one quarter to Q2FY10. Due to the delay of the contract award the schedule has moved to the right, following activities also were shifted to the right: Preliminary Design Review (PDR), Critical Design Review (CDR), Developmental Testing (DT), delivery of Engineering Development Model (EDM).

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303138N: *Consoldiated Afloat Network Ent Services(CANES)*	PROJECT 9C87: *CANES Integration*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9C87: *CANES Integration*	0.000	45.324	63.563	0.000	63.563	10.270	12.659	14.022	14.255	Continuing	Continuing
Quantity of RDT&E Articles	0	2	2	0	2	0	0	0	0		

Note

FY-11 Military Intelligence Program related funding transitions to PE 0303238N.

A. Mission Description and Budget Item Justification

CANES will consolidate and reduce the number of Navy afloat networks with state-of-the-art, high-speed networks and infrastructure. CANES will provide a robust, survivable, secure, scalable Afloat Core Services (ACS) enabled Common Computing Environment (CCE) for ships, submarines, and selected shore sites in addition to providing some proportional capability for aircraft. CANES will provide this ACS enabled CCE capability across all security domains from unclassified through Sensitive Compartmented Information (SCI). CANES is the physical single Program of Record (POR) replacement for the existing afloat networks PORs, Integrated Shipboard Network Systems (ISNS), Combined Enterprise Regional Information Exchange Systems Maritime (CENTRIXS-M), SCI Networks and Submarine LAN (SubLAN). In addition, CANES will provide functionality currently provided in the Video Information Exchange System (VIXS) and portions of Computer Network Defense (CND). CANES will field on a four year hardware baseline and a two year rolling software baseline providing application. The CANES vision is based on the overarching concept of reducing the number of afloat networks and providing enhanced efficiency through a single engineering focus on integrated technical solutions. This will allow for streamlined acquisition, contracting, and test events, and significant lifecycle efficiencies through consolidation of multiple current configuration management baselines, logistics and training efforts into a unified support structure. The primary goals of the CANES program are to: 1) reduce the number of networks through the use of mature, certified, cross domain technologies; 2) reduce the infrastructure footprint and associated costs for hardware afloat; and 3) provide increased capability to meet current and projected warfighter requirements.

CANES will enable application developers to begin decoupling applications and services software away from independent, unique hardware stacks and host them on a common interoperable environment. This approach will incrementally deploy and will provide a basis for overall Navy Return on Investment (ROI) over the existing strategies.

FY09 funded in PE 0604231N, project 2307 and PE 0305208N, project 2174.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303138N: *Consoldiated Afloat Network Ent Services(CANES)*	PROJECT 9C87: *CANES Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
CANES Integration	0.000	45.324	63.563	0.000	63.563

FY09 funded in PE 0604231N, project 2307 and PE 0305208N, project 2174.

FY 2010 Plans:

Program/budget transition from ISNS Inc 2/CANES to CANES which consolidates afloat networks and enterprise services aboard ships and shore sites. These capabilities include increased availability to mission critical level ships, multiple security enclaves, application hosting, Afloat Core Services (ACS), and collaboration services. Begin required statutory and regulatory programmatic activities required to achieve Milestone B (MS B) and Milestone C (MS C) including acquisition documentation and System Design and Development (SDD) efforts. Conduct Developmental Testing (DT) on CANES. Conduct Preliminary Design Review (PDR) and Critical Design Review (CDR) on CANES. Review and initial operational assessments will be conducted on a minimum of two system developer baselines. CANES ACS version 1.1 will be delivered to the two system developers for integration activities against the proposed development baselines. Develop Cost Analysis Requirements Document (CARD) and Life Cycle Cost Estimate (LCCE) for CANES. Award system development contract on a minimum of two system developer baselines. Procure two Engineering Development Models (EDM) units, which function as non-robust prototypes to be used as lab assets. Prepare Capabilities Production Document (CPD). Achieve MS B. Develop design installation studies and participate in source selection activities.

FY 2011 Base Plans:

Continue CANES statutory and regulatory Acquisition documentation to achieve CANES MS C. Complete revised CARD & LCCE. Procure two Engineering Development Models (EDM) units for Environmental Qualification Test (EQT), operational assessment, integration and regression testing. The EDM units function as pre-production units for EQT and operational assessment, which require additional funding for necessary installation design and installation costs. Continue DT and begin Operational Testing (OT). Close out system development contract and complete down-select of the prime system developer to continue into Low-Rate Initial Production (LRIP).

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303138N: *Consoldiated Afloat Network Ent Services(CANES)*	PROJECT 9C87: *CANES Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	0.000	45.324	63.563	0.000	63.563

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/2915: *CANES*	0.000	1.177	34.398	0.000	34.398	190.528	283.786	323.824	331.648	Continuing	Continuing
• OPN/2925: *CANES Intell*	0.000	0.000	10.432	0.000	10.432	67.542	74.214	67.144	68.317	Continuing	Continuing
• RDTE/0303238N: *CANES MIP*	0.000	0.000	8.375	0.000	8.375	7.406	0.000	0.000	0.000	0.000	15.781

D. Acquisition Strategy

System Design & Development, procurement, integration, and installation efforts for CANES and Afloat Core Services (ACS) are accomplished through various SPAWAR Systems Centers (SSC) and Program Executive Office (PEO) C4I contracts.

E. Performance Metrics

Early RDT&E investment and sustainment of dual design contractors through the development phase will save 10-30% of Total Ownership Cost (TOC) over the life cycle of the program. Cost avoidance throughout the life of the program is based on performance gains that are measured (not quantified) by 1) reducing the number of networks through the use of mature, certified, cross domain technologies; 2) reducing the infrastructure footprint and associated costs for hardware afloat; and 3) providing increased capability to meet current and projected warfighter requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303138N: *Consoldiated Afloat Network Ent Services(CANES)*	PROJECT 9C87: *CANES Integration*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	Vendor A TBD TBD	0.000	14.800	Feb 2010	13.000	Nov 2010	0.000		13.000	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPFF	Vendor B TBD TBD	0.000	14.800	Feb 2010	13.000	Nov 2010	0.000		13.000	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Vendor A TBD TBD	0.000	1.250	Feb 2010	1.500	Nov 2010	0.000		1.500	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Vendor B TBD TBD	0.000	1.250	Feb 2010	1.500	Nov 2010	0.000		1.500	Continuing	Continuing	Continuing
Systems Engineering	WR	SPAWAR Systems Center San Diego, CA and Charleston, SC	0.000	6.713	Feb 2010	4.400	Dec 2010	0.000		4.400	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Vendor C TBD TBD	0.000	0.000		17.600	Feb 2011	0.000		17.600	Continuing	Continuing	Continuing
		Subtotal	0.000	38.813		51.000		0.000		51.000			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303138N: *Consoldiated Afloat Network Ent Services(CANES)*	PROJECT 9C87: *CANES Integration*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	C/CPFF	Vendor A TBD TBD	0.000	0.500	Feb 2010	1.000	Nov 2010	0.000		1.000	Continuing	Continuing	Continuing
Development Test & Evaluation	C/CPFF	Vendor B TBD TBD	0.000	0.500	Feb 2010	1.000	Nov 2010	0.000		1.000	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR Norfolk, VA and Washington, DC	0.000	0.200	Jan 2010	0.200	Dec 2010	0.000		0.200	Continuing	Continuing	Continuing
Operational Test & Evaluation	C/CPFF	Vendor C TBD TBD	0.000	0.000		8.263	Feb 2011	0.000		8.263	Continuing	Continuing	Continuing
		Subtotal	0.000	1.200		10.463		0.000		10.463			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	SPAWAR Systems Center San Diego, CA and Charleston, SC	0.000	1.811	Feb 2010	1.000	Nov 2010	0.000		1.000	Continuing	Continuing	Continuing
		Various	0.000	3.500	Oct 2009	1.100	Oct 2010	0.000		1.100	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303138N: *Consoldiated Afloat Network Ent Services(CANES)*	PROJECT 9C87: *CANES Integration*

Management Services ($ in Millions)

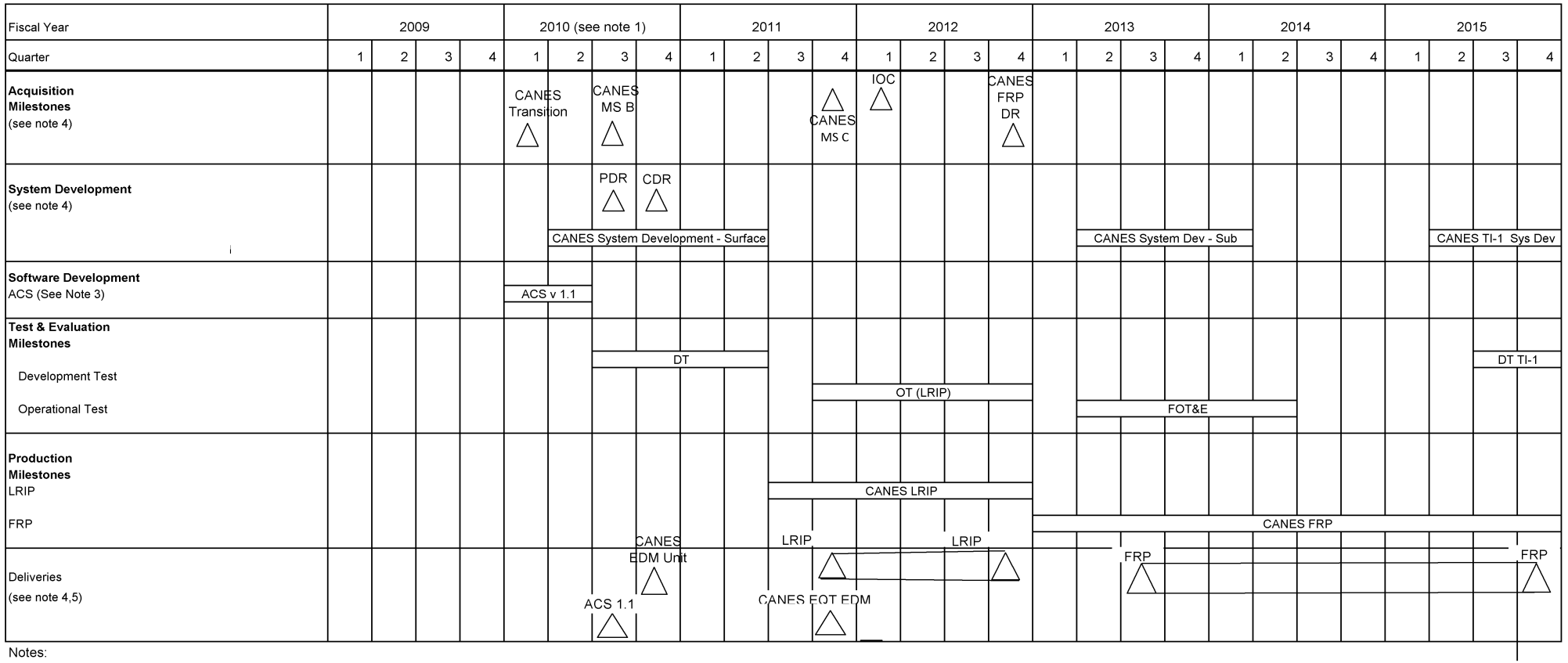
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various/ Various	Various											
		Subtotal	0.000	5.311		2.100		0.000		2.100			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	45.324		63.563		0.000		63.563			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303138N: *Consoldiated Afloat Network Ent Services(CANES)*	**PROJECT** 9C87: *CANES Integration*



Notes:
1/ FY10 efforts funded under PE 0303138N.
2/ EDM Unit included in LRIP quantities to meet Target Inventory Objective, prior to MS C.
3/ ACS v1.1 software development funded by ISNS.
4/CANES System Design and Development (SDD) contract award shifted one quarter to Q2FY10. Due to the delay of the contract award the schedule has moved to the right, following activities also were shifted to the right: Initial Operational Capability (IOC), Preliminary Design Review (PDR), Critical Design Review (CDR), Developmental Testing (DT), Operational Testing (OT), Low-Rate Initial Production (LRIP), delivery of Engineering Development Models (EDM).
5/ACS v1.1 delivery date has been corrected.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303138N: *Consoldiated Afloat Network Ent Services(CANES)*	PROJECT 9C87: *CANES Integration*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Acquisition Milestone - CANES MS B	3	2010	3	2010
Acquisition Milestone - CANES Transition	1	2010	1	2010
Acquisition Milestone - CANES MS C	4	2011	4	2011
Acquisition Milestone - IOC	1	2012	1	2012
Acquisition Milestone - FRP Decision Review	4	2012	4	2012
System Development - Surface	2	2010	2	2011
System Development - PDR	3	2010	3	2010
System Development - CDR	4	2010	4	2010
System Development - Subs	2	2013	1	2014
System Development - Technical Insertion 1	2	2015	4	2015
Development Test	3	2010	2	2011
Development Test - Technical Insertion 1	3	2015	4	2015
OperationalTest - (LRIP)	4	2011	4	2012
OperationalTest - FOT&E	2	2013	2	2014
Production Milestone - LRIP	3	2011	4	2012
Production Milestone - FRP	1	2013	4	2015
Deliveries - CANES EDM Unit	4	2010	4	2010
Deliveries - CANES EDM Unit (EQT)	4	2011	4	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303138N: *Consoldiated Afloat Network Ent Services(CANES)*	**PROJECT** 9C87: *CANES Integration*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Deliveries - LRIP	4	2011	4	2012
Deliveries - FRP	3	2013	4	2015
Deliveries - ACS 1.1	3	2010	3	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	31.828	29.049	25.934	0.000	25.934	27.660	28.858	29.809	30.095	Continuing	Continuing
0734: *Communications Security R&D*	25.146	21.879	22.921	0.000	22.921	24.637	25.760	26.630	26.876	Continuing	Continuing
3230: *Information Assurance*	0.000	2.191	3.013	0.000	3.013	3.023	3.098	3.179	3.219	Continuing	Continuing
9999: *Congressional Adds*	6.682	4.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.598

A. Mission Description and Budget Item Justification

Information Systems Security Program (ISSP) ensures the protection of Navy and joint telecommunications and information systems from exploitation and attack. ISSP is the Navy's implementation of statutory and regulatory requirements specified in Presidential Decision Directive 63, the Computer Security Act of 1987 (Public Law 100-235), Appendix III of Office of Management and Budget (OMB) Circular A-130, and Department of Defense Directive 8500.1. ISSP activities address the triad of defensive information operations defined in Joint Publication 3-13; protection, detection, and reaction. Focused on FORCEnet supporting the mobile forward-deployed subscriber, the Navy's implementation of Network-Centric Warfare places demands upon the ISSP as the number of users dramatically increases and the criticality of their use escalates. Today, the ISSP protects an expanding core service critical to the effective performance of the Navy's mission, supported by Mission Assurance Category 1 systems and crypto modernization requirements with Chairman Joint Chiefs of Staff Instruction 6510.

The interconnectivity of naval networks, connections to the public information infrastructure, and their use in naval and joint war fighting means that FORCEnet is a easier attacked and higher value target. The types of possible attacks continues to grow. In addition to the traditional attacks that involve the theft or eavesdropping of information, Navy information and telecommunications systems face advanced attacks involving malicious changes to critical information, changes to the functioning of critical systems, denial of service (jamming), and the destruction of systems and networks. Since many naval information systems are based on commercially available technologies, an adversary often has access to the very technologies they want to exploit.

The rapid change in the underlying commercial and government information infrastructures makes the security an increasingly complex and dynamic problem. ISSP provides the Navy's war fighter the essential information trust characteristics of availability, confidentiality, integrity, authentication, privacy, and non-repudiation. Information Assurance (IA) technology mix and deployment strategies must evolve quickly to meet the rapidly evolving threats and vulnerabilities.

The ISSP Research Development Test & Evaluation (RDT&E) program provides the Navy with these essential Information Assurance (IA) elements: (1) assured separation of information levels and user communities, including coalition partners; (2) assurance of the telecommunications infrastructure; (3) assurance of joint user

enclaves, using a defense-in-depth architecture; (4) assurance of the computing base and information store; and, (5) supporting assurance technologies, including a Public Key Infrastructure (PKI). ISSP RDT&E program is predictive, adaptive, and coupled to technology by modeling Department of Defense (DoD) and commercial information and telecommunications systems evolution (rather than being one-time developments). The program develops frameworks, architectures, and products based on mission threats, information criticality, exploitation risks, risk management, and integrated joint information system efforts.

All ISSP RDT&E efforts comply with the National Technology Transfer and Advancement Act of 1995 (Public Law 104-113) as implemented through OMB Circular A-119 of February 10, 1998, DoD Instruction 4120.24, Defense Standardization Program (DSP), and DoD Instruction 4120.3-M, Defense Standardization Program Policies and Procedures. The predominant commercial standards bodies in ISSP-related matters include International Organization for Standardization (ISO), American National Standards Institute (ANSI), Institute of Electrical and Electronics Engineers (IEEE), Internet Engineering Task Force (IETF), World Wide Web Consortium (W3C), and National Institute of Standards and Technologies (NIST). The joint interoperability required in today's telecommunications systems makes standards compliance a must and the ISSP RDT&E program complies with the joint technical architecture. The FORCEnet architecture and standards documents reflect this emphasis on interoperable standards.

The interconnection of FORCEnet into the DoD Global Information Grid (GIG) requires all ISSP RDT&E activities to adopt a minimum standard of "best commercial IA practice." The ISSP RDT&E program examines commercial technologies to determine their fit within Navy architectures, provides feedback to vendors about what the Navy requires, and participates in the standards bodies themselves. When necessary to protect mission critical systems specified in Clinger/Cohen Act, the ISSP RDT&E develops or tailors commercial and government technologies, standards, and processes to meet Navy-unique requirements; prototypes systems or portions of systems and examines their utility in operational Navy settings; and, provides IA expertise and engineering to Navy and joint information system developments. All ISSP technology development efforts solve specific Navy and joint IA problems using techniques that speed transition to procurement as soon as ready.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade and integration of existing, operational systems. This includes cryptographic systems required to protect information defined in Title 40 United States Code (USC) Chapter 25 Sec 1452, and the ISSP cryptographic RDT&E program is the implementation of requirements in Executive Orders 12333 and 12958 and National Security Decision Directive 145.

Major focus areas in FY11:
Computer Network Defense (CND) - Continue to develop and integrate CND capabilities in support of Common Computing Environment (CCE) and Afloat Core Services (ACS).

Cryptographic (Crypto)/Crypto Modernization (CM) - Continue the Link-22 Modernized Link Level Communications Security, VHF/UHF Wideband Tactical Secure Voice Cryptologic Equipment (VINSON)/Advanced Narrowband Digital Voice Terminal Cryptographic Modernization, and Link-16 CM development efforts, and start the Portable Repair Program, Cooperative Engagement Capability, Digital Modular Radio, Demand Assigned Multiple Access, Secure Voice Over Internet Protocol and

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140N: *Information Sys Security Program*

Common Data Link development efforts. Coordinate a CM Plan for Range and Weapons Telemetry as well as Transmission Security with National Security Agency (NSA) and other services.

Electronic Key Management System (EKMS)/Key Management Infrastructure (KMI) - Continue EKMS to KMI transition planning; conduct Navy KMI Initial Operational Test and Evaluation to support NSA Milestone C and Low Rate Initial Production schedule. Begin transition strategy and define requirements for incorporation of other KMI roles into Navy architecture (e.g., Controlling Authority, Command Authority).

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	33.639	24.226	0.000	0.000	0.000
Current President's Budget	31.828	29.049	25.934	0.000	25.934
Total Adjustments	-1.811	4.823	25.934	0.000	25.934
• Congressional General Reductions		-0.121			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.056			
• Congressional Adds		5.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-1.693	0.000			
• SBIR/STTR Transfer	-0.118	0.000			
• Program Adjustments	0.000	0.000	25.934	0.000	25.934

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Universal Description, Discovery and Integration*	4.288	4.979
Congressional Add: *TSG technology accreditation*	2.394	0.000
Congressional Add Subtotals for Project: 9999	6.682	4.979
Congressional Add Totals for all Projects	6.682	4.979

Change Summary Explanation

Schedule:

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140N: *Information Sys Security Program*

Computer Network Defense (CND) - Schedule slip for Capability Production Document (CPD) approval, resulting in delay of Inc 2 Milestone C from 3rd Qtr FY10 to 3rd Qtr FY11.

Key Management Infrastructure (KMI) - NSA's KMI Capability Increment 2 (CI-2) MS C schedule delay from 4th Qtr FY10 to 2nd Qtr FY11.

Crypto Modernization - Link-22 MLLC Prototype Award delay from 4th Qtr FY09 to 3rd Qtr FY10. KW-46 Integration testing delay from 4th Qtr FY09 to 2nd Qtr FY11. AN-PYQ-20 (v) (c) (formerly KL-51M) testing and evaluation delayed from 4th Qtr FY09 to 2nd Qtr FY10.

Technical: N/A

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*	PROJECT 0734: *Communications Security R&D*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0734: *Communications Security R&D*	25.146	21.879	22.921	0.000	22.921	24.637	25.760	26.630	26.876	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Information Systems Security Program (ISSP) Research Development Test & Evaluation (RDTE) program provides Information Assurance (IA) solutions for the Navy forward deployed, highly mobile information subscriber. FORCEnet relies upon an assured information infrastructure, and the ISSP RDT&E program architects, engineers, and provides the level of robustness consistent with risks faced. The ISSP addresses engineering design, development, modeling, test, and evaluation for the unique IA challenges associated with the highly mobile, dispersed, bandwidth limited, and forward-tactical connected US Navy communications systems.

ISSP RDT&E works closely with the Navy's Information Operations - Exploit (signals intelligence) and Information Operations - Attack (information warfare) communities. ISSP RDT&E developed systems dynamically change the Navy's current information assurance posture, based upon operational indications and warnings. To ensure interoperability, ISSP RDT&E integrates fully with the FORCEnet and maritime cryptologic architectures. ISSP RDT&E developed systems can provide the trigger for offensive warfare activities.

This project includes a rapidly evolving design and application engineering effort to modernize national security-grade (Type-1) cryptographic equipment and ancillaries with state-of-the-art replacements in order to counter evolving and increasingly sophisticated threats. Communication Security (COMSEC) and Transmission Security evolution is from stand-alone dedicated devices to embedded modules incorporating National Security Agency approved cryptographic engines, loaded with the certified algorithms and key, and interconnected via industry-defined interfaces. This includes the DoD Global Information Grid capability requirements document for the development of Content Based Encryption continuing through FY2011.

In addition to protecting National Security information, ISSP RDT&E must provide enterprise-wide assurance for statutorily protected information under the Privacy Act of 1974, Computer Matching and Privacy Protection Act of 1988, Medical Records Confidentiality Act of 1995, Model State Public Health Privacy Act, 45 Code of Federal Regulation (CFR) subtitle A sub-chapter C, parts 160- 164, 1999, and the Federal Education Records Privacy Act. ISSP RDT&E efforts must also provide assurance to the broad spectrum of Sensitive-but-Unclassified (SBU) information such as financial, personnel, contractor proprietary, and procurement sensitive.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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The ISSP today includes more than legacy COMSEC and network security technology. IA or defensive information operations exist to counter a wide variety of threats. ISSP activities cover all telecommunications systems, and RDT&E projects must provide protection, detection, and reaction capabilities to the operational commander. ISSP RDT&E provides dynamic risk managed IA solutions to the Navy information infrastructure, not just security devices placed within a network.

Few technology areas change as fast as telecommunications and computers, and IA must keep pace. This results in the continuing need to evaluate, develop, and/or test IA products and approaches. Technology-based efforts include developing or applying: (1) new secure voice prototypes; (2) technology for a new family of programmable COMSEC and transmission security modules; (3) security appliances and software for switched and routed networks; (4) technology to interconnect networks of dissimilar classification, known as cross domain solutions; (5) techniques for assuring code and data residing in and transiting the Navy's computing base and information store; and (6) Public Key Infrastructure (PKI) and associated access control technologies (such as smart cards and similar security tokens).

The resulting expertise applies to a wide variety of Navy development programs that integrate IA technology. Unlike traditional single-product development programs, the ISSP RDT&E holds a unique Navy-enterprise responsibility.

The ISSP Research Development Test & Evaluation (RDTE) efforts conclude with certified and accredited systems. This requires (1) assured separation of information levels and user communities, including coalition partners; (2) assurance of the telecommunications infrastructure; (3) assurance of joint user enclaves; (4) assurance of the computing base and information store; and, (5) supporting assurance technologies, including PKI and directories. To ensure interoperability and commercial standards compliance, these efforts often encompass the research, selective evaluation, integration, and test of commercial-off-the-shelf/non-developmental item IA security products. For example, evaluation may include defensible network boundary capabilities such as firewalls, secure routers and switches, guards, virtual private networks, and network intrusion prevention systems.

The current operating environment has virtually eliminated the traditional distinction between telecommunications and information systems. Because IA is a cradle-to-grave enterprise-wide discipline, this program applies the technology and methodology to systems in development, production and operation, and develops the infrastructure needed to support and evaluate the security of deployed systems. The following describes several major ISSP technology areas:

The Navy Secure Voice program assesses technology to provide high grade, secure tactical and strategic voice connectivity.

The Cryptographic Modernization Program provides high assurance and other cryptographic technologies protecting information and telecommunication systems.

The Security Management Infrastructure program develops, evaluates, and applies new emerging technology and enhanced capabilities to the Electronic Key Management System/Key Management Infrastructure and other Navy information systems. Additional efforts will focus on the architecture, design, and development of systems to manage the security parameters (i.e., cryptographic keys) necessary to the operation of the systems developed by the secure data and secure voice

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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portions of the ISSP. This includes the application of PKI and Certificate Management Infrastructure technology, and the development of improved techniques for key and certificate management to support emerging, embedded cryptographic technology.

The Secure Data program focus on architectures, designing, acquiring, demonstrating and integrating the IA technologies into FORCEnet and the Navy Marine Corps Intranet (NMCI). This portion of the ISSP supports delivery of network security engineering expertise needed to support the NMCI, overseas networks, and the Integrated Shipboard Network Systems, along with constituent systems such as Automated Digital Network System, Global Command and Control System - Maritime. These efforts continue to transition to an open architecture in support of the Consolidated Afloat Networks and Enterprise Services Common Computing Environment (CCE) and Afloat Core Services (ACS). It includes activities to:

* Ensure that Navy telecommunications and networks follow a consistent architecture and are protected against denial of service.
* Ensure that all data within Navy Enterprise is protected in accordance with its classification and mission criticality, as required by law.
* Provide the ability to protect from, react to, and restore operations after an intrusion or other catastrophic event.
* Support the Navy Computer Network Defense (CND) Service Provider Enabler by providing IA response to information operation conditions.
* Defend against the unauthorized modification or disclosure of data sent outside enclave boundaries.
* Provide a risk-managed means of selectively allowing essential information to flow across the enclave boundary.
* Provide strong authentication of users sending or receiving information from outside their enclave.
* Defend against the unauthorized use of a host or application, particularly operating systems.
* Maintain configuration management of all hosts to track all patches and system configuration changes.
* Ensure adequate defenses against subversive acts of trusted people and systems, both internal and external.
* Transition to CCE.
* Transition to ACS.
* Provide a cryptographic (Crypto) infrastructure that supports key, privilege and certificate management; and that enables positive identification of individuals utilizing network services.
* Provide an intrusion detection, reporting, analysis, assessment, and response infrastructure that enables rapid detection and reaction to intrusions and other anomalous events, and that enables operational situation awareness.

FY 11 Highlights for ISSP and Computer Network Defense:

CND - Continue to develop and integrate CND capabilities in support of CCE and ACS. Continue the development of User Defined Operational Pictures to enhance Security Information Manager tools with adaptive reactive-defense capabilities, improve incident correlation and situation awareness reporting.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*	PROJECT 0734: *Communications Security R&D*

Crypto and Crypto Modernization (CM) - Continue development for the Link 22 Modernized Link Level COMSEC, Link 16 CM, Integrated Broadcast Service Multi-Mission Advanced Tactical Terminal, and Cooperative Engagement Capability. Continue Secure Voice (SV) RDTE&E efforts such as Small Business Innovative Research (SBIR) oversight, and research into SV emerging technologies and related technical products, and support to Air Force, lead for VINSON/Advanced Narrowband Digital Voice Terminal Cryptographic Modernization program.

Key Management Infrastructure (KMI) - Provide technical support to National Security Agency for operational assessment, Initial Operational Testing and Evaluation and Full Rate Production decision for KMI.

PKI - Research and develop tools to support Device Certificates. Design and develop PKI expansion to support Global Information Grid identity management and protection requirements onto the Secret Internet Protocol Router Network (SIPRNet).

IA Services (formerly IA Architecture) - Continue to provide security systems engineering support for the development of DoD and Navy IA architectures and the transition of new technologies to address Navy IA challenges. Provide IA risk analysis and recommended risk mitigation strategies for Navy networks and C4I systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Computer Network Defense (CND)	8.681	8.055	8.010	0.000	8.010
FY 2009 Accomplishments: Developed computer-network evaluation capabilities to perform real-time metrics of operational compliance with Information Assurance (IA) security controls, Mission Assurance Category, and Data Confidentiality. Evolved system incremental capabilities to advance CND Protect, Monitor, Detect, Analyze, and Respond. Conducted malware research to develop proactive Insider Threat Countermeasures and Application Layer Content Scanning. Began developing User Defined Operational Pictures (UDOP) to enhance Security Information Manager (SIM) tools with active defense capabilities, improved incident correlation and situation awareness reporting. Completed the development of the process to assign asset criticality at the host and application level. Initiated the development of new capabilities to support the selective and automatic reactive settings of the network in accordance with Department of Defense (DoD) Information Operations Condition (INFOCON)					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
policies. Addressed the capabilities required to support the INFOCON management at both the Naval Cyber Defense Operation Center (NCDOC) and the Fleet Network Operation Center (NOC) level. *FY 2010 Plans:* Begin the development of the process to assign asset criticality at the host and application level. Advance development of proactive insider threat countermeasures and application layer security risk monitoring. Continue to develop UDOP to enhance SIM tools. Continue research to analyze Information Assurance capabilities to support Early Adopters (EA) systems with selective and autonomic settings on the CND posture as a proactive response to threat attack sensors and vulnerability indications. Address the capabilities required to support CND management of EA platforms from a tiered enclave organizational level, network operations intermediate level, and global enterprise management level. Begin transition to Consolidated Afloat Network Enterprise Services (CANES) with CND capabilities in support of Common Computing Environment (CCE) and Afloat Core Services (ACS). Complete DoD 5000 requirements to achieve Milestone (MS) C. Support developmental testing and determine joint interoperability test requirements for CND Increment 2. *FY 2011 Base Plans:* Continue the development of UDOP to enhance SIM tools with adaptive reactive-defense capabilities, improve incident correlation and situation awareness reporting. Continues the development of CND capabilities in support of Common Computing Environment (CCE) and Afloat Core Services (ACS). Address CND capabilities required to support IA management of virtual machine - virtual network environments from a tiered enclave organizational level, network operations intermediate level, and global enterprise management level. Develop dynamic security defense capabilities, based on the CND posture as an active response to threat attack sensors and vulnerability indications. Complete DoD 5000 requirements to achieve Milestone (MS) C. Support operational assessment (OA) for CND Increment 2.					
Crypto/Crypto Modernization	6.918	7.293	8.658	0.000	8.658

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Provided continued research, evaluation, and prioritization of legacy cryptographic (crypto) products requiring modernization due to parts and algorithm obsolescence as well as the supported system modernization. Continued to support the on-going Department of Defense (DoD) Cryptographic Modernization (Crypto Mod (CM)) efforts and working groups. Continued pre-acquisition, program documentation, and development of CM ways ahead to include Link 22 Modernized Link Level COMSEC (MLLC), LINK 16 CM, KG-3X Increment 2, VINSON/Advanced Narrowband Digital Voice Terminal (ANDVT) Cryptographic Modernization (VACM) and Telemetry (Range and Weapons). Initiated the development of KW-46M in support of the Fleet Submarine Broadcast System (FSBS) and the KL-51M in support of the Submarine Off-line Encryption requirement. Modernization of these crypto devices will provide replacements in accordance with the Joint Chiefs of Staff CM schedule and National Security Agency (NSA) planned decertification, which improves the security of the Navy's data in transit. *FY 2010 Plans:* Continue research, evaluation, and prioritization of cryptographic products such as Demand Assigned Multiple Access (DAMA), portable tactical radios, Single Channel Ground and Airborne Radio System (SINCGARS), Integrated Broadcast Service Multi Mission Advanced Tactical Terminal (IBS MATT), Telemetry, and various embedded devices. Continue coordination with the Information Systems Security Office, Joint Services, and the NSA, including representing the Navy at the Joint Service Crypto Mod Working Group (JSCMWG). Continue identifying strategies to reduce the overall crypto inventory within the Navy to realize long term cost savings. Continue providing consistent Information Assurance (IA) engineering support for the development and integration of CM products. Continue to support the on-going Cryptographic Joint Algorithm Integrated Product Team (IPT). Transition Secure Voice (SV) RDT&E efforts under Crypto Mod Program Office (CMPO), including SV Small Business Innovative Research (SBIR) oversight, Naval Research Laboratory's (NRL) research into SV emerging technologies and related technical products, and the Navy's participation in the Air Force led VACM program (providing documentation review, as well as SV technical, acquisition, logistic, test and					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
evaluation support). Continue development of Link 22 MLLC, Link 16 CM, KW- 46M, KG-3X Inc 2 and VACM, while finalizing the development of KL-51M efforts. Continue Crypto voice standardization based on the Variable Data Rate (VDR), Voice Compression Algorithm (VCA). Support Nuclear Command Control and Communications (NC3) Crypto Modernization. *FY 2011 Base Plans:* Continue research, evaluation, and prioritization of cryptographic products. Continue coordination with the Information Systems Security Office, joint services, and the NSA, including representing the Navy at the JSCMWG. Continue identifying strategies to reduce the overall crypto inventory within the Navy to realize long term cost savings. Continue to support the on-going Cryptographic Joint Algorithm IPT. Provide consistent IA engineering support for the development and integration of CM products. Continue development for the Link 16 CM and Link 22 MLLC, IBS MATT, KW-46M, and Cooperative Engagement Capability (CEC). Continue Secure Voice RDT&E efforts such as SBIR oversight, and NRL's research into SV emerging technologies and related technical products, support to Air Force lead VACM program and continue supporting ASD (NII) NC3 CM. Initiate major pre-acquisition and development efforts for Digital Modular Radio (DMR), Demand Assigned Multiple Access (DAMA), Secure Voice Over Internet Protocol (SVoIP) Test & Evaluation (T&E), and Common Data Link (CDL) CM. Coordinate a CM plan for Portable Range and Weapons Telemetry as well as Transmission Security (TRANSEC) with NSA and other services.					
Secure Voice *FY 2009 Accomplishments:* Completed development and integration test of the Secure Communication Interoperability Protocol Inter-working Function (SCIP IWF) for Military Sealift Command (MSC) and Coast Guard ships. Continue the design and development of next generation voice and Secure Voice capabilities for shipboard voice services modernization and consolidation. Continued Small Business Innovative Research (SBIR) phase II R&D efforts.	0.995	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
In FY 2010 and out, transition from Secure Voice to the Crypto Modernization Program for VHF/UHF Wideband Tactical Secure Voice Cryptologic Equipment (VINSON)/Advanced Narrowband Digital Voice Terminal (ANDVT) Crypto Mod (VACM) and R&D technology efforts.					
Key Management Infrastructure (KMI/EKMS/PKI) *FY 2009 Accomplishments:* Continued KMI Increment 2 client manager and advanced Key Processor (KP) security testing and certification and accreditation. Continued KMI development support for Advanced Extremely High Frequency (AEHF), Transformational Satellite (TSAT), and Global Information Grid (GIG) requirements for Navy. Researched and integrated Public Key Infrastructure (PKI) device certificates for mobile devices using 802.1x interfaces. Continued security and functionality testing and evaluation of PKI tokens and readers to support Tactical PKI and Homeland Security Presidential Directive (HSPD-12) implementation. Continued to research and develop solutions and tools for signature applications/XML document signing and Public Key Enabled (PKE). In FY 2010 and out, transition overarching KMI efforts to define Electronic Key Management System (EKMS), PKI, and KMI technology areas.	4.043	0.000	0.000	0.000	0.000
Key Management Infrastructure (KMI) *FY 2010 Plans:* Transitioned from Key Management Infrastructure (KMI) to define Electronic Key Management System (EKMS), Public Key Infrastructure (PKI), and KMI technology areas.Begin finalizing the Department of the Navy (DoN) KMI architecture and roll out strategy for deployment. Install KMI Manager Client/ Advanced Key Processors (MGC/AKPs) at selected pilot sites in support of operational assessment and initial operational test and evaluation. Identify any issues pertaining to transition from EKMS to KMI. Provide supporting information to Navy Acquisition Decision Memorandum (ADM) for full rate production/fielding within the Navy for Increment (Inc) 2. Support engineering and development efforts	0.000	2.477	2.549	0.000	2.549

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
for Inc 2. Continue engineering efforts for Navy transition and test planning for KMI Inc 2 client and Advanced Key Processor (KP). Develop Navy implementation plan for KMI for Inc 2 to support Navy Programs of Record. Complete development of Tactical Key Loader (TKL), complete First Article testing and National Security Agency (NSA) Certification testing. Transition to production. Provide engineering support to EKMS software versions for possible incorporation prior to the delivery of KMI. *FY 2011 Base Plans:* Provide technical support to National Security Agency (NSA) for Operational Assessment (OA), Initial Operational Testing and Evaluation (IOT&E) and Full Rate Production (FRP) decision. Continue to support engineering and development efforts for KMI Inc 2 or incorporation into Navy architectures and networks. Support Navy input to KMI Increment 3 Capability Development Document (CDD) requirements. Begin transition strategy/define requirements for incorporation of other KMI roles into Navy architecture (Controlling Authority (CONAUTH), Command Authority (CMDAUTH), etc.).					
Public Key Infrastructure (PKI) *FY 2010 Plans:* Transitioned from overarching Key Management Infrastructure (KMI) to define Electronic Key Management System (EKMS), Public Key Infrastructure (PKI) and KMI technology areas. Initiate security and functionality testing and evaluation of multi-domain tokens, readers and middleware for the Non-Classified Internet Protocol Router (NIPR), Secret Internet Protocol Router (SIPR), and Tactical PKI. Continue research and development of solutions to resolve technical challenges and the tools required for continued deployment of Navy, non-Navy, Marine Corps Internet (NMCI)/ Cryptographic Log On (CLO) and Navy Certificate Validation Infrastructure/Online Certificate Status Protocol (NCVI/OCSP) Afloat. Research and develop tools to support Device (non-human) Certificates. Continue security and functionality testing and evaluation of PKI tokens and readers to support Tactical PKI and Homeland Security Presidential Directive-12 (HSPD-12) implementation. Support systems engineering during the integration process and the analysis/evaluation of new application updates including new Operating Systems (OSs) (Windows and non-Windows) into Navy	0.000	0.736	0.769	0.000	0.769

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
PKI environments. Provide for evaluation of Commercial-Off-The-Shelf (COTS) products that can support coalition information sharing. Initiate test and evaluation of HSPD-12 token and middleware as part of the transition to stronger algorithms. Research and develop tools to support PKI with Internet Protocol Version 6 (IPv6) and Suite B implementation. *FY 2011 Base Plans:* Continue security and functionality testing and evaluation of PKI tokens, readers and middleware for SIPR and Tactical PKI. Research and develop tools to support Device (non-human) Certificates. Support systems engineering during the integration process and the analysis/evaluation of new application updates including new OS (Windows and non-Windows) into Navy PKI environments. Provide for evaluation of COTS products that can support coalition information sharing. Design and develop PKI expansion to support Global Information Grid (GIG) Identity management and protection requirements onto the Secret Internet Protocol Router Network (SIPRNet). Evaluate Automated on-line network device (eg., workstations, routers, switches etc.) certificate issuance infrastructure. Complete Department of Defense (DoD) 5000 requirements to achieve Milestone C.					
Electronic Key Management System (EKMS) *FY 2010 Plans:* Transitioned from overarching Key Management Infrastructure (KMI) to define EKMS, Public Key Infrastructure (PKI) and KMI technology areas. Continue to define EKMS technology gaps in preparation to the transition to KMI. Identify technical solutions for EKMS sustainment until KMI CI-2. Begin Tactical Key Loader (TKL) capability increment refinement. *FY 2011 Base Plans:* Continue EKMS systems engineering to support technology issues as a result of the introduction of KMI into the dual mode environment.	0.000	0.427	0.183	0.000	0.183
Information Assurance (IA) Services (formerly IA Architecture)	2.252	2.891	2.752	0.000	2.752

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued to provide security systems engineering support for the development of DoD and Navy IA architectures and the transition of new technologies to address Navy IA challenges. Supported the ongoing security design and integration of IA Components into initiatives such as FORCEnet via a coordinated and Computer Network Defense in Depth (CNDiD) strategy. Provided risk analysis and recommended risk mitigation strategies for Navy critical networks and C4I systems. Coordinated with the Navy acquisition community to ensure IA requirements are identified and addressed within the development cycles for emerging Navy network and C4I capabilities. Provided IA engineering for development of Wireless Networks and Personal Digital Assistant (PDA) security readiness of Naval wireless networks and mobile computing devices. Continued to evaluate products for security issues and develop guidance and procedures. *FY 2010 Plans:* Continue to provide security systems engineering support for the development of DoD and DoN IA architectures and the transition of new technologies to address Navy IA challenges. Support the ongoing development of the Navy IA Master Plan and coordinate IA activities across the virtual System Command (SYSCOM) via the IA Technical Authority (TA) to ensure the security design and integration of CNDiD products and services is consistent across the Navy for major initiatives such as the future afloat, ashore, and Outside the Continental United States (OCONUS) networks. Provide IA risk analysis and recommended risk mitigation strategies for Navy critical networks and C4I systems. Coordinate with the Navy acquisition community to ensure IA requirements are identified and addressed within the development cycles for emerging Navy network and C4I capabilities. Provide IA engineering for development of Wireless Networks and PDA security readiness of Naval wireless networks and mobile computing devices. Continue to evaluate products for security issues and develop guidance and procedures for the design and integration of risk mitigation strategies via appropriate IA controls.					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue to provide security systems engineering support for the development of DoD and DoN IA architectures and the transition of new technologies to address Navy IA challenges. Provide updates to the Navy IA Master Plan that reflect emerging priorities and address Navy specific threats. Coordinate IA activities across the virtual SYSCOM via the IA Technical Authority (TA) to ensure the security design and integration of CNDiD products and services is consistent across the Navy for major initiatives such as the future afloat, ashore, and OCONUS networks. Provide IA risk analysis and recommended risk mitigation strategies for Navy critical networks and C4I systems. Coordinate with the Navy acquisition community to ensure IA requirements are identified and addressed within the development cycles for emerging Navy network and C4I capabilities. Continue to evaluate products for security issues and develop guidance and procedures for the design and integration of risk mitigation strategies via appropriate IA controls.					
Software and Systems Research *FY 2009 Accomplishments:* Completed the development of the wireless technology to meet high assurance requirements. Placed technology in selected Navy and Marine Corps sites for assessment. Used feedback to improve the capabilities of the technology to better meet the mission requirements. Continued development of an information sharing architecture that addresses data integrity, confidentiality and policy management throughout networks of varying classification levels. Evaluated security services of the framework that support confidentiality, integrity and authentication across security domains, as well as enforces the mission security policy. Used assessment and operational feedback to improve the framework and security services. Enhanced framework to address survivability and hardening. Developed technology that protects the framework from attacks, assesses the attack, and responds appropriately to enable the framework to reconstitute and provide the requisite capabilities/services. Ensured architecture/framework evolves to provide proper protection as technology, Department of Defense (DoD) missions, and the threat all evolve. Initiated development of modernized attack sensing and	2.127	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
warning mechanisms based on new algorithms and data mining concepts, and response capabilities for the architecture/framework. Continued development of technology and tools to ensure the unique security and performance requirements of tactical systems, including those operating at various security levels are addressed. Began assessing the tools and technology in representative operational environments. Used feedback to improve the tools and technology. Continued systems security engineering, certification and accreditation support for high-confidence naval information system and ensure certification and accreditation approaches are consistent with Navy and DoD requirements. Beginning in FY10, funding was realigned to project 3230.					
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded Acquisition Workforce Fund.	0.130	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	25.146	21.879	22.921	0.000	22.921

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/3415: *Info Sys Security Program (ISSP)*	100.725	110.214	120.529	0.000	120.529	125.713	129.595	137.727	150.491	0.000	874.994

D. Acquisition Strategy

EKMS Phase V - ISSP Electronic Key Management System (EKMS) program is linked to the National Security Agency's (NSA's) strategy in implementing EKMS in evolutionary phases and migrating to Key Management Infrastructure (KMI). NSA is the lead for the joint EKMS effort and has been developing and certifying EKMS devices and capabilities in an evolutionary approach. EKMS Phase V is a major component evolving to KMI Capability Increment (CI-2). KMI is a Major Automated Information System (MAIS) program assigned to NSA. Therefore, it is crucial that the Research and Development efforts of EKMS coincide with those of KMI. Navy's EKMS requires Research, Development, Test and Evaluation (RDT&E) funding over the Future Years Defense Program (FYDP) to ensure the Navy infrastructure

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evolves with the EKMS phases, supports additional devices certified by NSA and supports the migration of EKMS to KMI CI-2. This will require modifications to the Navy EKMS architecture including the Local Management Device and associated software. These efforts require close work with NSA and the other services to ensure no impact on current operations and minimum impact on EKMS Phase 5 as it evolves to KMI CI-2. NSA certified Commercial-Off-The-Shelf/Government-Off-The-Shelf (COTS/GOTS) devices are procured to support Navy requirements. The EKMS Phase V program will utilize existing competitively awarded NSA and Navy contracts for development and implementation of type 1 certified COTS/GOTS devices for initial production phases, with plans to initiate innovative contracting methods and types consistent with current policies to reduce cost and streamline the integration, installation, logistics and training efforts.

Key Management Infrastructure (KMI) - KMI is the next generation EKMS system that is net centric in nature, providing the infrastructure for management, ordering and distribution of key material as well as directly supporting the key requirements of all Crypto modernization efforts. Navy will continue to provide and refine Navy unique requirements into the NSA KMI CI-2 Capability Development Documents (CDD). In parallel, continue to define Navy operational architecture and requirements for roll out of this new capability in the Fiscal Year 2011.

Cryptographic Modernization (CM) - The procurement and fielding the Modernized Crypto devices, such as the KG-3X Increment 2, KG-45A, AN-PYQ-20(v)(c) (formerly KL-51M), KW-46M, VHF/UHF Wideband Tactical Secure Voice Cryptologic Equipment (VINSON)/Advanced Narrowband Digital Voice Terminal (ANDVT) Cryptographic Modernization (VACM), and Telemetry will provide replacements of legacy crypto in accordance with the Chairman of the Joint Chiefs of Staff (CJCS) mandate (CJCS Instruction 6510) as well as the NSA's planned decertification, which improves the security of the Navy's data in transit.

E. Performance Metrics

(KMI):
~ Install 100% of KMI Manager Client/Advanced Key Processor (MGC/AKPs) at selected pilot sites in support of operational assessment.
~ Conduct Navy testing across 100% of relevant network (i.e., NMCI/NGEN, ISNS/CANES, BLII ONEnet).
* Complete 100% of engineering efforts for Navy transition and test planning for the KMI CI-2 Inc 2 clients and Advanced Key Processor (KP) to ensure successful Navy transition to KMI in accordance with EKMS end of life priorities and objectives.
* Complete development and transition to production of the Tactical Key Loader (TKL) to achieve assuring 100% acceptance of First Article and NSA Certification testing and determination of suitability for production.

Cryptographic Modernization (CM):
* Meet 100% of TOP SECRET (TS) and SECRET Chairman of Joint Chiefs of Staff Instruction (CJCSI 6510) cryptographic modernization requirements within the current Future Years Defense Plan (FYDP) by conducting a gap analysis and building a CM Roadmap and Implementation Plan to allow the Navy NETWAR FORCEnet Enterprise to establish operational priorities based on risk assessments.
* Meet 100% of TS and SECRET CJCSI 6510 by fielding modern cryptographic devices or request "recertification" via the Joint Staff Military Communications-Electronics Board (MCEB).

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* Increase the functionality cryptographic devices by replacing 2 legacy cryptographic devices with 1 modern device where possible and identify and implement modern small form factor, multi channel cryptos. (e.g., KIV-7M replacing KIV-7HS, KIV-7HSB, KG94, KWR-46, KL-51, etc.)

Computer Network Defense (CND):
* Provide the ability to protect from, react to, and restore operations after an intrusion or other catastrophic event through validated Contingency Plans (CPs) for 100% of CND systems, and validation of a Continuity of Operations Plan (COOP) solution for the Navy CND Service Provider.
* Develop dynamic security defense capabilities, based on the CND posture as an active response to threat attack sensors and vulnerability indications to provide adequate defenses against subversive acts of trusted people and systems, both internal and external, by integration of anomaly-based detection solutions into the design solutions for 100% of authorized Navy enclave types.
* Defend against the unauthorized use of a host or application, particularly operating systems, by development and/of integration of host-based intrusion prevention system design solutions for 100% of authorized Navy enclave types.

Information Assurance (IA) Services (formerly IA Architecture):
* Ensure 100% interoperability and application of commercial standards compliance for ISSP products by researching and conducting selective evaluations, to integrate and test of commercial-off-the-shelf/Non-Developmental Item (NDI) Information Assurance (IA) security products. For example, evaluation may include defensible network boundary capabilities such as firewalls, secure routers and switches, guards, Virtual Private Networks (VPN), and network Intrusion Prevention Systems (IPS).
* Provide 100% of the services delineated in OPNAVINST 5239.1C by serving as the Navy's IA technical lead by developing IA risk analysis and recommended risk mitigation strategies for critical Navy networks and C4I systems.
* Coordinate IA activities across the Navy Enterprise via the IA Technical Authority (TA) to measure effectiveness of Navy networks and ensure the security design and integration of Computer Network Defense in Depth (CNDiD) products and services is 100% interoperable and operationally acceptable across the Navy for major initiatives such as the future afloat, ashore, and Outside Continental United States (OCONUS) networks.

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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	VIASAT Carlsbad, CA	7.282	0.000		0.000		0.000		0.000	0.000	7.282	Continuing
Primary Hardware Development	MIPR	MITRE San Diego, CA	5.522	0.000		0.000		0.000		0.000	0.000	5.522	Continuing
Primary Hardware Development (PY)	WR	Various Various	88.607	0.000		0.000		0.000		0.000	0.000	88.607	Continuing
Systems Engineering	WR	NUWC Newport, RI	0.000	0.608	Feb 2010	0.000	Oct 2010	0.000		0.000	0.000	0.608	Continuing
Systems Engineering	WR	SSC PAC/LANT San Diego, CA/ Charleston, SC	0.000	11.105	Nov 2009	11.605	Oct 2010	0.000		11.605	0.000	22.710	Continuing
Systems Engineering	WR	NRL Washington DC	0.000	0.300	Feb 2010	0.300	Oct 2010	0.000		0.300	0.000	0.600	Continuing
Systems Engineering	WR	FNMOC Monterey, CA	0.000	0.240	Feb 2010	0.240	Oct 2010	0.000		0.240	0.000	0.480	Continuing
Primary Hardware Development	WR	SSC PAC San Diego	0.000	1.264	Feb 2010	1.290	Oct 2010	0.000		1.290	0.000	2.554	Continuing
Primary Hardware Development	WR	NRL Washington DC	0.000	0.480	Feb 2010	0.490	Oct 2010	0.000		0.490	0.000	0.970	Continuing
Primary Hardware Development	WR	Various Various	0.000	0.725	Feb 2010	0.000		0.000		0.000	0.000	0.725	Continuing
		Subtotal	101.411	14.722		13.925		0.000		13.925	0.000	130.058	

Remarks

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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPAF	SAIC San Diego, CA	32.877	0.000		0.000		0.000		0.000	0.000	32.877	Continuing
Software Development	WR	NRL Washington, D.C.	3.150	1.437	Jan 2010	1.705	Nov 2010	0.000		1.705	0.000	6.292	Continuing
Software Development	WR	SSC PAC/LANT San Diego, CA and Charleston, SC	3.625	3.094	Jan 2010	4.310	Nov 2010	0.000		4.310	0.000	11.029	Continuing
Software Development (Note 1)	WR	NRL Washington, D.C.	12.904	0.000		0.000		0.000		0.000	0.000	12.904	Continuing
Software	C/FP	Not Specified Not Specified	0.000	0.000		0.000		0.000		0.000	0.000	0.000	Continuing
		Subtotal	52.556	4.531		6.015		0.000		6.015	0.000	63.102	

Remarks

Note 1: Funding realigned to Project 3230 beginning FY10

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test	WR	SSC PAC San Diego, CA	34.628	0.095	Dec 2009	0.055	Oct 2010	0.000		0.055	0.000	34.778	Continuing

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Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test	WR	NUWC Newport, RI	0.000	0.263	Feb 2010	0.360	Oct 2010	0.000		0.360	0.000	0.623	Continuing
Operational Test	WR	OPTEVFOR Norfolk, VA	0.000	0.080	Feb 2010	0.045	Oct 2010	0.000		0.045	0.000	0.125	Continuing
		Subtotal	34.628	0.438		0.460		0.000		0.460	0.000	35.526	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/CPFF	Various Various	15.579	1.685	Oct 2009	1.941	Oct 2010	0.000		1.941	0.000	19.205	Continuing
Program Management	WR	SSC PAC San Diego, CA	0.130	0.503	Nov 2009	0.580	Nov 2010	0.000		0.580	0.000	1.213	Continuing
		Subtotal	15.709	2.188		2.521		0.000		2.521	0.000	20.418	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
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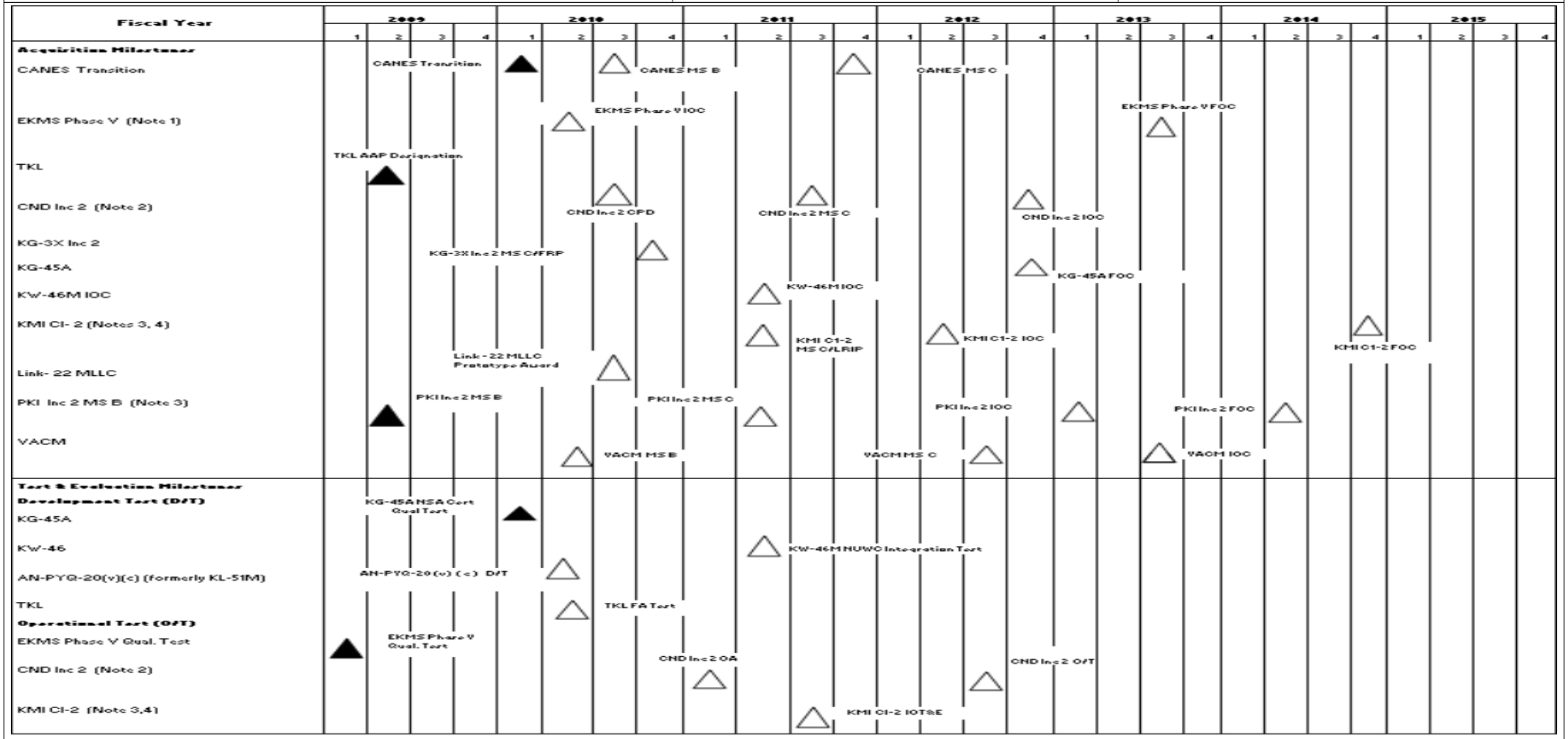
	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	204.304	21.879		22.921		0.000		22.921	0.000	249.104	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*	PROJECT 0734: *Communications Security R&D*



Note 1: EKMS V FOC slip due to NSA software release delay.
Note 2: CND Inc 2 Delay due to Capability Production Decision (CPD) comment adjudication and review process.
Note 3: KMI C1-2 & PKI milestones reflect NSA Schedule.
Note 4: KMI CI-2 slip due to NSA development delay.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*	PROJECT 0734: *Communications Security R&D*

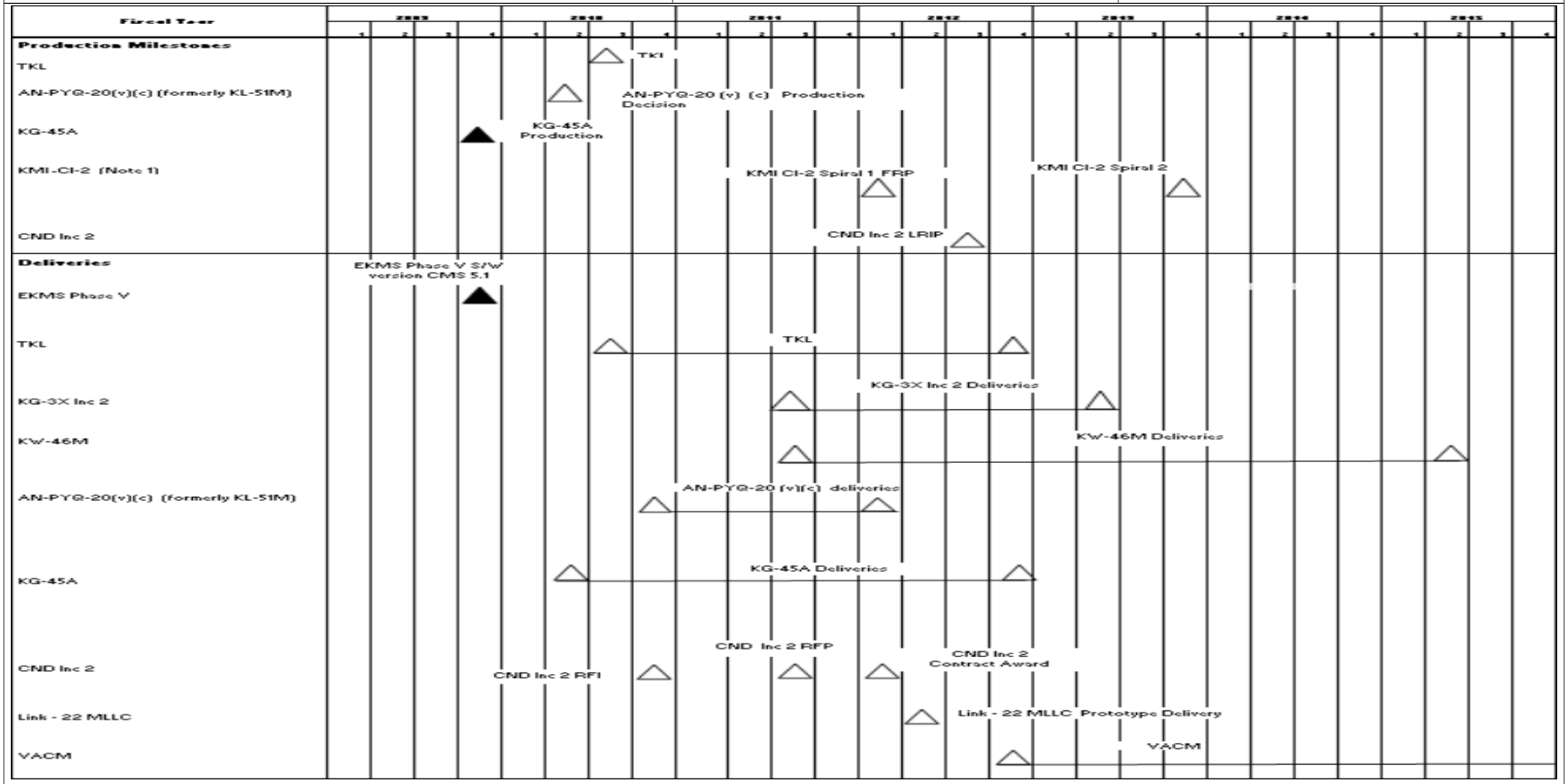


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140N: *Information Sys Security Program*	**PROJECT** 0734: *Communications Security R&D*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
CANES Transition	1	2010	1	2010
CANES MS B	3	2010	3	2010
CANES MS C	4	2011	4	2011
EKMS Phase V IOC	2	2010	2	2010
EKMS Phase V FOC	3	2013	3	2013
TKL AAP Designation	2	2009	2	2009
CND Inc 2 CPD	3	2010	3	2010
CND Inc 2 MS C	3	2011	3	2011
CND Inc 2 IOC	4	2012	4	2012
KG-3X Inc 2 MS C/FRP	4	2010	4	2010
KG-45A FOC	4	2012	4	2012
KW-46M IOC	2	2011	2	2011
KMI CI-2 MS C/LRIP	2	2011	2	2011
KMI CI-2 IOC	2	2012	2	2012
KMI CI-2 FOC	4	2014	4	2014
Link 22 MLLC Prototype Award	3	2010	3	2010
PKI Inc 2 MS B	2	2009	2	2009
PKI Inc 2 MS C	2	2011	2	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*	PROJECT 0734: *Communications Security R&D*

	Start		End	
Event	Quarter	Year	Quarter	Year
PKI Inc 2 IOC	1	2013	1	2013
PKI Inc 2 FOC	2	2014	2	2014
VACM MS B	2	2010	2	2010
VACM MS C	3	2012	3	2012
VACM IOC	3	2013	3	2013
KG-45A NSA Cert Qual test	1	2010	1	2010
KW-46 NUWC Integration Testing	2	2011	2	2011
AN-PYQ-20(v) (c) (formerly KL-51M) Development Test	2	2010	2	2010
TKL FA Test	2	2010	2	2010
EKMS Phase V Qualification Test	1	2009	1	2009
CND Inc 2 O/A	1	2011	1	2011
CND Inc 2 O/T	3	2012	3	2012
KMI CI-2 IOT&E	3	2011	3	2011
TKL FRP	3	2010	3	2010
AN-PYQ-20(v) (c) formerly KL-51M Production Decision	2	2010	2	2010
KG-45A Production Decision	4	2009	4	2009
KMI CI-2 Spiral 1 FRP	1	2012	1	2012
KMI CI-2 Spiral 2 FRP	4	2013	4	2013
CND Inc 2 LRIP	3	2012	3	2012
EKMS Phase V S/W Delivery LCMS 5.1	4	2009	4	2009

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140N: *Information Sys Security Program*	**PROJECT** 0734: *Communications Security R&D*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
TKL Deliveries	3	2010	4	2012
KG-3X Inc 2 Deliveries	3	2011	2	2013
KW-46M Deliveries	3	2011	2	2015
AN-PYQ-20(v) (c) (formerly KL-51M) Deliveries	4	2010	1	2012
KG-45A Deliveries	2	2010	4	2012
CND Inc 2 RFI	4	2010	4	2010
CND Inc 2 RFP	3	2011	3	2011
CND Inc 2 Contract Award	1	2012	1	2012
Link 22 MLLC Prototype Delivery	2	2012	2	2012
VACM	4	2012	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*	PROJECT 3230: *Information Assurance*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3230: *Information Assurance*	0.000	2.191	3.013	0.000	3.013	3.023	3.098	3.179	3.219	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The goal of the Navy Information Systems Security Program (ISSP) is to ensure the continued protection of Navy and Joint information and information systems from hostile exploitation and attack. ISSP activities address the triad of Defense Information Operations: protection, detection, and reaction. Evolving attack sensing (detection), warning, and response (reaction) responsibilities extend far beyond the traditional ISSP role in protection or Information Systems Security (INFOSEC). Focused on the highly mobile forward-deployed subscriber, the US Navy's adoption of Network-Centric Warfare (NCW) places demands upon the ISSP, as the number of users explodes and the criticality of their use escalates. Today, the ISSP protects an expanding core of services critical to the effective performance of the Navy's mission.

The rapid rate of change in the underlying commercial and government information infrastructures makes the provision of security an increasingly complex and dynamic problem. Information Assurance (IA) technology mix and deployment strategies must evolve quickly to meet rapidly evolving threats and vulnerabilities. No longer can information security divorce the information infrastructure. The ISSP enables the Navy's war fighter to trust in the availability, integrity, authentication, privacy, and non-repudiation of information.

This project includes funds for advanced technology development, test and evaluation of naval information systems security based on leading edge technologies that will improve information assurance (e.g., situational awareness and information infrastructure protection) across all command echelons to tactical units afloat and war fighters ashore. This effort will provide the research to develop a secure seamless interoperable, common operational environment of networked information systems in the battle space and for monitoring and protecting the information infrastructure from malicious activities. This effort will provide naval forces a secure capability and basis in its achievement of protection from unauthorized access and misuse, and optimized IA resource allocations in the information battle space. This program will also develop core technology to improve network infrastructure resistance and resiliency to attacks; enable the rapid development and certification of security-aware applications and information technologies in accordance with the Common Criteria for IA and IA-enabled information technology products by the National Security Telecommunications and Information Systems Security Instructions; and measure the effectiveness and efficiency of IA defensive capabilities under naval environments.

The program will develop common architectural frameworks that facilitate integration of network security capabilities, enable effective seamless interoperation, and contribute to a common consistent picture of the networked environment with respect to information assurance and security. This effort will address the need for a

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140N: *Information Sys Security Program*	**PROJECT** 3230: *Information Assurance*

common operational picture for Information Assurance (IA), as well as assessment of security technology critical to the success of the mission. Initiate requirements definition for situation awareness capabilities to support computer network defense in highly distributed, homogeneous, and heterogeneous networks including mobile and embedded networked devices. This effort also includes the architectural definition of situational awareness and visualization capabilities to support active computer network defense and support underlying data mining and correlation tools. This includes addressing the capability to remotely manage and securely control the configurations of network security components to implement changes in real time or near real time. Initiate requirements definition for secure coalition data exchange and interoperation among security levels and classifications. Ensure approaches address various security level technologies as well as emerging architectural methods of providing interoperability across different security levels. Examine multi-level aware applications and technologies including databases, web browsers, routers/switches, etc. Initiate infrastructure protection efforts as the Navy develops network centric architectures and warfare concepts, ensuring an evolutionary development of security architectures and products for IA that addresses Navy infrastructure requirements. Ensure the architectures evolve to provide proper protection as technology, DoD missions, and the threat all evolve. Include defensive protections as well as intrusion monitoring (sensors), warning mechanisms, and response capabilities in the architecture. Ensure the unique security and performance requirements of tactical systems, including those operating various security levels are addressed. Initiate the efforts to conceptualize new network centric warfare technology to protect our assets, such as secure network gateways and routers, and components and tools that improve the survivability of Navy networks. Provide systems security engineering, certification and accreditation support for high-confidence naval information system and ensure certification and accreditation approaches are consistent with Navy and DoD requirements.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Information Assurance	0.000	2.191	3.013	0.000	3.013
FY 2010 Plans: Complete the development of the information sharing architecture that addresses data integrity, confidentiality and policy management throughout networks of varying classification levels. Evaluate the security services of the architecture and adjust to ensure mission operations are supported. Continue the development of technology that protects, assesses and responds to attacks of the infrastructure architecture and provide reconstitution capabilities/services. Continue the development of modernized attack sensing and warning mechanisms based on new detection algorithms and data mining concepts, and response capabilities for the architecture. Complete the development of technology and tools to ensure the unique security and performance requirements of tactical wireless communication systems are addressed. Initiate the development of a new high assurance boundary controller to protect Navy and Marine Corps data and resources from attack. Provide security services					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*	PROJECT 3230: *Information Assurance*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
including encryption and data malware analysis in the boundary controller. Initiate the development of a high-assurance computing environment for Navy and Marine Corps use based on trusted platform technology. Develop the appropriate core code, security messages and assurance functions required. Initiate the development of new key and enabling technologies, management tools, and capabilities to address specific Navy and Marine Corps needs. Ensure the new solutions address distribution and management of data and other requisite material. Continue systems security engineering, certification and accreditation support for high-confidence naval information systems and ensure certification and accreditation approaches are consistent with Navy and DoD requirements. *FY 2011 Base Plans:* Complete the development of the technology that protects, assesses and responds to attacks of the infrastructure framework and provide reconstitution capabilities/services. Assess in representative operational environments. Complete the development of modernized attack sensing and warning mechanisms based on new detection algorithms and data mining concepts, and response capabilities for the architecture/framework. Continue the development of a new high assurance boundary controller to protect Navy and Marine Corps data and resources from attack. Ensure the security services include, at a minimum, encryption and data malware analysis in the boundary controller as well as the ability to adjust routing of communications based on network stress levels. Continue the development of a high-assurance computing environment for Navy and Marine Corps use based on trusted platform technology. Continue the development of the appropriate core code, security messages and assurance functions required. Continue the development of new key and enabling technologies, management tools, and capabilities to address specific Navy and Marine Corps needs. Ensure the new solutions address distribution and management in bandwidth limited environments and tactical environments. Initiate the development of mobile security techniques that introduce time and location-based security parameters for geo-location and asset protection and management. Address the specific issues of geo-location and mapping in Global Positioning System (GPS) constrained environments. Continue systems security engineering, certification and accreditation					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*	PROJECT 3230: *Information Assurance*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
support for high-confidence naval information systems and ensure certification and accreditation approaches are consistent with Navy and DoD requirements.					
Accomplishments/Planned Programs Subtotals	0.000	2.191	3.013	0.000	3.013

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/3415: *Info Sys Security Program (ISSP)*	100.725	110.214	120.529	0.000	120.529	125.713	129.595	137.727	150.491	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

Cryptographic Modernization (CM):
. Develop new emerging cryptographic technology for airborne applications by reducing the form-factor by 30%, and provide multi-channel, field reprogrammable cryptos that can be reprogrammed with algorithms in less than 1 minute. Increase throughput capabilities by 50% to meet high speed networks and develop new network-aware cryptographic technology to maximize bandwidth usage.

Computer Network Defense (CND):
. Develop new algorithms to provide real-time detection of nation state malware attacks against Department of Navy networks. Detection algorithms shall be used by both host-based sensors and network sensors to provide a 100% detection of known/programmed malware.
. Develop new malware analysis technology to decrease the analysis time by 50%, thus providing support for zero-day attacks.

Wireless Security:
. Develop new wireless signal discovery technology to increase detection by 30% and increase the bandwidth sensitivity by 20% thus allowing analysis and protection of Department of Navy assets used in the wider emerging wireless spectrum.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*	PROJECT 3230: *Information Assurance*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NRL Washington, DC	0.000	2.191	Nov 2009	3.013	Nov 2010	0.000		3.013	Continuing	Continuing	Continuing
		Subtotal	0.000	2.191		3.013		0.000		3.013			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	2.191		3.013		0.000		3.013			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	6.682	4.979	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24.598
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Adds.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Universal Description, Discovery and Integration *FY 2009 Accomplishments:* Continued systems engineering to cover continued interoperability requirements for the architecture which demand a common security model to be established. Continued engineering implementation and warfighter/military utility assessment, risk reduction, and operational demonstration. Implemented a prototype trusted discovery technology to demonstrate capabilities for integration in a high security, service orientated architecture environment. Began development of software design, functional and security test plans. *FY 2010 Plans:* Continue systems engineering to cover continued interoperability requirements for the architecture which demand a common security model to be established. Continue engineering implementation and warfighter/military utility assessment, risk reduction, and operational demonstration. Continue development of software design, functional and security test plans.	4.288	4.979
Congressional Add: TSG technology accreditation	2.394	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140N: *Information Sys Security Program*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: Trans Enterprise Services Grid (TSG) Technology Accreditation (TA): Developed a capability within the Information Systems Security Program's (ISSP's) Computer Network Defense (CND) program. This work focused on the Vulnerability Remediation Asset Management (VRAM) program and effectively sending and receiving Secure Configuration Compliance Validation Initiative (SCCVI) data generated by Retina scans between the ship and Fleet Numeric Mission Operations Center (FNMOC) facility and receiving information back when applicable. This process required the manual intervention of shipboard personnel to collect system scan data, manually initiate a transfer of that data to the FNMOC facility, observe that transaction, manually flush the system of data in cases of failed attempts, ensure the mitigation of any orphaned data in flight during loss of network connection, manually restart the transfer of data, manually confirm the receipt of said data shoreside, and manually log the transaction for post audit purposes. This process consumed far more human attention and intervention than desired due to the fragile nature of afloat network connectivity and frequent disconnections. Initial efforts seeked to leverage the lessons learned throughout the Secure Legacy Application Integration with NCES (Network Centric Enterprises Services) (SLAIN) Small Business Innovative Research (SBIR) effort, along with complementary research and development efforts undertaken separately, to develop, accredit, and deploy VRAM enhancements that will provide the following four capabilities: Data persistence during the transfer of information Guaranteed delivery of VRAM data from ship to shore Provide an automated confirmation message to shipboard personnel that the scan data delivered successfully Reporting to be defined during development		
Congressional Adds Subtotals	6.682	4.979

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303140N: *Information Sys Security Program*	**PROJECT** 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Congressional Adds.

E. Performance Metrics

Congressional Adds.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303140N: *Information Sys Security Program*	PROJECT 9999: *Congressional Adds*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development Support	WR	SSC Various	0.000	4.979	Mar 2010	0.000		0.000		0.000	0.000	4.979	Continuing
		Subtotal	0.000	4.979		0.000		0.000		0.000	0.000	4.979	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	4.979		0.000		0.000		0.000	0.000	4.979	

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303158M: *JT Command & Control Progr (JC2)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	1.849	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.063
3210: *Net-Enabled Command Capability (NECC)*	1.849	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.063

Note

NECC Acquisition Decision Memorandum of 2 Nov 2009 cancelled the program and directed funding to support the sustainment of the current GCCS Family of Systems.

A. Mission Description and Budget Item Justification

Net-Enabled Command Capability (NECC) - is the DoD's principal command and control capability that will be accessible in a net-centric environment and focused on providing the Commander with the data and information needed to make timely, effective and informed decisions. NECC is a joint program, led by DISA, which will be developed, integrated, tested and used by all Services to improve interoperability, collaborative planning and rapid decision making across all Joint warfighting functions at the Secretary of Defense, Chairman of the Joint Chiefs (CJCS), Combatant Command (COCOM), Joint Task Force (JTF) and Component levels.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	1.987	2.453	0.000	0.000	0.000
Current President's Budget	1.849	0.000	0.000	0.000	0.000
Total Adjustments	-0.138	-2.453	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-2.453			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.082	0.000			
• SBIR/STTR Transfer	-0.056	0.000			
• Program Adjustments	0.000	0.000	0.000	0.000	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303158M: *JT Command & Control Progr (JC2)*

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303158M: *JT Command & Control Progr (JC2)*	PROJECT 3210: *Net-Enabled Command Capability (NECC)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3210: *Net-Enabled Command Capability (NECC)*	1.849	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.063
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NECC Acquisition Decision Memorandum of 2 Nov 2009 cancelled the program and directed funding to support the sustainment of the current GCCS Family of Systems.

A. Mission Description and Budget Item Justification

Net-Enabled Command Capability (NECC) - is the DoD's principal command and control capability that will be accessible in a net-centric environment and focused on providing the Commander with the data and information needed to make timely, effective and informed decisions. NECC is a joint program, led by DISA, which will be developed, integrated, tested and used by all Services to improve interoperability, collaborative planning and rapid decision making across all Joint warfighting functions at the Secretary of Defense, Chairman of the Joint Chiefs (CJCS), Combatant Command (COCOM), Joint Task Force (JTF) and Component levels.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*Net-Enabled Command Capability (NECC)	1.849	0.000	0.000	0.000	0.000
NECC Acquisition Decision Memorandum of 2 Nov 2009 cancelled the program and directed funding to support the sustainment of the current GCCS Family of Systems.					
FY 2009 Accomplishments: Developed Command and Control (C2) Alerting Capability Module Set up a Developmental Test Node Participated in prototyping and End-to_end Test events					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303158M: *JT Command & Control Progr (JC2)*	PROJECT 3210: *Net-Enabled Command Capability (NECC)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
In concert with the Joint Program Office prepared for a Milestone B Decision, and responded to tasks/ guidance per the ADM and FY09 Plan.					
Accomplishments/Planned Programs Subtotals	1.849	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Not applicable. Program cancelled.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303158N: *JT Command & Control Progr (JC2)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	4.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.520
3146: *JT Command And Control*	4.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.520

Note

Program cancelled by OSD Nov 2009.

A. Mission Description and Budget Item Justification

The Net-Enabled Command Capability (NECC) was planned as the Department of Defense's (DoD) principal command and control capability accessible in a net-centric environment and focused on providing the commander with the data and information needed to make timely, effective and informed decisions.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	4.127	4.139	0.000	0.000	0.000
Current President's Budget	4.045	0.000	0.000	0.000	0.000
Total Adjustments	-0.082	-4.139	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		-4.139			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.082	0.000			
• Program Adjustments	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: As of 02 November 2009, the Net-Enabled Command Capability (NECC) Program has been canceled.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303158N: *JT Command & Control Progr (JC2)*

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303158N: *JT Command & Control Progr (JC2)*	PROJECT 3146: *JT Command And Control*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3146: *JT Command And Control*	4.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.520
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Program cancelled by OSD Nov 2009.

A. Mission Description and Budget Item Justification

The Net-Enabled Command Capability (NECC) was planned as the Department of Defense's (DoD) principal command and control capability accessible in a net-centric environment and focused on providing the commander with the data and information needed to make timely, effective and informed decisions.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
JT Command And Control	4.045	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Migrated additional maritime command and control Global Command and Control System Family of Systems (GCCS FoS) capabilities to standards-based architectures. Managed development of command and control capabilities as allocated to the Navy Component Program Managemnt Office (CPMO) in accordance with the Capability Development Document (CDD), in support of NECC Inc I System Development and Demonstration (SDD) phase activities.					
Accomplishments/Planned Programs Subtotals	4.045	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303158N: *JT Command & Control Progr (JC2)*	**PROJECT** 3146: *JT Command And Control*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The Net-Enabled Command Capability (NECC) Program was to build net-centric services as Capability Modules (CM), not as a large, completely integrated software system. CMs are small, loosely coupled, militarily useful pieces of software resident on the Global Information Grid. A key concept behind NECC was to build capabilities and deliver CMs to the Warfighter as they are ready, rather than waiting for major milestones for a complete software release. The individual nature of CMs and the planned responsiveness to the Warfighter required agility and flexibility in NECC's requirements/capability-needs identification, development and validation systems engineering, materiel development, contracting, testing, funding, and acquisition processes. Rapid delivery would have resulted in having multiple CMs in concurrent stages of development, operations, or sustainment within an increment, which would have changed the nature of the program's milestone decisions and funding requirements. The result was to be a net-centric set of services provided to Warfighters quickly, which would give them the capabilities they need to achieve and sustain Decision Superiority to accomplish their missions. The overarching NECC contracting approach was to acquire CMs, services, and materials through various types of full and open, competitively awarded, performance-based and performance-driven outcome contracts. NECC's primary contracting method utilized Indefinite Delivery, Indefinite Quantity (IDIQ) contracts to develop CMs. The NECC Joint Program Management Office and Component Management Offices, acting as NECC systems integrators/material developers, have the flexibility to award multiple Task Orders under the selected vehicles.

E. Performance Metrics

Space & Naval Warfare Systems Command Systems Centers Pacific and Atlantic provide support as the Government research and development facilities. Program and engineering support provided by Booz Allen Hamilton, MITRE and various subcontractors.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy											DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0303238N: *Concolidated Afloat Network Ent SVCS(CANES)-MIP*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.000	8.375	0.000	8.375	7.406	0.000	0.000	0.000	0.000	15.781
9C87: *CANES Integration*	0.000	0.000	8.375	0.000	8.375	7.406	0.000	0.000	0.000	0.000	15.781

Note

FY11-12 funding transistioned from PE 0303138N.

A. Mission Description and Budget Item Justification

CANES will consolidate and reduce the number of Navy afloat networks with state-of-the-art, high-speed networks and infrastructure. CANES will provide a robust, survivable, secure, scalable Afloat Core Services (ACS) enabled Common Computing Environment (CCE) for ships, submarines, and selected shore sites in addition to providing some proportional capability for aircraft. CANES will provide this ACS enabled CCE capability across all security domains from unclassified through Sensitive Compartmented Information (SCI). CANES is the physical single Program of Record (POR) replacement for the existing afloat networks PORs, Integrated Shipboard Network Systems (ISNS), Combined Enterprise Regional Information Exchange Systems Maritime (CENTRIXS-M), SCI Networks and Submarine LAN (SubLAN). In addition, CANES will provide functionality currently provided in the Video Information Exchange System (VIXS) and portions of Computer Network Defense (CND). CANES will field on a four year hardware baseline and a two year rolling software baseline providing application. The CANES vision is based on the overarching concept of reducing the number of afloat networks and providing enhanced efficiency through a single engineering focus on integrated technical solutions. This will allow for streamlined acquisition, contracting, and test events, and significant lifecycle efficiencies through consolidation of multiple current configuration management baselines, logistics and training efforts into a unified support structure. The primary goals of the CANES program are to: 1) reduce the number of networks through the use of mature, certified, cross domain technologies; 2) reduce the infrastructure footprint and associated costs for hardware afloat; and 3) provide increased capability to meet current and projected warfighter requirements.

CANES will enable application developers to begin decoupling applications and services software away from independent, unique hardware stacks and host them on a common interoperable environment. This approach will incrementally deploy and will provide a basis for overall Navy Return on Investment (ROI) over the existing strategies.

With the evolution of afloat network programs migrating into the CANES program, funding increases will provide even more comprehensive technology capabilities across the fleet. While the networks capabilities of the ISNS, CENTRIXS-M, SubLAN, Automated Digital Network System, and their associated personal computer hardware and software continue to be supported, CANES will reduce the infrastructure footprint and collapse a significant amount of Afloat Networks through the use of mature cross domain technologies. FY11 will focus on CANES System Design and Development (SDD), close out of the SDD phase for transition to Low-

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303238N: *Concolidated Afloat Network Ent SVCS(CANES)-MIP*

Rate Initial Production (LRIP) phase and LRIP contract development. Initiate acquisition and Capabilities Production Document (CPD) for Milestone (MS) C. Procure two Engineering Development Models (EDM) units in FY11. The EDM units function as pre-production units for Environmental Qualification Test and operational assessment, which require funding for necessary installation design and installation costs.

FY09 funded in PE 0604231N, project 2307 and PE 0305208N, project 2174.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	8.375	0.000	8.375
Total Adjustments	0.000	0.000	8.375	0.000	8.375
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	8.375	0.000	8.375

Change Summary Explanation

Technical: CANES Increment & Configuration Build (C(B)2) language have been removed and acquisition strategy has been modified to identify new versions as Technical Insertion (TI-1, TI-2, etc.).

Schedule: Program initiation occurs at Milestone (MS) B, following pre-acquisition risk reduction efforts to refine the technological approach. CANES System Design and Development (SDD) contract award shifted one quarter to Q2FY10. Due to the delay of the contract award the schedule has moved to the right, following activities also were shifted to the right: Preliminary Design Review (PDR), Critical Design Review (CDR), Developmental Testing (DT), delivery of Engineering Development Model (EDM) . CANES Increment 1 and C(B)2 language has been removed and acquisition strategy has been modified to identify new versions as Technical Insertion (TI-1, TI-2, etc.) and Milestone B (MS B) for C(B)2 has been removed.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303238N: *Concolidated Afloat Network Ent SVCS(CANES)-MIP*	PROJECT 9C87: *CANES Integration*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9C87: *CANES Integration*	0.000	0.000	8.375	0.000	8.375	7.406	0.000	0.000	0.000	0.000	15.781
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

FY 2009 and prior funded in Program Element (PE) 0604231N, project 2307 and PE 0305208N, project 2174. FY 2010 funded in PE 0303138N, project 9C87.

A. Mission Description and Budget Item Justification

CANES will consolidate and reduce the number of Navy afloat networks with state-of-the-art, high-speed networks and infrastructure. CANES will provide a robust, survivable, secure, scalable Afloat Core Services (ACS) enabled Common Computing Environment (CCE) for ships, submarines, and selected shore sites in addition to providing some proportional capability for aircraft. CANES will provide this ACS enabled CCE capability across all security domains from unclassified through Sensitive Compartmented Information (SCI). CANES is the physical single Program of Record (POR) replacement for the existing afloat networks PORs, Integrated Shipboard Network Systems (ISNS), Combined Enterprise Regional Information Exchange Systems Maritime (CENTRIXS-M), SCI Networks and Submarine LAN (SubLAN). In addition, CANES will provide functionality currently provided in the Video Information Exchange System (VIXS) and portions of Computer Network Defense (CND). CANES will field on a four year hardware baseline and a two year rolling software baseline providing application. The CANES vision is based on the overarching concept of reducing the number of afloat networks and providing enhanced efficiency through a single engineering focus on integrated technical solutions. This will allow for streamlined acquisition, contracting, and test events, and significant lifecycle efficiencies through consolidation of multiple current configuration management baselines, logistics and training efforts into a unified support structure. The primary goals of the CANES program are to: 1) reduce the number of networks through the use of mature, certified, cross domain technologies; 2) reduce the infrastructure footprint and associated costs for hardware afloat; and 3) provide increased capability to meet current and projected warfighter requirements.

CANES will enable application developers to begin decoupling applications and services software away from independent, unique hardware stacks and host them on a common interoperable environment. This approach will incrementally deploy and will provide a basis for overall Navy Return on Investment (ROI) over the existing strategies.

FY 2011 Overseas Contingency Operation (OCO) - Not applicable

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303238N: *Concolidated Afloat Network Ent SVCS(CANES)-MIP*	**PROJECT** 9C87: *CANES Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
CANES Integration	0.000	0.000	8.375	0.000	8.375
FY09 funded in PE 0604231N, project 2307 and PE 0305208N, project 2174. FY10 funded in ISNS Inc 2/CANES to CANES under PE 0303138N, project 9C87. *FY 2011 Base Plans:* Beginning in FY11, Military Intelligence Program (MIP) funding transitions from Program Element (PE) 0303138N to PE 0303238N. FY11 plan will continue CANES statutory and regulatory acquisition documentation to achieve CANES Milestone (MS) C. Continue Developmental Testing (DT) and begin Operational Testing (OT). Close out system development contract and complete down-select of the prime system developer to continue into Low-Rate Initial Production (LRIP). Maintain a tight government-managed interface between the system development and Afloat Core Services (ACS) contracts. MIP funding will focus on development of the MIP components of CANES that will deliver the Common Computing Infrastructure and Core Services (Sensitive Compartmented Information & Related Comms) required to host Intelligence (INT)/Intelligence, Surveillance and Reconnaissance (ISR) applications and services.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	8.375	0.000	8.375

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/2915: *CANES*	0.000	1.177	34.398	0.000	34.398	190.528	283.786	323.824	331.648	Continuing	Continuing
• OPN/2925: *CANES INTELL*	0.000	0.000	10.432	0.000	10.432	67.542	74.214	67.144	68.317	Continuing	Continuing
	0.000	45.324	63.563	0.000	63.563	10.270	12.659	14.022	14.255	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303238N: *Concolidated Afloat Network Ent SVCS(CANES)-MIP*	PROJECT 9C87: *CANES Integration*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDTE/0303138n: *CANES INTEGRATION*											

D. Acquisition Strategy

System Design & Development (SDD), procurement, integration, and installation efforts for CANES are accomplished through Program Executive Offices (PEO) C4I contracts.

E. Performance Metrics

Early RDT&E investment and sustainment of dual design contractors through the development phase will save 10-30% of Total Ownership Cost (TOC) over the life cycle of the program. Cost avoidance throughout the life of the program is based on performance gains that are measured (not quantified) by 1) reducing the number of networks through the use of mature, certified, cross domain technologies; 2) reducing the infrastructure footprint and associated costs for hardware afloat; and 3) providing increased capability to meet current and projected warfighter requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303238N: *Concolidated Afloat Network Ent SVCS(CANES)-MIP*	PROJECT 9C87: *CANES Integration*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	Vendor A TBD TBD	0.000	0.000		3.747	Nov 2010	0.000		3.747	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPFF	Vendor B TBD TBD	0.000	0.000		3.747	Nov 2010	0.000		3.747	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Vendor A TBD TBD	0.000	0.000		0.265	Nov 2010	0.000		0.265	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Vendor B TBD TBD	0.000	0.000		0.266	Nov 2010	0.000		0.266	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		8.025		0.000		8.025			

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/FP	Vendor A TBD TBD	0.000	0.000		0.175	Nov 2010	0.000		0.175	0.000	0.175	Continuing
Developmental Test & Evaluation	C/FP	Vendor B TBD TBD	0.000	0.000		0.175	Nov 2010	0.000		0.175	0.000	0.175	Continuing
		Subtotal	0.000	0.000		0.350		0.000		0.350	0.000	0.350	

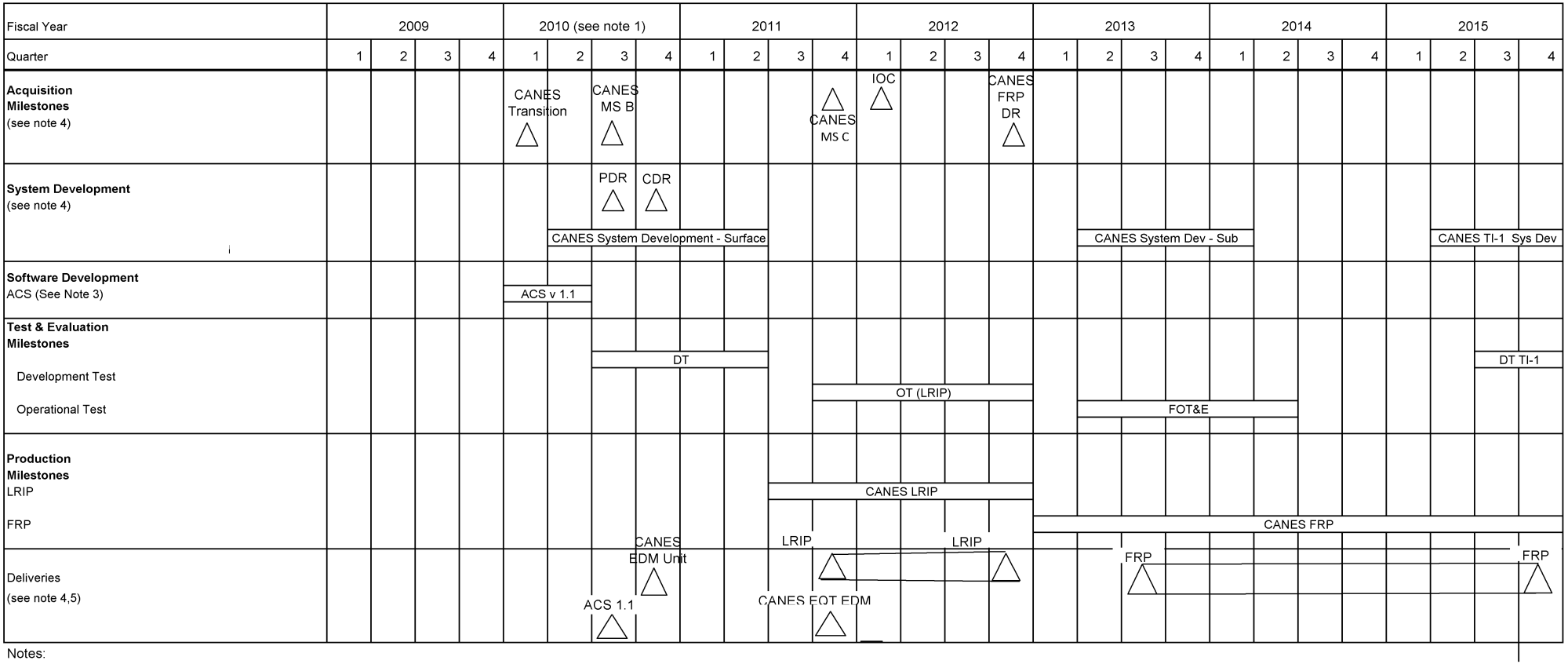
Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0303238N: *Concolidated Afloat Network Ent SVCS(CANES)-MIP*	PROJECT 9C87: *CANES Integration*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		8.375		0.000		8.375			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303238N: *Concolidated Afloat Network Ent SVCS(CANES)-MIP*	**PROJECT** 9C87: *CANES Integration*



Notes:
1/ FY10 efforts funded under PE 0303138N.
2/ EDM Unit included in LRIP quantities to meet Target Inventory Objective, prior to MS C.
3/ ACS v1.1 software development funded by ISNS.
4/CANES System Design and Development (SDD) contract award shifted one quarter to Q2FY10. Due to the delay of the contract award the schedule has moved to the right, following activities also were shifted to the right: Initial Operational Capability (IOC), Preliminary Design Review (PDR), Critical Design Review (CDR), Developmental Testing (DT), Operational Testing (OT), Low-Rate Initial Production (LRIP), delivery of Engineering Development Models (EDM).
5/ACS v1.1 delivery date has been corrected.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303238N: *Concolidated Afloat Network Ent SVCS(CANES)-MIP*	**PROJECT** 9C87: *CANES Integration*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestone - CANES MS B	3	2010	3	2010
Acquisition Milestone - CANES Transition	1	2010	1	2010
Acquisition Milestone - MS C	4	2011	4	2011
Acquisition Milestone - IOC	1	2012	1	2012
Acquisition Milestone - FRP Decision Review	4	2012	4	2012
System Development - Surface	2	2010	2	2011
System Development - PDR	3	2010	3	2010
System Development - CDR	4	2010	4	2010
System Development - Sub	2	2013	1	2014
System Development - Technical Insertion 1	2	2015	4	2015
Development Test	3	2010	2	2011
Development Test - Technical Insertion 1	3	2015	4	2015
Operational Test - (LRIP)	4	2011	4	2012
Operational Test - FOT&E	2	2013	2	2014
Production Milestone - LRIP	3	2011	4	2012
Production Milestone - FRP	1	2013	4	2015
Deliveries - CANES EDM Unit	4	2010	4	2010
Deliveries - CANES EDM Unit (EQT)	4	2011	4	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0303238N: *Concolidated Afloat Network Ent SVCS(CANES)-MIP*	**PROJECT** 9C87: *CANES Integration*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Deliveries - LRIP	4	2011	4	2012
Deliveries - FRP	3	2013	4	2015
Software Delivery - ACS 1.1	3	2010	3	2010

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy											DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305149N: *Cobra Judy*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	100.814	61.804	36.527	0.000	36.527	39.520	17.292	0.000	0.000	0.000	853.825
4021: *CJR System Engineering*	100.814	61.804	36.527	0.000	36.527	39.520	17.292	0.000	0.000	0.000	853.825

A. Mission Description and Budget Item Justification

Cobra Judy Replacement funds will replace the current U.S. Naval Ship (USNS) Observation Island which has become unsustainable and due to leave service in 2012. This program will fund the development of a single ship-based radar suite for ballistic missile treaty verification. Cobra Judy provides monitoring and verification of specific aspects of United States treaties with other countries. It is necessary we replace the current Cobra Judy to prevent any potential gap in coverage. Prior studies have indicated that a ship-based radar replacement is the most timely and cost effective solution. This program is joint-funded.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	100.814	62.061	0.000	0.000	0.000
Current President's Budget	100.814	61.804	36.527	0.000	36.527
Total Adjustments	0.000	-0.257	36.527	0.000	36.527
• Congressional General Reductions		-0.257			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	36.527	0.000	36.527

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305149N: *Cobra Judy*

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305149N: *Cobra Judy*	PROJECT 4021: *CJR System Engineering*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
4021: *CJR System Engineering*	100.814	61.804	36.527	0.000	36.527	39.520	17.292	0.000	0.000	0.000	853.825
Quantity of RDT&E Articles	0	0	1	0	1	0	0	0	0		

A. Mission Description and Budget Item Justification

A. (U) Mission Description

Cobra Judy Replacement funds will replace the current U.S. Naval Ship (USNS) Observation Island which has become unsustainable and due to leave service in 2012. This program will fund the development of a single ship-based radar suite for ballistic missile treaty verification. Cobra Judy provides monitoring and verification of specific aspects of United States treaties with other countries. It is necessary we replace the current Cobra Judy to prevent any potential gap in coverage. Prior studies have indicated that a ship-based radar replacement is the most timely and cost effective solution. This program is joint-funded.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
DESIGN AND RISK REDUCTION	100.754	57.114	33.250	0.000	33.250
FY 2009 Accomplishments: - X-Band Front End (XFE) Near-Field Range testing complete - XFE and SFE String Integration in process - Continue Common Back End software development and array build and test - S-Band Front End (SFE) manufacturing in process - expected completion 1QTR FY10 *FY 2010 Plans:* - Continue Common Back End software development and array build and test - S-Band Front End Array testing begins 2QTR FY10 - S-Band Front End (SFE) manufacturing in process - expected completion 1QTR FY10					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305149N: *Cobra Judy*	PROJECT 4021: *CJR System Engineering*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: - Continue Common Back End software development and array build and test					
SYSTEMS ENGINEERING *FY 2010 Plans:* - Began land-based risk reduction/integration demonstration of Ship configuration non-prime mission equipment (C4I, data handling, classified mission equipment) at SPAWAR Test and Integration Facility in 1QTR FY09 - Ship installation of non-prime mission equipment 3QTR FY10 *FY 2011 Base Plans:* - Began land-based risk reduction/integration demonstration of Ship configuration non-prime mission equipment (C4I, data handling, classified mission equipment) at SPAWAR Test and Integration Facility in 1QTR FY09 - Ship installation of non-prime mission equipment 3QTR FY10	0.000	4.610	2.197	0.000	2.197
PROGRAM MANAGEMENT *FY 2009 Accomplishments:* - Program planning, assessment of technical alternatives, risk identification and mitigation. - Cost and schedule development and execution *FY 2010 Plans:* - Program planning, assessment of technical alternatives, risk identification and mitigation. - Cost and schedule development and execution *FY 2011 Base Plans:* - Program planning, assessment of technical alternatives, risk identification and mitigation. - Cost and schedule development and execution	0.060	0.080	1.080	0.000	1.080

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305149N: *Cobra Judy*	PROJECT 4021: *CJR System Engineering*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	100.814	61.804	36.527	0.000	36.527

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0303901N/4003: *Cobra Judy Replacement*	142.947	53.421	34.457	0.000	34.457	39.963	16.000	0.000	0.000	0.000	286.788

D. Acquisition Strategy

The acquisition strategy calls for leveraging ongoing Navy Ballistic Missile Defense (BMD) radar development, updating existing user interface/communications/data handling equipment designs from a similar operational unit and purchasing and integrating the mission equipment aboard an appropriate merchant-class hull. System design will be accomplished using in-hand technologies and commercial standards to lower schedule risk and produce a product with the lowest possible life-cycle cost.

E. Performance Metrics

-Successfully complete Design Reviews & MDA-Level Reviews
-Successfully complete Initial Operational Capability (IOC)
-Successfully complete X-Band Development
-Successfully complete S-Band Radar Development
-Successfully complete Mission Equipment String Integration
-Successfully complete ME Ship Integration
-Successfully complete Mission Communications Suite Lightoff
-Ship Delivery
-Successfully complete TECHEVAL/Post Delivery Test & Trails
-Successfully complete Operational Test & Readiness Review (OTRR)
-Successfully complete IOT&E Initial Operational Test OPEVAL

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305149N: *Cobra Judy*	PROJECT 4021: *CJR System Engineering*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Design and Risk Reduction	C/TBD	Raytheon CPAF/IF	509.114	57.114	Oct 2009	33.250	Oct 2010	0.000		33.250	Continuing	Continuing	Continuing
Shipbuilding	C/Various	PEO Ships Various	100.815	0.000		0.000		0.000		0.000	0.000	100.815	Continuing
Design and Risk Reduction	C/Various	SPAWAR Various	5.855	0.000		0.000		0.000		0.000	0.000	5.855	Continuing
Design and Risk Reduction	C/Various	MIT/TWS Various	0.500	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	616.284	57.114		33.250		0.000		33.250			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	WR	Various WR	3.977	0.000		0.000		0.000		0.000	0.000	3.977	Continuing
System Engineering	C/TBD	Various MIPR	3.096	0.000		0.000		0.000		0.000	0.000	3.096	Continuing
System Engineering	C/TBD	Various GSA	1.691	0.000		0.000		0.000		0.000	0.000	1.691	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305149N: *Cobra Judy*	PROJECT 4021: *CJR System Engineering*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	C/CPAF	BAE CPAF	0.840	0.000		0.000		0.000		0.000	0.000	0.840	Continuing
System Engineering	C/TBD	GTRI C NF	2.118	0.000		0.000		0.000		0.000	0.000	2.118	Continuing
System Engineering	C/CPFF	JHU/APL CPFF	5.790	0.000		0.000		0.000		0.000	0.000	5.790	Continuing
System Engineering	C/TBD	MIT/LL MIPR	4.319	0.975	Feb 2010	0.000		0.000		0.000	0.000	5.294	Continuing
System Engineering	WR	NRL WR	1.880	0.000		0.000		0.000		0.000	0.000	1.880	Continuing
System Engineering	WR	NSWC CSS WR	2.942	0.000		0.000		0.000		0.000	0.000	2.942	Continuing
System Engineering	WR	NSWC DD WR	10.694	0.898	Dec 2009	1.200	Dec 2010	0.000		1.200	Continuing	Continuing	Continuing
System Engineering	WR	NSWC PHD WR	1.535	0.000		0.000		0.000		0.000	0.000	1.535	Continuing
System Engineering	C/Various	PEO Ships Various	3.000	0.000		0.000		0.000		0.000	0.000	3.000	Continuing
System Engineering	WR	SEG WR	1.195	0.000		0.000		0.000		0.000	0.000	1.195	Continuing
Systems Engineering	WR	SPAWAR WR	2.922	2.737	Dec 2009	0.997	Dec 2010	0.000		0.997	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/CRANE WR	0.204	0.000		0.000		0.000		0.000	0.000	0.204	Continuing
		Subtotal	46.203	4.610		2.197		0.000		2.197			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305149N: *Cobra Judy*	PROJECT 4021: *CJR System Engineering*	

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	C/TBD	Various CPAF/WR/RE	0.295	0.000		0.000		0.000		0.000	0.000	0.295	Continuing
Test and Evaluation	C/CPAF	Raytheon CPAF	1.200	0.000		0.000		0.000		0.000	0.000	1.200	Continuing
Test and Evaluation	C/TBD	AFOTEC Not Specified	0.330	0.000		0.000		0.000		0.000	0.000	0.330	Continuing
Test and Evaluation	C/TBD	COMOPTEVFOR Not Specified	0.315	0.000		0.000		0.000		0.000	0.000	0.315	Continuing
Test and Evaluation	C/TBD	JITC Not Specified	0.225	0.000		0.000		0.000		0.000	0.000	0.225	Continuing
Test and Evaluation	WR	NSWC DD WR	2.019	0.000		0.000		0.000		0.000	0.000	2.019	Continuing
Test and Evaluation	C/TBD	PEO SHIPS Not Specified	0.452	0.000		0.000		0.000		0.000	0.000	0.452	Continuing
Test and Evaluation	C/TBD	TSC Not Specified	0.422	0.000		0.000		0.000		0.000	0.000	0.422	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305149N: *Cobra Judy*	PROJECT 4021: *CJR System Engineering*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	5.258	0.000		0.000		0.000		0.000	0.000	5.258	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/CPAF	BAE Systems CPAF	12.233	0.000		1.000	Dec 2010	0.000		1.000	Continuing	Continuing	Continuing
Program Management	C/CPFF	DTI CPFF	0.435	0.000		0.000		0.000		0.000	0.000	0.435	Continuing
Contractor Engineering	C/CPAF	BAE Systems CPAF	10.611	0.000		0.000		0.000		0.000	0.000	10.611	Continuing
Contractor Engineering	C/TBD	Computer Science Corp Not Specified	3.255	0.000		0.000		0.000		0.000	0.000	3.255	Continuing
Contractor Engineering	C/TBD	Systems Planning and Analysis Not Specified	1.900	0.000		0.000		0.000		0.000	0.000	1.900	Continuing
Contractor Engineering	C/TBD	Various Not Specified	1.687	0.000		0.000		0.000		0.000	0.000	1.687	Continuing
Travel	C/TBD	PEO IWS2	0.816	0.080	Dec 2009	0.080	Dec 2010	0.000		0.080	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305149N: *Cobra Judy*	PROJECT 4021: *CJR System Engineering*

Management Services ($ in Millions)

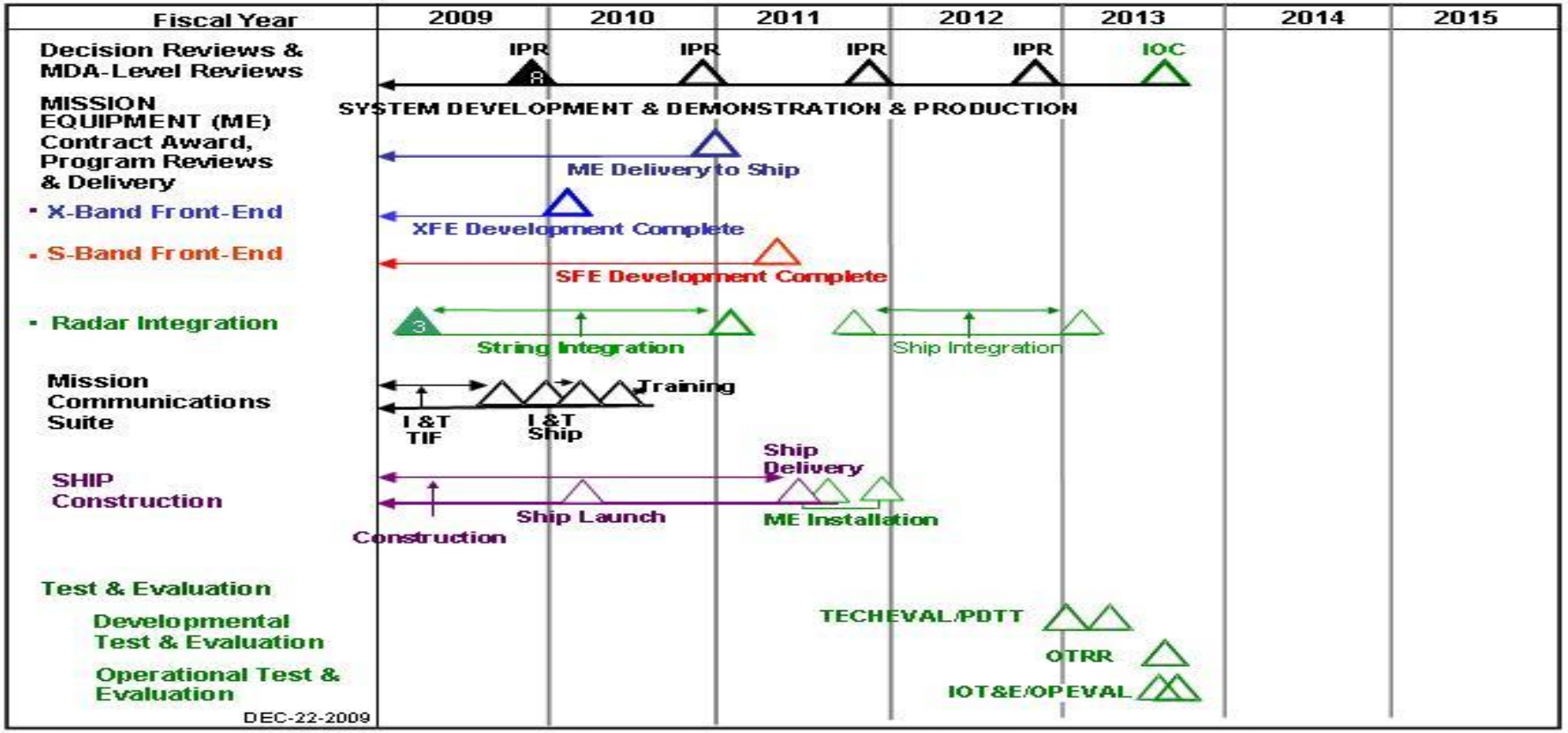
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		PD											
		Subtotal	30.937	0.080		1.080		0.000		1.080			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	698.682	61.804		36.527		0.000		36.527			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305149N: *Cobra Judy*	PROJECT 4021: *CJR System Engineering*



CDR — Critical Design Review
DT&E — Developmental Test and Evaluation
GFE — Gov't Furnished Equipment
I&T — Integration and Test
IBR — Integrated Baseline Review
IPR — Interim Program Review
IOC — Initial Operational Capability
IOT&E — Initial Operational Test and Evaluation
ME — Mission Equipment
MS — Milestone
OPEVAL — Operational Evaluation
OTRR — Operational Test Readiness Review
PDR — Preliminary Design Review
PDTT — Post Delivery Test and Trials
SDR — System Design Review
SFE — S-Band Radar Front End
TECHEVAL — Technical Evaluation
TIF — Test and Integration Facility
XFE — X-Band Radar Front End

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305149N: *Cobra Judy*	**PROJECT** 4021: *CJR System Engineering*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Design Reviews & MDA-Level Reviews	1	2009	4	2012
Initial Operational Capability (IOC)	3	2013	3	2013
X- Band Development	1	2009	1	2010
S-Band Radar Development	1	2009	2	2011
Mission Equipment String Integration	1	2009	1	2011
ME Ship Integration	4	2011	1	2013
Ship Delivery	2	2011	2	2011
TECHEVAL/ Post Delivery Test & Trials	1	2013	2	2013
OTRR	3	2013	3	2013
IOT&E/OPEVAL	3	2013	3	2013

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	7.673	28.774	63.878	0.000	63.878	57.148	43.091	17.734	18.123	Continuing	Continuing
0524: *Navy METOC Support (SPACE)*	2.598	1.080	0.936	0.000	0.936	1.785	1.058	1.076	1.098	Continuing	Continuing
1452: *GEO SAT*	5.075	26.897	62.942	0.000	62.942	55.363	42.033	16.658	17.025	Continuing	Continuing
9999: *Congressional Adds*	0.000	0.797	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.755

A. Mission Description and Budget Item Justification

This program element supports the Navy's requirements in meteorological and oceanographic (METOC) space-based remote sensors. These requirements include commitments to satellite, sensor, and operational demonstration/development activities as well as the transition to fleet applications associated with three satellite programs: 1) the joint Defense Meteorological Satellite Program (DMSP), 2) the jointly funded Coriolis satellite which includes Navy Satellite Based Wind Speed (WindSat) and Air Force Solar Mass Ejection Imager instruments, 3) the Geodetic/geophysical Satellite (GEOSAT) Follow-On 2 (GFO-2) altimetry satellite funded entirely by Navy.

The Navy METOC Space-Based Sensing Capabilities project provides for Navy participation in Navy/Air Force cooperative efforts leading to DMSP sensor development, and specifically participation in the calibration and validation of instruments and delivery of satellite products to the fleet. The passive microwave instruments carried on the DMSP satellites provide global and atmospheric data of direct operational relevance, including sea surface wind, sea ice, and precipitation. WindSat is a partnered program that meets multiple naval remote sensing requirements and provides a significant risk reduction for the National Polar-orbiting Operational Environmental Satellite System satellites' Microwave Imaging Sensor instrument.

The GEOSAT Follow-On project, and GFO-2 program, will provide a polar-orbiting satellite that measures sea surface topography using a precise altimeter. Both the GEOSAT Follow-On and Navy METOC Support (Space) projects fulfill Navy's obligation to develop naval service-unique, mission critical space-based METOC technology.

JUSTIFICATION FOR BUDGET ACTIVITY: BA-7: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	8.182	28.094	0.000	0.000	0.000
Current President's Budget	7.673	28.774	63.878	0.000	63.878
Total Adjustments	-0.509	0.680	63.878	0.000	63.878
• Congressional General Reductions		-0.120			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.800			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.289	0.000			
• SBIR/STTR Transfer	-0.221	0.000			
• Program Adjustments	0.000	0.000	63.878	0.000	63.878
• Rate/Misc Adjustments	0.001	0.000	0.000	0.000	0.000

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Integration of Adv Wide Field of View Sensor Testbed System*	0.000	0.797
Congressional Add Subtotals for Project: 9999	0.000	0.797
Congressional Add Totals for all Projects	0.000	0.797

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	PROJECT 0524: *Navy METOC Support (SPACE)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0524: *Navy METOC Support (SPACE)*	2.598	1.080	0.936	0.000	0.936	1.785	1.058	1.076	1.098	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Meteorology and Oceanography (METOC) Space-Based Sensing Capabilities project provides for the naval service's unique sensor development efforts Navy Satellite Based Wind Speed (WindSat) and Navy participation in the Defense Meteorological Satellite Program (DMSP) Special Sensor Microwave/Imager and Special Sensor Microwave Imager Sounder calibration/validation efforts in support of the fleet operational requirements. WindSat, an initiative begun in 1997, is a partnered program that meets multiple naval remote sensing requirements and provides a significant risk reduction for the National Polar-orbiting Operational Environmental Satellite System (NPOESS) satellites' Conical Microwave Imaging Sensor instrument. The passive microwave instruments carried on DMSP and future NPOESS satellites provide global oceanic and atmospheric data of direct operational relevance, including sea surface wind speed, sea ice, and precipitation.

The METOC Space-Based Sensing Capabilities project ensures the naval service's operational requirements are satisfied primarily through demonstration of technologies for inclusion on operational constellations such as DMSP, the National Polar-orbiting Operational Environmental Satellite System (NPOESS) and the National Oceanic and Atmospheric Administration's Geostationary Operational Environmental Satellites (GOES). These efforts fulfill naval service unique requirements that are not funded within the DMSP, NPOESS or GOES programs, and are in accordance with current inter-agency agreements.

The primary focus of the FY 2011 request is the continuation of the microwave imager sensors data anomally resolution, and to continue ground control and operations of the Coriolis spacecraft and monitor the state of health of the Navy Satellite Based Wind Speed (WindSat) on-orbit payload.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
METOC Space-Based Sensing Capabilities	2.585	1.080	0.936	0.000	0.936

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	PROJECT 0524: *Navy METOC Support (SPACE)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued performance assessments of microwave imagers (e.g.: Special Sensor Microwave Imager Sounder (SSMIS) / Special Sensor Microwave Imager (SSMI) / Microwave Imager Sounder (MIS)) and continued to calibrate sensors and validate data and resolve anomalies. Continued ground control and operations of the Coriolis spacecraft and monitor the state of health of the Navy Satellite Based Wind Speed (WindSat) on-orbit payload. *FY 2010 Plans:* Continue performance assessments of microwave imagers (e.g.: SSMIS/SSMI/MIS) and continue to calibrate sensors and validate data and resolve anomalies. Continue limited ground control and operations of the Coriolis spacecraft and monitor the state of health of the Navy WindSat on-orbit payload. *FY 2011 Base Plans:* Continue performance assessments of microwave imagers (e.g.: SSMIS/SSMI/MIS) and continue to calibrate sensors and validate data and resolve anomalies. Continue limited ground control and operations of the Coriolis spacecraft and monitor the state of health of the WindSat on-orbit payload.					
Acquisiton Workforce *FY 2009 Accomplishments:* Funded acquisition workforce fund.	0.013	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	2.598	1.080	0.936	0.000	0.936

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	PROJECT 0524: *Navy METOC Support (SPACE)*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Naval service unique, space based METOC requirements. Particular sensors or data sources with unique naval service mission needs are targeted to accelerate acquisition or ensure threshold accomplishment of Joint or converged national program plans. Navy Satellite Based Wind Speed provides risk reduction data and developmental technology that the National Polar-orbiting Operational Environmental Satellite System (NPOESS) Integrated Program Office (IPO) will use in the development of the Conical Microwave Imager Sounder (CMIS). CMIS will collect global microwave radiometry and sounding data to produce microwave imagery and other meteorological and oceanographic data. CMIS can be viewed as the follow-on instrument to the Special Sensor Microwave (SSM) instruments Navy developed for the Defense Meteorological Satellite Program. It will be the primary instrument for satisfying 20 NPOESS Integrated Operational Requirements Document Environmental Data Records. These CMIS sensors will be acquired as part of the NPOESS architecture which supports these Navy requirements in the future. Maintenance of rigorous sensor calibration and data validation for operational SSM instruments continues along with algorithm development in support of fleet applications. The Advanced Altimeter technologies will improve radar altimeter resolution and aerial coverage to support Navy requirements for sea surface topography measurement in the littorals.

E. Performance Metrics

Goal : Provide precise and near real-time METOC forecasting to the warfighter using existing and future space-based satellite derived data, including ocean surface wind speed, rain rate, ice concentration, and soil moisture measurements.

Metric: Provide precise ocean surface wind speed within plus or minus 2.0 meters per second, the rain over land and ocean rate within plus or minus 5.0 millimeters per hour, soil moisture measurements within plus or minus 10%; and sea ice concentrations within plus or minus 10%.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	PROJECT 0524: *Navy METOC Support (SPACE)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Spacecraft Development	C/FFP	Spectrum Astro AZ	2.500	0.000		0.000		0.000		0.000	0.000	2.500	Continuing
Spacecraft Development	C/FP	TRW Redondo Beach, CA	4.885	0.000		0.000		0.000		0.000	0.000	4.885	Continuing
Assimilation/Prediction Models	WR	NRL Washinton, DC	5.408	0.437	Nov 2009	0.400	Nov 2010	0.000		0.400	0.000	6.245	Continuing
		Subtotal	12.793	0.437		0.400		0.000		0.400	0.000	13.630	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
WindSat-Sensor/ Observing Systems (Space)	C/FP	Various Various	89.753	0.330	Nov 2009	0.244	Nov 2010	0.000		0.244	0.000	90.327	Continuing
IOMI PM and System Engineering	C/FP	Various Various	3.754	0.000		0.000		0.000		0.000	0.000	3.754	Continuing
SSMIS Cal/Val	C/FP	Various Various	10.706	0.253	Nov 2009	0.232	Nov 2010	0.000		0.232	0.000	11.191	Continuing
	C/FP	Various	0.316	0.000		0.000		0.000		0.000	0.000	0.316	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	PROJECT 0524: *Navy METOC Support (SPACE)*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Future Mission Engineering		Various											
APMIR	C/FP	Various Various	1.590	0.000		0.000		0.000		0.000	0.000	1.590	Continuing
		Subtotal	106.119	0.583		0.476		0.000		0.476	0.000	107.178	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/FP	Various Various	0.316	0.060	Nov 2009	0.060	Nov 2010	0.000		0.060	0.000	0.436	Continuing
Acquisition Workforce	C/FP	Not Specified Not Specified	0.013	0.000		0.000		0.000		0.000	0.000	0.013	Continuing
		Subtotal	0.329	0.060		0.060		0.000		0.060	0.000	0.449	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	PROJECT 0524: *Navy METOC Support (SPACE)*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	119.241	1.080		0.936		0.000		0.936	0.000	121.257	

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	**PROJECT** 0524: *Navy METOC Support (SPACE)*

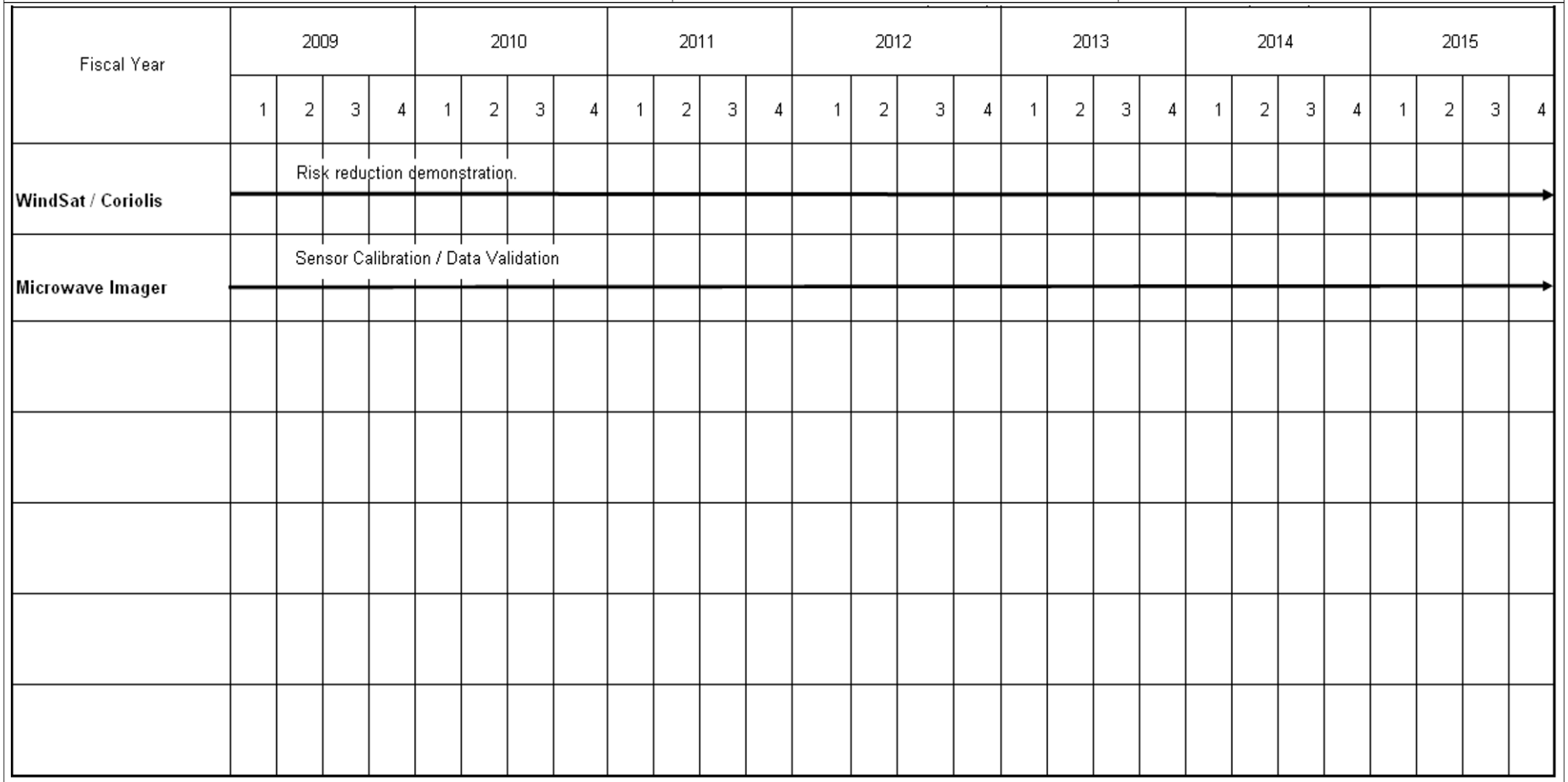


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	**PROJECT** 0524: *Navy METOC Support (SPACE)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Navy METOC Support (SPACE) WindSat Coriolis Risk Reduction Demonstration	1	2009	4	2015
SPACE Microwave Imager Sensor Calibration/Data Validation	1	2009	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	PROJECT 1452: *GEO SAT*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1452: *GEO SAT*	5.075	26.897	62.942	0.000	62.942	55.363	42.033	16.658	17.025	Continuing	Continuing
Quantity of RDT&E Articles	0	0	1	0	1	0	0	0	0		

A. Mission Description and Budget Item Justification

This project provides a Polar-orbiting satellite (the Geodetic/geophysical Satellite (GEOSAT) Follow-On 2 (GFO-2)) that measures sea surface topography using a precise altimeter. Mission data will be collected by the Spacecraft Operations Center and passed to the Payload Operations Center, and Altimetry Data Fusion Center, which are co-located at the Naval Oceanographic Office, Stennis Space Center, MS. Mission data is used in global and regional scale ocean forecast models. GFO-2 will provide a capability for precise mesoscale (e.g., fronts and eddies) and basin-scale oceanography. This capability will support tactical anti-submarine warfare, mine warfare, naval special warfare mission planning, tactical decision aids, and sensor/weapon performance prediction. GFO-2 will also provide an undersea warfare battlespace characterization capability that supports submarine detectability, weapon settings, sound velocity profiles, tropical cyclone intensity, and track forecasts.

GFO-2 data will be made freely available to other agencies, such as the National Oceanic and Atmospheric Administration and the National Aeronautics and Space Administration, who value its input to studies involving global warming and climate change, including El Nino Southern Oscillation effects.
Ocean topography data was previously provided by GEOSAT from 1985 until the satellite failed in January 1990. The Geodetic/geophysical Satellite Follow-On satellite was launched in February 1998 and deorbited in November 2008. The GEOSAT GFO-2 will provide for the continuation of this capability.

The primary focus of the FY 2011 request is the continuation of the design, development, and build of the GEOSAT GFO-2.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
GEO SAT	5.049	26.897	62.942	0.000	62.942
FY 2009 Accomplishments: Continued Geodetic/geophysical Satellite (GEOSAT) Follow-On (GFO) performance assessments and continued to calibrate GFO payload and validate data and resolve anomalies. Continued investigations and implementation of life extension solutions as work arounds for degraded					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	**PROJECT** 1452: *GEO SAT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
components of GFO. Completed GFO Performance validation reports (every 17 days) and GFO engineering anomaly resolution reports (upon retirement of anomaly). The GFO was deorbited in November 2008, all remaining resources were realigned into the GEOSAT Follow-On 2 (GFO-2) program of record. Began engineering analysis of alternative configurations for a future satellite based altimeter (GFO-2) and prepared acquisition documentation. Completed draft request for proposal in preparation for official release to industry. *FY 2010 Plans:* Begin design phase of GFO-2. Complete preliminary design and conduct Preliminary Design Review (PDR). Award the GFO-2 development contract. Complete Pre-Milestone B activities (System Requirements Review, System Design Review, and an Independent Program Assessment (IPA)). Begin initial testing of GFO-2 space systems and subsystems. *FY 2011 Base Plans:* Complete pre-milestone C activities of the GFO-2 (completion of the preliminary design, PDR and a second IPA). Begin the design phase of the GFO-2. Continue testing of GFO-2 space systems and subsystems. Begin testing of GFO-2 ground systems and subsystems. Begin testing of GFO-2 space system integration. Begin procurement of long lead time major subsystems, including a radar altimeter, water vapor radiometer, and Global Positioning System Receivers. Begin assembly of GFO-2 payload, bus, and launch vehicle.					
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded acquisition workforce fund.	0.026	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	5.075	26.897	62.942	0.000	62.942

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	**PROJECT** 1452: *GEO SAT*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The Navy will award one contract to establish a space based altimetry capability. The Government intends to award a single contract for the delivery of a complete end-to-end on-orbit capability. The base requirement will be for a system requirements review and system design review in support of milestone B. Options will be included to build, launch, and support the Geodetic/geophysical Satellite (GEOSAT) Follow-On 2 (GFO-2) space vehicle.

E. Performance Metrics

Goal: Provide METOC GEOSAT derived mission data to improve the accuracy of global and regional scale oceanographic forecast models.
Metric: Anti-Submarine Warfare capability is highly dependent on the operational environment. GEOSAT Follow-On 1 demonstrated that a space based altimeter provided the equivalent of approximately a 500-fold increase in available subsurface observations and a 10-fold increase in available surface observations, critical to characterization of the ocean environment and oceanographic modeling. War-gaming models show that this increased knowledge of the subsurface acoustic propagation resulting from one altimeter reduced the probability of losing a ship to subsurface attack from 80% to 20% for various scenarios.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	PROJECT 1452: *GEO SAT*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/FP	Ball Aerospace Boulder, CO	85.984	0.000		0.000		0.000		0.000	0.000	85.984	Continuing
Software Development	C/FP	Various Not Specified	8.045	0.000		0.000		0.000		0.000	0.000	8.045	Continuing
System Engineering	C/FP	Ball Aerospace Boulder, CO	3.628	0.000		0.000		0.000		0.000	0.000	3.628	Continuing
System Engineering	C/FP	Various Not Specified	4.982	0.885	Nov 2009	0.916	Nov 2010	0.000		0.916	0.000	6.783	Continuing
GFO-2 (Naval Altimetry Satellite)	C/FP	TBD TBD	1.000	24.403	Mar 2010	60.162	Nov 2010	0.000		60.162	0.000	85.565	Continuing
		Subtotal	103.639	25.288		61.078		0.000		61.078	0.000	190.005	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GFO	C/FP	Various Not Specified	0.200	0.000		0.000		0.000		0.000	0.000	0.200	Continuing
GFO-2	C/CPIF	MAXIM Systems San Diego, CA	2.685	1.609	Nov 2009	1.864	Nov 2010	0.000		1.864	0.000	6.158	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	PROJECT 1452: *GEO SAT*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	C/FP	Not Specified Not Specified	0.026	0.000		0.000		0.000		0.000	0.000	0.026	Continuing
		Subtotal	2.911	1.609		1.864		0.000		1.864	0.000	6.384	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	106.550	26.897		62.942		0.000		62.942	0.000	196.389	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	**PROJECT** 1452: *GEO SAT*

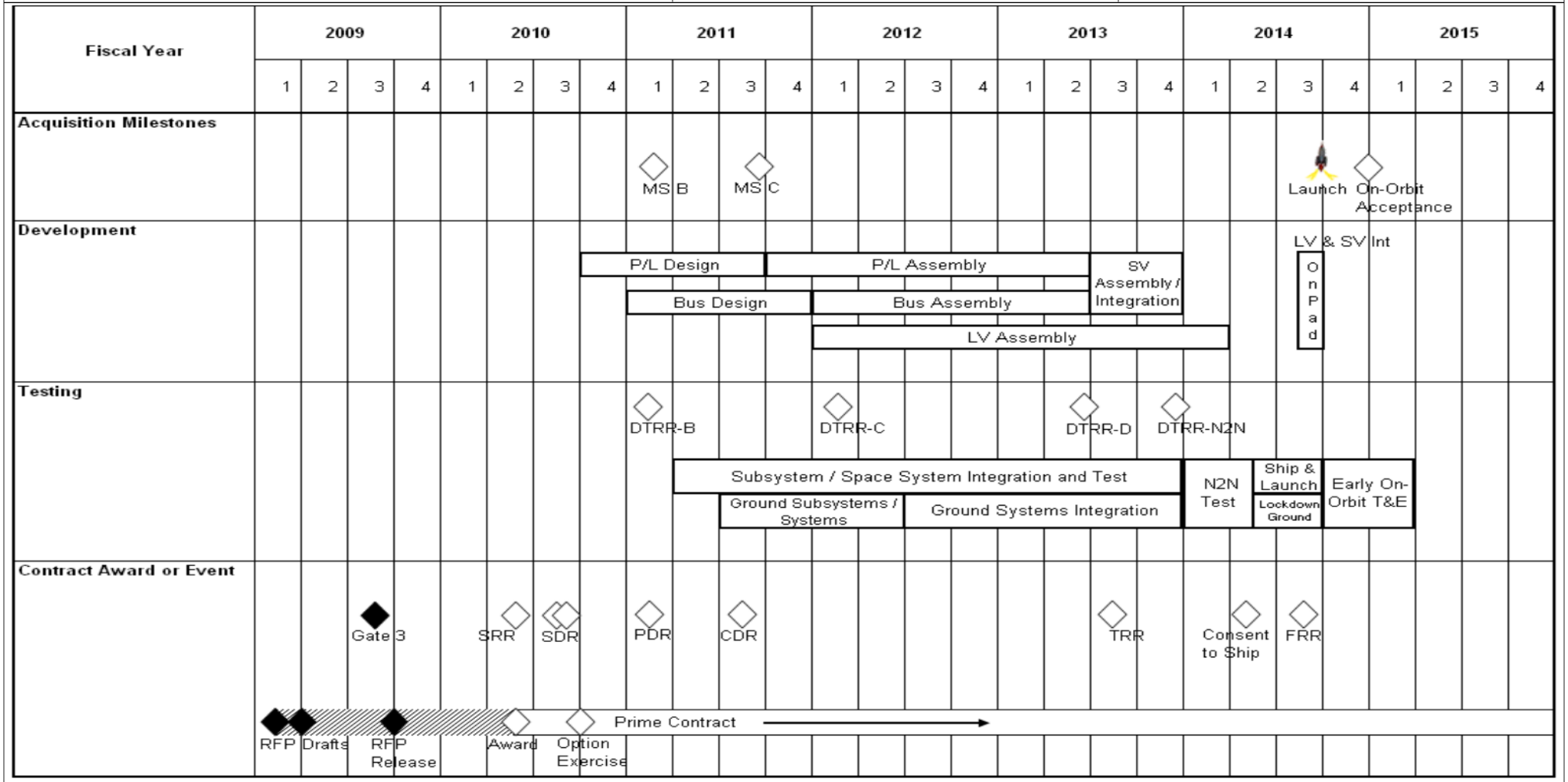


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	**PROJECT** 1452: *GEO SAT*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Milestone B (MS B)	1	2011	1	2011
Milestone C (MS C)	3	2011	4	2011
Consent to Ship	2	2014	2	2014
Launch	3	2014	4	2014
On-Orbit Acceptance	4	2014	1	2015
Payload (P/L) Design	4	2010	3	2011
Bus Design	1	2011	4	2011
P/L Assembly	4	2011	2	2013
Bus Assembly	1	2012	2	2013
Launch Vehicle (LV) Assembly	1	2012	1	2014
Space Vehicle (SV) Assembly/Integration	3	2013	4	2013
Subsystem / Space System Integration and Test	2	2011	4	2013
Ground Sub-Systems / Systems	3	2011	2	2012
Ground Systems Integration	3	2012	4	2013
N2N Test	1	2014	2	2014
Ship & Launch Prep	2	2014	3	2014
Lock-down Ground	2	2014	3	2014
Early On-Orbit Test & Evaluation	4	2014	1	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	**PROJECT** 1452: *GEO SAT*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Request for Proposal (RFP) Drafts	1	2009	2	2009
RFP Release	3	2009	4	2009
Award	2	2010	2	2010
System Readiness Review (SRR)	2	2010	2	2010
System Design Review (SDR)	3	2010	3	2010
Option Exercise	3	2010	4	2010
Prime Contract	4	2010	4	2015
Preliminary Design Review (PDR)	1	2011	1	2011
Critical Design Review (CDR)	3	2011	3	2011
Test Readiness Review (TRR)	3	2013	3	2013
Launch Vehicle and Space Vehicle Intregration	3	2014	4	2014
Flight Readiness Review (FRR)	3	2014	3	2014

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305160N: *Navy Meteorological and Ocean Sensors-Space(METOC)*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	0.797	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.755
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Adds.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Integration of Adv Wide Field of View Sensor Testbed System *FY 2010 Plans:* Integration for Advanced Wide Field of View Sensor with Reusable, Reconfigurable Payload Processing Testbed System.	0.000	0.797
Congressional Adds Subtotals	0.000	0.797

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Congressional Adds.

E. Performance Metrics

Congressional Adds.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	53.493	8.834	35.212	0.000	35.212	10.147	9.845	9.206	9.384	Continuing	Continuing
0117: *Reef Point*	0.000	0.000	0.093	0.000	0.093	0.092	0.092	0.092	0.093	Continuing	Continuing
2478: *Tactical Control System*	12.707	8.834	8.767	0.000	8.767	10.055	9.753	9.114	9.291	Continuing	Continuing
2501: *Medium Endurance Marinized UAS Technology Demonstration*	0.000	0.000	26.352	0.000	26.352	0.000	0.000	0.000	0.000	0.000	26.352
2768: *VTUAV*	15.514	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	514.521
2910: *Joint Tech Center/System Integ Lab*	1.719	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.623
3192: *STUAS*	19.464	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.569
9999: *Congressional Adds*	4.089	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	38.001

A. Mission Description and Budget Item Justification

Tactical Unmanned Aerial Vehicles (JMIP)

This PE includes non-lethal joint tactical UAV system support for DoD to provide the warfighters with the capability for day/night aerial reconnaissance, surveillance and target acquisition (RSTA); intelligence; communications/data relay; and minefield detection in limited adverse weather. This PE includes the Tactical Control System (TCS) which provides a multi-level, scaleable, and flexible control of the UAV air vehicles and payloads, as well as direct receipt of UAV imagery. This PE also includes Common Systems Development, which provides for the research and development of leading edge technology applicable across DoD UAV efforts.

2768 MQ-8B (Vertical Take-Off and Landing Tactical Unmanned Air Vehicle (VTUAV): Project code moved from PE 0305204N to PE 0305231N, in FY10.

2910 JTC/SIL (Joint Technology Center/System Integration Laboratory): Project code moved from PE 0305204N to PE 0603261N, in FY10.

3192 STUAS (Small Tactical Unmanned Aircraft System): Project code moved from PE 0305204N to PE 0305234N in FY10.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204N: *Tactical Unmanned Aerial Vehicles*

2501 Medium Endurance Marinized UAS Technology Demostration: Project is a new start in FY11.

Congressional Adds:
UAS Tactical Control System Open Architecture: This initiative includes the open systems migration of unique military standard sensors, electronics, and software system components to lower cost/higher performance commercial equivalent capabilities.

Micro-munitions Interface for Tactical Unmanned Systems: This initiative is to develop an interface between Unmanned Air Systems (UAS) and micro-munitions, defined as weapons weighing less than 100 pounds. Integration of micro-munitions onto UASs requires a stores/weapons management interface that provides a safe and effective integration between the weapon and the unmanned system.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	51.588	8.971	0.000	0.000	0.000
Current President's Budget	53.493	8.834	35.212	0.000	35.212
Total Adjustments	1.905	-0.137	35.212	0.000	35.212
• Congressional General Reductions		-0.037			
• Congressional Directed Reductions		-0.100			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	3.900	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	35.212	0.000	35.212
• Congressional Recision Adjustments	0.005	0.000	0.000	0.000	0.000
• Congressional Add Adjustments	-2.000	0.000	0.000	0.000	0.000

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Unmanned Air Systems Tactical Control Systems*	2.493	0.000
Congressional Add: *MICRO-MUNITIONS INTERFACE FOR TACT UNMANNED SYS*	1.596	0.000
	4.089	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204N: *Tactical Unmanned Aerial Vehicles*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add Subtotals for Project: 9999		
Congressional Add Totals for all Projects	4.089	0.000

Change Summary Explanation

Schedule:

TCS - Acquisition milestones have been adjusted due to software and flight test delays. IOC and the completion of OT-C1 OPEVAL moved from 4Q FY09 to 2Q FY10, and the completion of VTUAV EMD moved from the beginning of 4Q FY09 to the end of 2Q FY10. Added Littoral Combat Ship (LCS) Integration to enable VTUAV to integrate, test and deploy onboard LCS 1&2 for the Surface Warfare, Mine Counter-Measures and Anti Submarine Warfare modules.

VTUAV - FY10 thru FY15, VTUAV is budgeted for in PE 0305231N.

Technical: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 0117: *Reef Point*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0117: *Reef Point*	0.000	0.000	0.093	0.000	0.093	0.092	0.092	0.092	0.093	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

A new start project for FY 2011.

A. Mission Description and Budget Item Justification

The Reef Point Sonochute UAV will provide an expendable organic UAV that can be launched from a P-3/P-8 Sono Buoy Launcher to support the host aircraft by 1) extending its on-station time, 2) extending on-board sensor range and 3) affording a margin of crew and platform safety not currently available to Maritime Surveillance Aircraft (MSA) community. The system supports the P-8A Multi-Mission Maritime Aircraft (MMA) Adjunct Unmanned Aerial Vehicle requirement of level II UAV command and control (threshold) to provide real-time receipt of UAV sensor data via direct link as well as the objective goal for later production blocks of P-8A for Level IV UAV command and control to enable on-board command and control of UAVs operating as remote sensors and C4ISR collection. This system supports the P-8A design for deployable systems which accommodates for the stowage, control, and dispensing of various non-lethal expendables for use in search, localization, tracking, classification/identification tasks, for enhancing survivability, and for Search and Rescue (SAR). The system supports Naval missions such as Maritime Interdiction. Naval Air Warfare Center Division will support the systems engineering.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Engineering and Maintenance	0.000	0.000	0.093	0.000	0.093
Government Technical Engineering Support and travel.					
FY 2011 Base Plans: FY11 funds this new start effort to provide an expendable organic UAV that can be launched from a P-3/P-8 Sono Buoy Launcher. Funding will support government engineering support and related travel requirements.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 0117: *Reef Point*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.093	0.000	0.093

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The project strategy is to develop and demonstrate an expendable organic sonochute launched UAV (SLUAV) for P-3/P-8 maritime missions. The demonstration project will support requirements developed and refined for input into the formal requirements (JCIDS) process and documentation. NAWCAD will provide government engineering support and manage the demonstration effort using the developers of SLUAVs currently under contract.

E. Performance Metrics

Attainment of a sonochute launched expendable organic UAV for use on P-3/P-8 aircraft.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2478: *Tactical Control System*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2478: *Tactical Control System*	12.707	8.834	8.767	0.000	8.767	10.055	9.753	9.114	9.291	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This program supports the Tactical Control System (TCS), a standards-based system that provides interoperability and commonality for Command and Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) interfaces, and Command and Control of Naval Unmanned Air Systems (UASs). Capability to provide Interoperability across the Naval UAS Family of Systems (FoS) through use of TCS software operating on Ground Control Station hardware utilizing a NATO STANAG-4586 architecture communicating across a Tactical Common Data Link.

TCS provides a full range of scaleable UAS capabilities from passive receipt of air vehicle and payload data to full air vehicle and payload command and control. TCS offers the war fighter a common core operating environment to simultaneously receive, process, and disseminate data from different UAS types for reconnaissance, surveillance, and combat assessment.

This program supports enhancements and updates to TCS in order to continue to meet supported air vehicle enhancements, incorporation of new technologies that will be used to enhance overall system performance, incorporate new payloads and payload capabilities (such as advanced sensors and weapons), incorporate Multi-Vehicle Control, incorporate NATO STANAG-4586 and C4I enhancements, and alignment with OSD direction for UAS control segments.

TCS software will be incorporated into the MQ-8B Vertical Take-off and Landing Tactical Unmanned Air Vehicle (VTUAV) system, and will IOC inconjunction with MQ-8B. TCS software addresses MQ-8B requirements validated by the Joint Requirements Oversight Council in the VTUAV Capability Production Document (May 2007).

TCS maximizes the use of contractor and government off-the-shelf hardware and software whenever possible and incorporates software/hardware enhancements where appropriate to maintain growth potential and minimize hardware and operating system dependence. TCS software is interoperable, and is compliant with the OSD Command and Control, Communications, Intelligence (C3I) Joint Technical Architecture, and Distributed Common Ground System standards, and NATO standards.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2478: *Tactical Control System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
TCS Development and Integration	11.543	7.631	7.921	0.000	7.921
FY 2009 Accomplishments: Continued TCS Integration with MQ-8B development and to support requirements for Littoral Combat Ship (LCS) Integration. Continued TCS NATO STANAG 4586 compliance. Continued TCS Command and Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) interface testing for MQ-8B required C4ISR systems. Continued hardware and operating system independence initiatives. *FY 2010 Plans:* Continue TCS integration with MQ-8B development. Continue new TCS capabilities to support requirements for Littoral Combat Ship (LCS) integration. Continue TCS NATO STANAG 4586 compliance. Continue TCS Command and Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) interface testing for MQ-8B required C4ISR systems. Continue hardware and operating system independence initiatives. *FY 2011 Base Plans:* Continue TCS integration with MQ-8B development. Continue new TCS capabilities to support requirements for Littoral Combat Ship (LCS) integration. Continue TCS NATO STANAG 4586 compliance. Continue TCS Command and Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) interface testing for MQ-8B required C4ISR systems. Continue hardware and operating system independence initiatives.					
Technical and Engineering Services	1.164	1.203	0.846	0.000	0.846
FY 2009 Accomplishments: Continued government engineering support, contractor support, program support, and travel for the TCS program.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2478: *Tactical Control System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continued government engineering support, contractor support, program support, and travel for the TCS program. *FY 2011 Base Plans:* Continue government engineering support, contractor support, program support, and travel for the TCS program.					
Accomplishments/Planned Programs Subtotals	12.707	8.834	8.767	0.000	8.767

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The Tactical Control System (TCS) program is developing Government owned, non-proprietary software that supports multiple UAS control. The TCS program continues under the FY04 Congressionally-directed restructure of the program to focus on Navy requirements and standards based on interoperability. Navy requirements for TCS include supporting fielding of the Navy MQ-8B Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle (VTUAV) aboard the Littoral Combat Ship (LCS), FFG, DDG-1000, the addition of plug-and-play payloads, and implementation of NATO Standardization Agreement for Standard Interfaces of UAV Control System for NATO UAV Interoperability (STANAG 4586).

E. Performance Metrics

Successfully achieve Initial Operational Capability. Successfully complete COBRA Integration. Successfully complete Radar Sensor Integration. Successfully complete LCS Ship Integration. Successfully complete Operational Test.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2478: *Tactical Control System*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development	C/CPAF	Raytheon Falls Church,VA	113.682	7.145	Nov 2009	7.449	Nov 2010	0.000		7.449	0.000	128.276	128.276
Award Fees	C/CPAF	Raytheon Falls Church,VA	9.175	0.456	Jul 2010	0.475	Jul 2011	0.000		0.475	0.000	10.106	10.106
		Subtotal	122.857	7.601		7.924		0.000		7.924	0.000	138.382	138.382

Remarks

Awarded 85.6% of award fees in past award fee periods.

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test and Evaluation	WR	Various Various	1.260	0.030	Nov 2009	0.030	Nov 2010	0.000		0.030	Continuing	Continuing	Continuing
		Subtotal	1.260	0.030		0.030		0.000		0.030			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2478: *Tactical Control System*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	Various Various	2.142	0.373	Nov 2009	0.213	Nov 2010	0.000		0.213	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various Various	7.676	0.355	Nov 2009	0.280	Nov 2010	0.000		0.280	Continuing	Continuing	Continuing
Program Management Support	Various/ Various	Various Various	3.101	0.430	Nov 2009	0.275	Nov 2010	0.000		0.275	Continuing	Continuing	Continuing
Travel	WR	NAVAIR PAXRV, MD	0.143	0.045	Oct 2009	0.045	Oct 2010	0.000		0.045	Continuing	Continuing	Continuing
		Subtotal	13.062	1.203		0.813		0.000		0.813			

Remarks

Travel Contract Type is TO.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	137.179	8.834		8.767		0.000		8.767			

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204N: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 2478: *Tactical Control System*

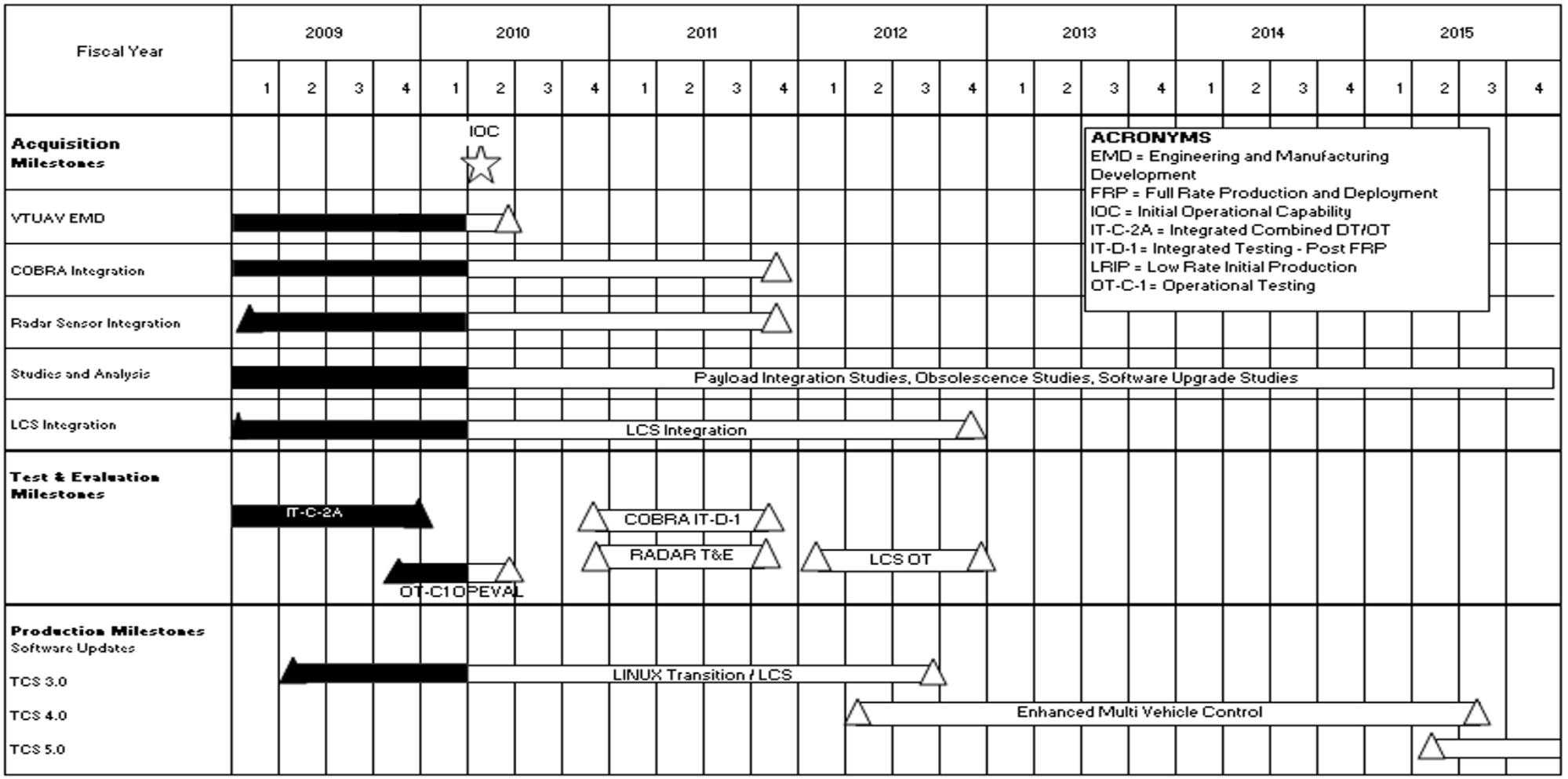


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204N: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 2478: *Tactical Control System*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones TCS/VTUAV IOC	1	2009	4	2015
- Initial Operational Capability	2	2010	2	2010
- VTUAV EMD (MQ-8B)	1	2009	2	2010
- COBRA Integration	1	2009	4	2011
- Radar Sensor Integration	1	2009	4	2011
- Studies and Analysis	1	2009	4	2015
- LCS Integration	1	2009	4	2012
Test & Evaluation Milestones	1	2009	4	2015
- IT-C-2A	1	2009	4	2009
- OT-C-1	4	2009	2	2010
- IT-D-1	4	2010	4	2011
- Radar R&E	4	2010	4	2011
- LCS OT	1	2012	4	2012
Software Upgrades	1	2009	4	2015
- TCS 3.0	2	2009	3	2012
- TCS 4.0	2	2012	3	2015
- TCS 5.0	2	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2501: *Medium Endurance Marinized UAS Technology Demonstration*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2501: *Medium Endurance Marinized UAS Technology Demonstration*	0.000	0.000	26.352	0.000	26.352	0.000	0.000	0.000	0.000	0.000	26.352
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

A new start program for FY 2011.

A. Mission Description and Budget Item Justification

The Medium Endurance Marinized UAS Technology Demonstration - This demonstration evaluates medium endurance VTOL (Vertical Take Off and Landing) UAS at sea. The ability to launch and recover vertically, enable a system to be used operationally aboard air capable ships or unimproved landing sites. Potential operational capabilities include intelligence, surveillance and reconnaissance (ISR) or cargo services. Both capabilities would allow US and Joint forces to augment existing manned missions with a relatively lower cost of ownership/operation without sacrificing real time needs. VTOL UAS aircraft used in the demonstration will need to leverage the existing TCS based Ship Control Station.

Slated as developmental test initiative, the goal is to fly both land based incremental build test flights as well as sufficient shipboard test flights to technically understand system maturity. This data will then be analyzed and compiled for determine future requirements for evolving requirements.

This technology demonstration will integrate air vehicle(s) with various program systems to determine compatability; Tactical Control System by Raytheon (TCS), Unmanned Common Automatic Recovery System by Sierra Nevada (UCARS), and Tactical Common Data Link by L3 (TCDL). A full on open competition will be used to select the aircraft used in the demonstration.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SD&D Hardware and System Development	0.000	0.000	18.352	0.000	18.352

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2501: *Medium Endurance Marinized UAS Technology Demonstration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: System development and software integration to incorporate air vehicles with the selected LHA hull, TCS, TCDL and UCARS landing systems. Purchase necessary equipment, cover material purchases from vendors and fund program personnel to complete all project objectives including pre and post demonstration briefs and reporting.					
Development Testing *FY 2011 Base Plans:* Funds cover all scheduled land and sea based test flights, oversight and supporting efforts and materials. Developmental testing, based on an incremental build approach, will be used to ensure system capabilities perform in a reliable, safe manner aboard ship.	0.000	0.000	4.000	0.000	4.000
Engineering and Technical Services *FY 2011 Base Plans:* Development of a technical program staff to support and manage this project will be the primary use for these funds. Additional uses include transportation of system assets, program personnel travel and use of contract support services personnel.	0.000	0.000	4.000	0.000	4.000
Accomplishments/Planned Programs Subtotals	0.000	0.000	26.352	0.000	26.352

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

This effort is a technology demonstration. A competition will be conducted to select vendors to integrate aircraft to existing Navy TCS based Ship Control Station to support future requirements development. Fixed Price Contract(s) will be used for the demonstration.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204N: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 2501: *Medium Endurance Marinized UAS Technology Demonstration*

E. Performance Metrics

Ability to carry a 700 pound payload for up to 9 hours of flight at standard day conditions.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2501: *Medium Endurance Marinized UAS Technology Demonstration*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/FFP	TBD TBD	0.000	0.000		10.900	Apr 2011	0.000		10.900	0.000	10.900	10.900
		Subtotal	0.000	0.000		10.900		0.000		10.900	0.000	10.900	10.900

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	C/FFP	Raytheon Corp Falls Church, VA	0.000	0.000		5.452	Dec 2010	0.000		5.452	0.000	5.452	5.452
Integrated Logistics Support	C/FFP	Sierra Nevada Sparks NV	0.000	0.000		1.000	Dec 2010	0.000		1.000	0.000	1.000	1.000
Integrated Logistics Support	C/FFP	L3 Comm Camden NJ	0.000	0.000		1.000	Dec 2010	0.000		1.000	0.000	1.000	1.000
		Subtotal	0.000	0.000		7.452		0.000		7.452	0.000	7.452	7.452

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2501: *Medium Endurance Marinized UAS Technology Demonstration*	

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD Patuxent River, MD	0.000	0.000		4.000	Oct 2010	0.000		4.000	0.000	4.000	Continuing
		Subtotal	0.000	0.000		4.000		0.000		4.000	0.000	4.000	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCAD Patuxent River, MD	0.000	0.000		3.000	Oct 2010	0.000		3.000	0.000	3.000	Continuing
Program Management Support	Various/ Various	NAWCAD Patuxent River, MD	0.000	0.000		0.500	Oct 2010	0.000		0.500	0.000	0.500	Continuing
Travel	WR	NAVAIR Patuxent River, MD	0.000	0.000		0.500	Oct 2010	0.000		0.500	0.000	0.500	Continuing
		Subtotal	0.000	0.000		4.000		0.000		4.000	0.000	4.000	

Remarks

Travel Contract Type is TO.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2501: *Medium Endurance Marinized UAS Technology Demonstration*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		26.352		0.000		26.352	0.000	26.352	18.352

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2501: *Medium Endurance Marinized UAS Technology Demonstration*

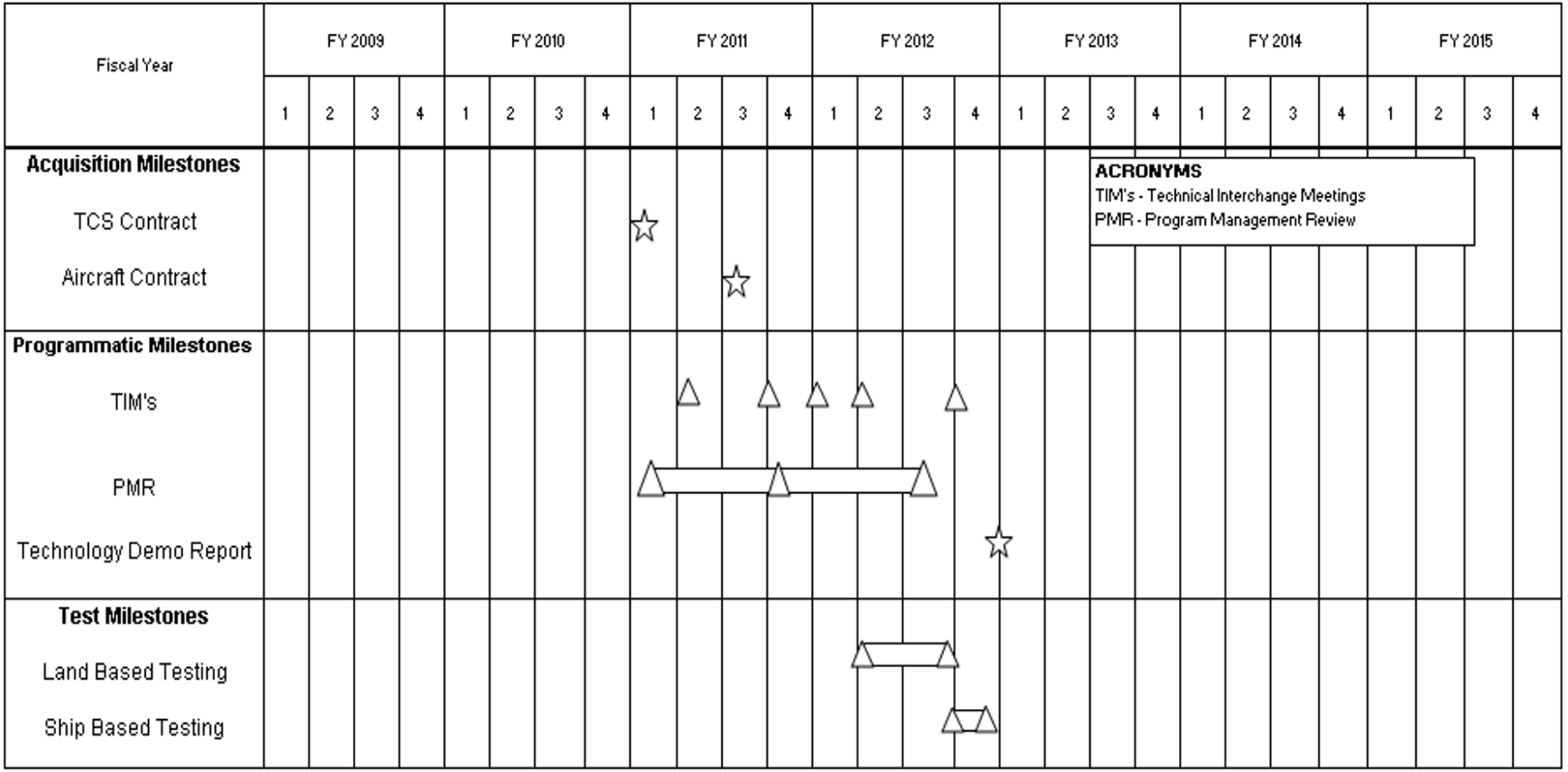


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204N: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 2501: *Medium Endurance Marinized UAS Technology Demonstration*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones	1	2009	4	2015
- TCS Contract	1	2011	1	2011
- Aircraft Contract	3	2011	3	2011
Programmatic Milestones	1	2009	4	2015
- TIM's	2	2011	4	2012
- PMR	1	2011	3	2012
- Technology Demo Report	4	2012	4	2012
Test Milestones	1	2009	4	2015
- Land based Testing	2	2012	3	2012
- Ship Based Testing	3	2012	4	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2768: *VTUAV*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2768: *VTUAV*	15.514	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	514.521
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The MQ-8B (Vertical Take-Off and Landing Tactical Unmanned Air Vehicle (VTUAV); popular name "Fire Scout") provides real-time and non-real-time Intelligence, Surveillance and Reconnaissance (ISR) data to tactical users without the use of manned aircraft or reliance on limited joint theater or national assets. The baseline MQ-8B can accomplish missions including over-the-horizon tactical reconnaissance, classification, targeting, laser designation and battle management (including communications relay). The MQ-8B launches and recovers vertically and can operate from air capable ships, as well as confined area land bases. Other characteristics include autonomous air vehicle launch and recovery, autonomous waypoint navigation with command override capability, and the incorporation of an electro-optical/ infrared laser designator-laser range finder modular mission payload. Interoperability is achieved through the use of the Tactical Control System (TCS) software in the ground control station, and through the use of the Tactical Common Data Link (TCDL). The data from the MQ-8B will be provided through standard DoD Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance (C4ISR) system architectures and protocols.

A MQ-8B system is comprised of air vehicles, electro-optical/infrared/laser designator-rangefinder payloads, Ground Control Stations (with TCS and TCDL integrated for interoperability), and a UAV Common Automatic Recovery System (UCARS) for automatic take-off and landings, and associated spares and support equipment. The MQ-8B system will support Surface Warfare, Mine Interdiction Warfare, and Anti-Submarine Warfare mission modules while operating onboard LCS, and system procurement is tied to mission modules supporting LCS, vice sea frames. The System Design will also be integrated on select surface combatants that are air capable and can host MQ-8B ancillary equipment. A limited number of land-based ground control stations supplement the system to support shore-based operations, such as predeployment or acceptance functional check flights. These land-based ground control stations will also support depot level maintenance/post-maintenance activities.

A program to continue development of the MQ-8B to meet the Littoral Combat Ship (LCS) mission requirements was initiated in FY04. Program funding in FY08-10 includes efforts required to integrate the Coastal Battlefield Reconnaissance and Analysis (COBRA) payload, a mine detection sensor, under development by PMS-495. MQ-8B development and testing activities will continue in FY09. Funding is also provided in FY09 for integration of a multi-mode radar sensor.

The U.S. Army has selected the MQ-8B as their Class IV UAV for the Future Combat Systems (FCS). Coordination with the U.S. Army FCS Program is on-going to investigate the potential cost savings for both programs where system commonalities and common logistics support can be identified.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2768: *VTUAV*

USN planning is to integrate MQ-8B on FFG-8 to maintain the MQ-8B OPEVAL in FY09. First deployment of the MQ-8B system will be on FFG. MQ-8B is also supporting LCS integration schedule.

The MQ-8B program received Milestone C approval in May 2007, authorizing Low Rate Initial Production (LRIP).

MQ-8B (VTUAV) project code moved from PE 0305204N to PE 0305231N, in FY10.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SD&D Hardware and System Development	12.200	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Continued incremental procurement and integration of EMD MQ-8B Air Vehicles to support the Engineering and Manufacturing Development (EMD) program. Continued to completion EMD of the MQ-8B system. Continued combined developmental and operational testing. Continued integration of the Coastal Battlefield Reconnaissance and Analysis (COBRA) payload. Began integration of a multi-mode radar sensor.					
Integrated Logistics Support (ILS) and Training Systems	1.300	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Continued ILS, technical data, and training system development. Procurement of trainers and spares to support OPEVAL.					
Development Testing	1.044	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Completed developmental testing of the MQ-8B system. Continued combined developmental and operational testing, TECHEVAL, and planning for OPEVAL.					
Engineering and Technical Services	0.970	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2768: *VTUAV*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued engineering management, program technical management, and management support for the MQ-8B system. These included transportation of system assets, fleet introduction team and program office personnel travel, and contract support services. Continued to support system development, system integration and test, and TECHEVAL.					
Accomplishments/Planned Programs Subtotals	15.514	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDTEN 0305231N: *MQ-8 UAV*	0.000	25.533	10.665	0.000	10.665	3.638	0.508	0.516	0.524	0.000	41.384
• APN 044300: *MQ-8 UAV*	50.189	90.777	47.484	0.000	47.484	46.242	67.442	89.553	89.485	1,309.849	1,865.872
• APN 060510 : *Initial Spares: MQ-8 UAV*	6.894	2.333	3.488	0.000	3.488	0.982	2.300	0.734	0.744	127.184	158.650

D. Acquisition Strategy

Continue with the MQ-8B EMD program. Design and develop an improved system initiated in FY04 to support the Littoral Combat Ship Program. Achieved Milestone C in 3Q FY 2007. FRP and IOC will follow completion of OPEVAL.

E. Performance Metrics

Successfully begin COBRA Integration. Successfully begin Radar Sensor Integration. Successfully begin LCS Ship Integration. Successfully begin Operational Test.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2768: *VTUAV*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	Northrop Grumman Corp San Diego, CA	483.582	0.000		0.000		0.000		0.000	0.000	483.582	483.582
		Subtotal	483.582	0.000		0.000		0.000		0.000	0.000	483.582	483.582

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	Various/ Various	Various Various	18.397	0.000		0.000		0.000		0.000	0.000	18.397	Continuing
		Subtotal	18.397	0.000		0.000		0.000		0.000	0.000	18.397	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2768: *VTUAV*	

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD PAXRV, MD	4.701	0.000		0.000		0.000		0.000	0.000	4.701	Continuing
Developmental Test & Evaluation	Various/ Various	Various Various	3.971	0.000		0.000		0.000		0.000	0.000	3.971	Continuing
Operational Test & Evaluation	WR	NAWCAD PAXRV, MD	0.480	0.000		0.000		0.000		0.000	0.000	0.480	Continuing
Operational Test & Evaluation	WR	NAWCWD CHLK, CA	0.264	0.000		0.000		0.000		0.000	0.000	0.264	Continuing
		Subtotal	9.416	0.000		0.000		0.000		0.000	0.000	9.416	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCWD CHLK, CA	0.080	0.000		0.000		0.000		0.000	0.000	0.080	Continuing
Government Engineering Support	WR	NAWCAD PAXRV, MD	29.623	0.000		0.000		0.000		0.000	0.000	29.623	Continuing
Program Management Support	Various/ Various	NAWCAD PAXRV, MD	20.322	0.000		0.000		0.000		0.000	0.000	20.322	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2768: *VTUAV*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	WR	NAVAIR PAXRV, MD	0.717	0.000		0.000		0.000		0.000	0.000	0.717	Continuing
		Subtotal	50.742	0.000		0.000		0.000		0.000	0.000	50.742	

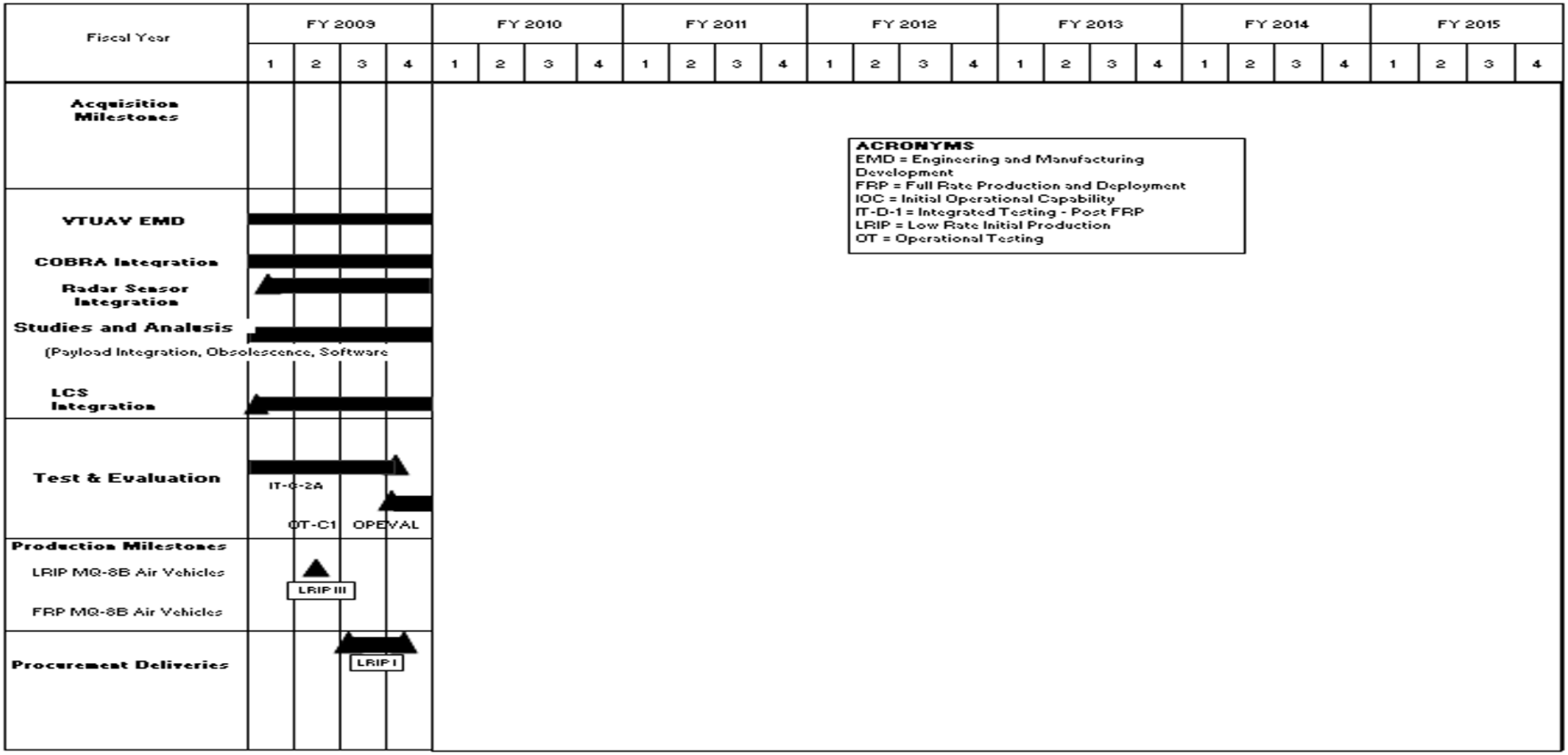
Remarks

Travel Contract Type is TO.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	562.137	0.000		0.000		0.000		0.000	0.000	562.137	483.582

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2768: *VTUAV*



Remarks: FY10 thru FY15, VTUAV is budgeted for in PE 0305231N.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204N: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 2768: *VTUAV*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones VTUAV	1	2009	4	2015
- VTUAV EMD (MQ-8B)	1	2009	4	2009
- COBRA Integration	1	2009	4	2009
- Radar Sensor integration	1	2009	4	2009
- Studies & Analysis	1	2009	4	2009
- LCS Integration	1	2009	4	2009
Test & Evaluation Milestones	1	2009	4	2015
- IT-C-2A	1	2009	4	2009
- OT-C-1	4	2009	4	2009
Production Milestones	1	2009	4	2015
- LRIP III	2	2009	2	2009
Procurement Deliveries	1	2009	4	2015
- LRIP I	3	2009	4	2009

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2910: *Joint Tech Center/System Integ Lab*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2910: *Joint Tech Center/System Integ Lab*	1.719	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.623
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Joint Technology Center/Systems Integration Laboratory (JTC/SIL) is a center of technical excellence to support all Unmanned Air Vehicle (UAV) programs within the services. The mission includes Service-specific and Joint Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance (C4ISR) programs throughout DoD. The JTC/SIL provides a Government test bed for rapid prototyping, technology insertion and transition, systems engineering, modeling/simulation, training and Command and Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) optimization. The cornerstone of JTC/SIL's diverse tool set is the Multiple Unified Simulation Environment (MUSE), which is the Department's simulation/training system of choice for ISR systems, sensors, and platforms.

The Services and Warfighting Commanders have a requirement for the capability to train with a system that provides a real-time simulation environment containing multiple intelligence systems that can be integrated with larger force-on-force simulations. The MUSE creates a realistic operational environment which supports the ability to assess military utility, architecture and CONOPS development, Tactics, Techniques, and Procedures (TTP) development and refinement, conduct emerging concepts experimentation, and C4ISR optimization within warfighting exercises and experiments. It is the only simulation system used by the Combat Commanders and Joint Services to support command and battle staff C4ISR training; there is no alternative available to satisfy those requirements.

The MUSE also creates a realistic operational environment that supports an embedded training capability for multiple Program Managers; tools to minimize acquisition and life cycle cost and schedule impacts; the ability to conduct emerging concepts experimentation, future systems exploration, systems integration, and technology insertion; applications for Joint and Service-specific warfighting exercises; and C4ISR optimization.

MUSE is currently in use within all services and unified commands simulating Predator, Global Hawk, Hunter, and MCTUAS UAVs, national and commercial satellite collectors, P-3, and the U-2. During warfighting exercises, the JTC/SIL integrates imagery simulations with associated C4ISR systems to support execution of critical imagery processes. For those assets normally not available for training, the JTC/SIL provides surrogate systems and interfaces. Distributed training environments, virtually linking participants from various locations worldwide, are routinely supported within the MUSE architecture. The MUSE is also used as a mission rehearsal tool for current, on-going military combat operations.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2910: *Joint Tech Center/System Integ Lab*

Additionally, the JTC/SIL supports a range of materiel developers, integrating prototypes and trainers into the C4ISR and training environments of supported units. The Tactical UAV (TUAV) ground station developed by the JTC/SIL includes an embedded MUSE trainer, and is planned to be incorporated into the VTUAV Ground Control Station (GCS). Interim training capabilities for the Tactical Exploitation System (TES) are currently employed in the joint exercises.

JTC/SIL Project Code moved from PE 0305204N to PE0603261N in FY2010.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MUSE Development	0.851	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY09 funding supported the continuing development and evolution of the MUSE operational simulation environment, the annual support of the MUSE including its maintenance, necessary licensing and equipment purchases to maintain daily operations and funded government oversight and administration of the lab, MUSE development and associated efforts.					
Engineering and Maintenance	0.500	0.000	0.000	0.000	0.000
Maintenance, Licenses and Equipment Purchases to include the day-to-day maintenance of lab equipment, license maintenance and license renewals from vendors for individual pieces of equipment, purchases of equipment to support the MUSE, and purchases to upgrade the MUSE capability. *FY 2009 Accomplishments:* FY09 funding provided for the annual support of the MUSE including its maintenance, necessary licensing and equipment purchases to maintain daily operations.					
Program Management	0.368	0.000	0.000	0.000	0.000
Includes government management, contracts administration, cost accounting, configuration management, administrative support of the lab, MUSE architecture development, property management/accountability, and procurement of equipment.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2910: *Joint Tech Center/System Integ Lab*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY09 efforts funded government oversight and administration of the lab, MUSE development and associated efforts.					
Accomplishments/Planned Programs Subtotals	1.719	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDT&E,N/0603261N: *Joint Tech Center / System Integ Lab*	0.000	1.722	1.754	0.000	1.754	1.790	1.829	1.871	1.912	0.000	10.878

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Improve the assessment of military utility, Tactics, Techniques and Procedures (TTPs) and C4ISR optimization through realistic training of command and battle staffs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2910: *Joint Tech Center/System Integ Lab*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	MIPR	JTC/SIL Redstone Arsenal, AL	5.954	0.000		0.000		0.000		0.000	0.000	5.954	Continuing
		Subtotal	5.954	0.000		0.000		0.000		0.000	0.000	5.954	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	MIPR	JTC/SIL Redstone Arsenal, AL	5.251	0.000		0.000		0.000		0.000	0.000	5.251	Continuing
		Subtotal	5.251	0.000		0.000		0.000		0.000	0.000	5.251	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2910: *Joint Tech Center/System Integ Lab*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	MIPR	JTC/SIL Redstone Arsenal, AL	2.651	0.000		0.000		0.000		0.000	0.000	2.651	Continuing
		Subtotal	2.651	0.000		0.000		0.000		0.000	0.000	2.651	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.856	0.000		0.000		0.000		0.000	0.000	13.856	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 2910: *Joint Tech Center/System Integ Lab*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
MUSE Support to UAS Developers	▮	▮	▮	▮																								

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204N: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 2910: *Joint Tech Center/System Integ Lab*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
MUSE Support to UAS Developers	1	2009	4	2009

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 3192: *STUAS*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3192: *STUAS*	19.464	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.569
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Small Tactical Unmanned Aircraft System (STUAS) provides Persistent Intelligence, Surveillance, and Reconnaissance/Target Acquisition (ISR/TA) support for tactical level maneuver decisions and unit level force defense/force protection for Naval ships (multi-ship classes) and Navy land forces. This system will fill the ISR capability shortfalls currently filled by services contracts. This system will support Naval Missions such as building the Recognized Maritime Picture, Maritime Security Operations, Maritime Interdiction Operations, and support of Naval Units operating from sea/shore in the global war on terror.

A notional system consists of four air vehicles, ground control station (s), multi-mission (plug-and-play) payloads, and associated launch, recovery and support equipment.

The STUAS system will continue to evolve and upgrade capabilities to satisfy capabilities shortfalls, new requirements, and reliability, maintainability, and safety issues. Upgraded capabilities may include Navy C2 integration, signals intelligence and synthetic aperture radar payloads and weapons integration.

STUAS project code moved from PE 0305204N to PE 0305234N, in FY10.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
STUAS Engineering and Technical Support	19.464	0.000	0.000	0.000	0.000
Provides for non-prime contractor support services. *FY 2009 Accomplishments:* FY09 funds Government Engineering Technical Support, Logistics Support, test and evaluation, Contractor Support services, Program Management Support and program related travel.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 3192: *STUAS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	19.464	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDT&E,N/0305234N: *STUAS*	0.000	23.496	18.098	0.000	18.098	12.603	5.740	5.869	5.992	Continuing	Continuing
• RDT&E,N/0206625M: *Tier II UAS*	13.183	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.614
• RDT&E,N/0305234M: *Tier II UAS*	0.000	18.685	26.209	0.000	26.209	16.864	22.764	11.546	9.657	Continuing	Continuing
• APN-4/044400: *STUASL0*	0.000	0.000	23.912	0.000	23.912	13.097	9.707	9.876	10.043	Continuing	Continuing
• APN-6/060510: *STUASL0*	0.000	0.000	0.000	0.000	0.000	2.177	3.712	5.014	6.624	Continuing	Continuing
• PMC-475700: *Tier II UAS*	0.000	0.000	26.301	23.500	49.801	39.343	67.893	65.071	67.106	Continuing	Continuing

D. Acquisition Strategy

The program office is utilizing a competitive acquisition approach to quickly field a capability to meet threshold requirements. Incremental development will be utilized to field a system fully compliant with documented requirements.

E. Performance Metrics

Attainment of STUAS IOC in accordance with approved schedule.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 3192: *STUAS*	

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	Various Various	3.551	0.000		0.000		0.000		0.000	0.000	3.551	Continuing
		Subtotal	3.551	0.000		0.000		0.000		0.000	0.000	3.551	

Remarks

Funding moved to PE 0305234N beginning FY10.

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	OPTEVFOR Norfolk, VA	0.743	0.000		0.000		0.000		0.000	0.000	0.743	Continuing
Operational Test & Evaluation	WR	OPTEVFOR Norfolk, VA	0.225	0.000		0.000		0.000		0.000	0.000	0.225	Continuing
		Subtotal	0.968	0.000		0.000		0.000		0.000	0.000	0.968	

Remarks

Funding moved to PE 0305234N beginning FY10.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 3192: *STUAS*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	Various Various	2.074	0.000		0.000		0.000		0.000	0.000	2.074	Continuing
Government Engineering Support	WR	Various Various	9.346	0.000		0.000		0.000		0.000	0.000	9.346	Continuing
Program Management Support	Various/ Various	Various Various	2.560	0.000		0.000		0.000		0.000	0.000	2.560	Continuing
Travel	WR	Navair HQ Pax River, MD	0.070	0.000		0.000		0.000		0.000	0.000	0.070	Continuing
		Subtotal	14.050	0.000		0.000		0.000		0.000	0.000	14.050	

Remarks

Funding moved to PE 0305234N beginning FY10.
Travel Contract Type is TO.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	18.569	0.000		0.000		0.000		0.000	0.000	18.569	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 3192: *STUAS*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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: Pre-Milestone Activities	▮	▮	▮	▮																								
Demonstration			▮	▮																								

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204N: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 3192: *STUAS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones: Pre-Milestone Activities	1	2009	4	2009
Demonstration	3	2009	4	2009

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aerial Vehicles*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	4.089	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	38.001
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Adds.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Unmanned Air Systems Tactical Control Systems *FY 2009 Accomplishments:* Develop and accelerate Open Architecture Technology Insertion solution. Government Engineering Support, contractor support services, and travel.	2.493	0.000
Congressional Add: MICRO-MUNITIONS INTERFACE FOR TACT UNMANNED SYS *FY 2009 Accomplishments:* Develop an interface between Unmanned Air Systems and micro-munitions, defined as weapons weighing less than 100 pounds. Government engineering support, contractor support services, and travel.	1.596	0.000
Congressional Adds Subtotals	4.089	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305204N: *Tactical Unmanned Aerial Vehicles*	**PROJECT** 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

E. Performance Metrics

Not required for Congressional Adds.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy											DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	423.996	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	620.668
4020: *BAMS UAS*	420.405	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	611.709
9999: *Congressional Adds*	3.591	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.959

A. Mission Description and Budget Item Justification

This program element provides for the development of endurance-type Unmanned Aircraft Systems (UAS) that will provide warfighters with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) capability.

Broad Area Maritime Surveillance (BAMS) Unmanned Aircraft System (UAS)
BAMS is a High Altitude-Long Endurance Unmanned Aircraft System designed to provide Fleet and Combatant Commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. Envisioned as an unmanned adjunct to the P-8A Multi-Mission Maritime Aircraft (MMA), and crucial to the recapitalization of Navy's airborne maritime ISR capability, the system will seek to leverage Maritime Patrol and Reconnaissance Force (MPRF) manpower, training and maintenance efficiencies.

The BAMS UAS air vehicle is based on Northrop Grumman's Block 20 Global Hawk and features sensors designed to provide near worldwide coverage through a network of five CONUS and OCONUS orbits, with sufficient air vehicles to remain airborne for 24 hours a day, 7 days a week, out to ranges of 2000 nautical miles. Onboard sensors will provide detection, classification, tracking and identification of maritime targets and include maritime radar, electro-optical/infrared (EO/IR), and Electronic Support Measures (ESM) systems. Additionally, BAMS will have a communications relay capability designed to link dispersed forces in the theater of operations and serve as a node in the Navy's FORCEnet strategy. Tactical-level data analysis will occur in real-time at shore-based Mission Control sites connected to the air vehicle via satellite communications. Further intelligence exploitation can be conducted at Fleet shore-based sites or aboard Aircraft Carriers and other ships in the sea base.

BAMS UAS will play a significant role in the Sea Shield and FORCEnet pillars of Sea Power 21. In its Sea Shield role, the system will rely on its key attribute of persistence to provide the supported COCOM or Fleet Commander with unparalleled situational awareness of the maritime battle space as it develops and sustains the Common Operational Tactical Picture (COTP). The system will also serve as a Fleet Response Plan enabler, while acting as a trip wire for Intelligence Preparation of the Environment (IPE). Additionally, BAMS UAS will be a FORCEnet enabler and relay platform, directly connected to both the Global Information Grid (GiG) and the DCGS-N Information Backbone (DIB).

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305205N: *Endurance Unmanned Aer Veh*

Note: Starting In FY10, BAMS is budgeted for in PE 0305220N: RQ-4 UAV.

Congressional Adds
Advanced Airship Flying Laboratory.
The Advanced Airship Flying Laboratory provides an airship-based capability to develop, test and demonstrate airborne mission systems equipment (Command, Control, Communications, Computers and Intelligence (C4I) and Infrared Search and Track (IRST)). Allows studies for development of a modernized naval airship featuring digital flight controls, vectored thrust and remotely piloted capabilities.

Skybus 80k and 130k LTA-UAS Multirole Technologies
Development, test, design and build of the Skybus 80K will provide a platform to evaluate airship capability in performing multirole, persistent ISR and long-dwell missions in both hostile and non-threatening environments.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	431.801	0.000	0.000	0.000	0.000
Current President's Budget	423.996	0.000	0.000	0.000	0.000
Total Adjustments	-7.805	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-9.800	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Congressional Recision Adjustments	-0.005	0.000	0.000	0.000	0.000
• Congressional Add Adjustments	2.000	0.000	0.000	0.000	0.000

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Advanced Airship Flying Laboratory, Phase II (SEN*	1.596	0.000
Congressional Add: *Skybus 80k and 130k LTA-UAS Multirole Technologies*	1.995	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305205N: *Endurance Unmanned Aer Veh*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add Subtotals for Project: 9999	3.591	0.000
Congressional Add Totals for all Projects	3.591	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: System Functional Review moved from 4Q to 3Q FY09.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
4020: *BAMS UAS*	420.405	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	611.709
Quantity of RDT&E Articles	2	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

BAMS is a High Altitude-Long Endurance Unmanned Aircraft System designed to provide Fleet and Combatant Commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. Envisioned as an unmanned adjunct to the P-8A Multi-Mission Maritime Aircraft (MMA), and crucial to the recapitalization of Navy's airborne maritime ISR capability, the system will seek to leverage Maritime Patrol and Reconnaissance Force (MPRF) manpower, training and maintenance efficiencies.

The BAMS UAS air vehicle is based on Northrop Grumman's Block 20 Global Hawk and features sensors designed to provide near worldwide coverage through a network of five CONUS and OCONUS orbits, with sufficient air vehicles to remain airborne for 24 hours a day, 7 days a week, out to ranges of 2000 nautical miles. Onboard sensors will provide detection, classification, tracking and identification of maritime targets and include maritime radar, electro-optical/infrared (EO/IR), and Electronic Support Measures (ESM) systems. Additionally, BAMS will have a communications relay capability designed to link dispersed forces in the theater of operations and serve as a node in the Navy's FORCEnet strategy. Tactical-level data analysis will occur in real-time at shore-based Mission Control sites connected to the air vehicle via satellite communications. Further intelligence exploitation can be conducted at Fleet shore-based sites or aboard Aircraft Carriers and other ships in the sea base.

BAMS UAS will play a significant role in the Sea Shield and FORCEnet pillars of Sea Power 21. In its Sea Shield role, the system will rely on its key attribute of persistence to provide the supported COCOM or Fleet Commander with unparalleled situational awareness of the maritime battle space as it develops and sustains the Common Operational Tactical Picture (COTP). The system will also serve as a Fleet Response Plan enabler, while acting as a trip wire for Intelligence Preparation of the Environment (IPE). Additionally, BAMS UAS will be a FORCEnet enabler and relay platform, directly connected to both the Global Information Grid (GiG) and the DCGS-N Information Backbone (DIB).

The BAMS UAS will be an evolutionary based acquisition, using an incremental development approach. Two Mission Need Statements (MNSs) support the requirement; 1) BAMS and Littoral Armed ISR MNS, and 2) Long Endurance, Reconnaissance, Surveillance and Target Acquisition (RSTA) Capability MNS. The BAMS UAS Capabilities Development Document (CDD) was approved May 2007 by the Joint Requirements Oversight Council (JROC).

Note: Starting in FY10, BAMS is budgeted for in PE 0305220N: RQ-4 UAV.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Product Development Awarded contract in FY08 to initiate the Engineering and Manufacturing Development (EMD) phase effort. The Prime Contractor is responsible for overall system development and performance, as well as associated management, engineering and logistics activities. *FY 2009 Accomplishments:* Initiated two test articles. Continued EMD, including Government engineering support related to EMD.	397.018	0.000	0.000	0.000	0.000
ILS, Support, Studies & Analysis Integrated Logistics Support, Studies and Analysis. *FY 2009 Accomplishments:* Continued integrated logistics support, technical engineering services, sensor risk reduction, logistics supportability analyses and environmental planning, modeling and simulation, development of manpower and basing assessments, and development of technical data to support fielding of the BAMS UAS capabilities.	11.992	0.000	0.000	0.000	0.000
Program Management Program Management Support and Travel. *FY 2009 Accomplishments:* Developed milestone and acquisition-related documentation; capability refinement and open systems architecture development; resource justification; affordability assessments and cost analyses; risk reduction and risk management; system integration and interoperability planning; technology maturity reviews; program protection planning; corrosion prevention planning; anti-tamper provisioning planning; and Joint and International Cooperation efforts.	5.557	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305205N: *Endurance Unmanned Aer Veh*	**PROJECT** 4020: *BAMS UAS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Test & Evaluation	5.838	0.000	0.000	0.000	0.000
Test and Evaluation efforts. *FY 2009 Accomplishments:* Continued test and evaluation support activities to allow test and fielding of the BAMS UAS.					
Accomplishments/Planned Programs Subtotals	420.405	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDTEN/0305220N: *RQ-4 UAV*	0.000	439.010	529.250	0.000	529.250	540.992	695.924	224.156	122.169	76.600	2,628.101
• APN-4/044200: *RQ-4 UAV (BAMS UAV)*	0.000	0.000	0.000	0.000	0.000	0.000	48.264	583.068	601.030	8,756.248	9,988.610
• APN-6/060510: *Initial Spares RQ-4 UAV (BAMS UAV)*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.599	90.584	1,273.845	1,394.028
• MILCON/0816376N: *BAMS UAS Operator Training Facility*	0.000	0.000	42.211	0.000	42.211	0.000	0.000	0.000	0.000	0.000	42.211
• MILCON/0815976N: *Broad Area Maritime Surveillance T&E Facility*	0.000	0.000	0.000	0.000	0.000	2.285	0.000	57.686	54.280	251.864	366.115

D. Acquisition Strategy

The BAMS UAS is an evolutionary-based acquisition, using an incremental development approach. During the pre-Milestone B phase, the program performed technical risk reduction through studies and demonstrations, Engineering and Manufacturing Development (EMD) contract preparation, and Milestone B documentation development activities. Milestone B occurred on 8 April 2008 and EMD award occurred on 22 April 2008. The EMD contract was based on a competitive selection process for a Prime Contractor.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*

The BAMS UAS program office is pursuing joint efficiency with the Air Force on the Global Hawk UAS. However, the integration of the BAMS UAS into the Maritime Patrol Reconnaissance Force (MPRF) and the unique maritime sensors employed dictate a Navy-led acquisition program focused on joint efficiencies, where possible.

E. Performance Metrics

Successfully achieve Critical Design Review, Flight Readiness Review, Milestone C, Integrated Test, and Operational Evaluation.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	Northrop Grumman Bethpage, NY	428.333	0.000		0.000		0.000		0.000	0.000	428.333	428.333
Systems Engineering	WR	Various Various	81.577	0.000		0.000		0.000		0.000	0.000	81.577	Continuing
Award Fees	C/CPAF	Northrop Grumman Bethpage, NY	5.294	0.000		0.000		0.000		0.000	0.000	5.294	5.294
		Subtotal	515.204	0.000		0.000		0.000		0.000	0.000	515.204	433.627

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various/ Various	Various Various	11.157	0.000		0.000		0.000		0.000	0.000	11.157	Continuing
Integrated Logistics Support	WR	Various Various	11.603	0.000		0.000		0.000		0.000	0.000	11.603	Continuing
Studies & Analyses	Various/ Various	Various Various	23.659	0.000		0.000		0.000		0.000	0.000	23.659	Continuing
		Subtotal	46.419	0.000		0.000		0.000		0.000	0.000	46.419	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various/ Various	Various Various	9.975	0.000		0.000		0.000		0.000	0.000	9.975	Continuing
		Subtotal	9.975	0.000		0.000		0.000		0.000	0.000	9.975	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPFF	Mitre McClean, VA	0.756	0.000		0.000		0.000		0.000	0.000	0.756	0.756
		Various	15.795	0.000		0.000		0.000		0.000	0.000	15.795	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various/ Various	Various											
Travel	WR	Various Various	0.707	0.000		0.000		0.000		0.000	0.000	0.707	Continuing
		Subtotal	17.258	0.000		0.000		0.000		0.000	0.000	17.258	0.756

Remarks

Travel funding contract type is TO.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	588.856	0.000		0.000		0.000		0.000	0.000	588.856	434.383

Remarks

Starting in FY10, BAMS is budgeted for in PE 0305220N.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305205N: *Endurance Unmanned Aer Veh*	**PROJECT** 4020: *BAMS UAS*

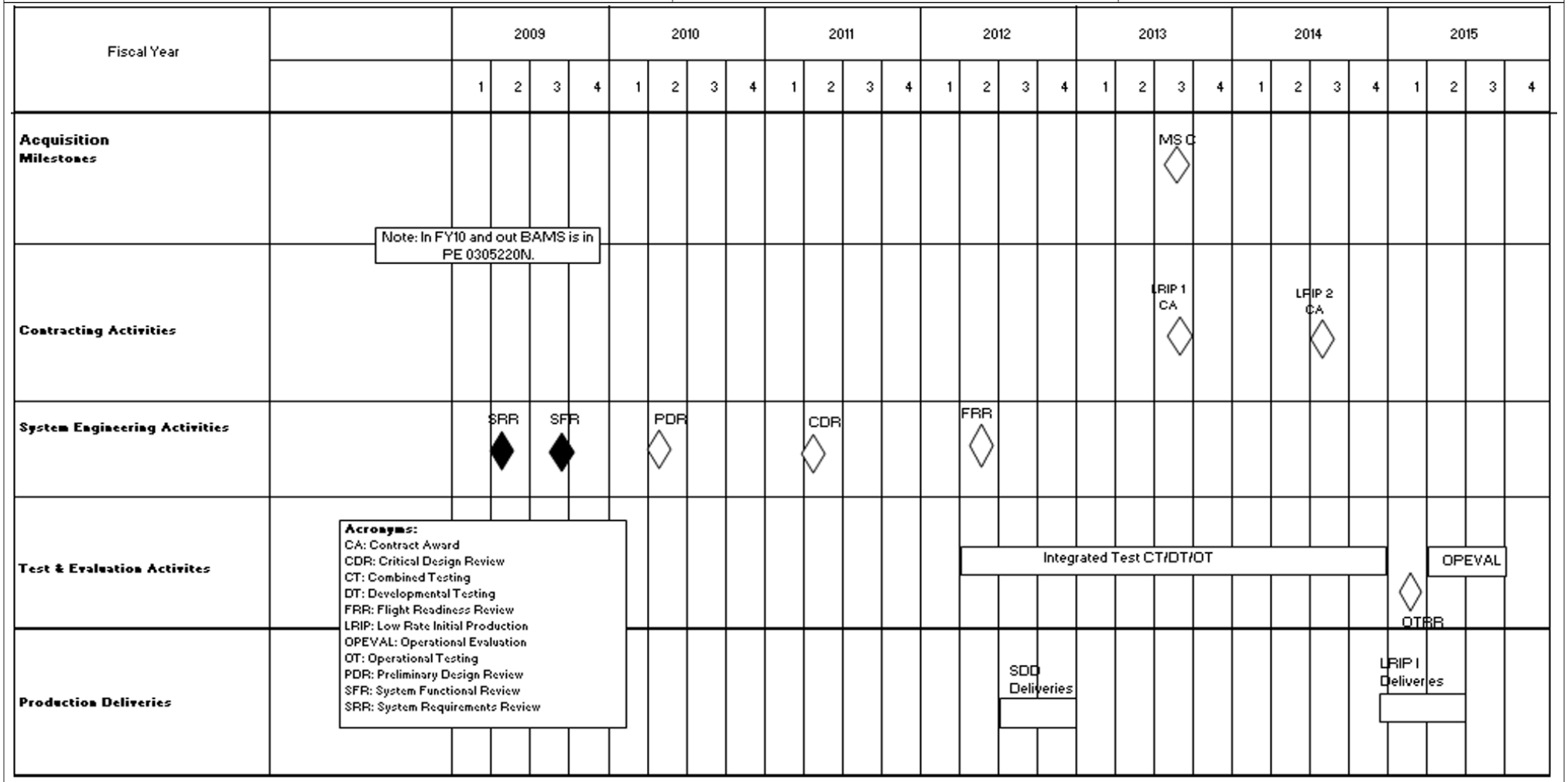

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305205N: *Endurance Unmanned Aer Veh*	**PROJECT** 4020: *BAMS UAS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
System Readiness Review (SRR)	2	2009	2	2009
System Functional Review (SFR)	3	2009	3	2009
Preliminary Design Review (PDR)	2	2010	2	2010
Critical Design Review (CDR)	2	2011	2	2011
Flight Readiness Review (FRR)	2	2012	2	2012
SDD Engineering Development Midel (EDM) Delivery	3	2012	4	2012
Integrated Test CT/DT/OT	2	2012	4	2014
Milestone C (MS-C)	3	2013	3	2013
Low Rate Initial Production 1 (LRIP 1) CA	3	2013	3	2013
Low Rate Initial Production 2 (LRIP 2) CA	3	2014	3	2014
Low Rate Initial Production 1 (LRIP 1) Delivery	4	2014	2	2015
Operational Test Readiness Review (OTRR)	1	2015	1	2015
OPEVAL	2	2015	3	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	3.591	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.959
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Adds.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Advanced Airship Flying Laboratory, Phase II (SEN *FY 2009 Accomplishments:* Continued development of new technologies to advance modern airships, such as digital automated flight controls, bow thrusters, and heavy fuel engines. Government Engineering Support, Contractor Support Services, and Travel.	1.596	0.000
Congressional Add: Skybus 80k and 130k LTA-UAS Multirole Technologies *FY 2009 Accomplishments:* Development and testing of the Skybus 80K and 130K. Government Engineering Support, Contractor Support Services, and Travel.	1.995	0.000
Congressional Adds Subtotals	3.591	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

E. Performance Metrics

Not required for Congressional Adds.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305206N: *Airborne Reconnaissance Sys*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	58.793	55.327	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	311.256
2694: *Advanced Signal Recognition*	48.022	46.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	274.263
9999: *Congressional Adds*	10.771	9.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	36.993

A. Mission Description and Budget Item Justification

Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities. These developments are driven by evolving collection requirements and technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture. The Advanced Sensors Development Program implements successful proof-of-concept efforts accomplished in the Advanced Technology Program, other Service/ Agency developments, and Congressionally-funded initiatives leading to producible sensor systems for airborne platforms. Upon successful sensor prototype demonstration, technology sensor developments are turned over to the Services for procurement and platform integration. This effort focuses on developments, which support sensor system interoperability and standardization of multi-Service and multi-platform applications. In addition, funds provide for the development/integration and operational assessment of components for the EP-3E and P-3 Special Projects Aircraft and follow-on candidate aircraft.

There are two primary objectives for the Advanced Technology funding: (1) to evaluate the utility and maturity of technology for airborne reconnaissance applications and (2) to reduce the risk of employing emerging technologies in system upgrades, new system acquisitions, or Advanced Concept Technology Demonstrations (ACTDs), by integrating and exercising them in developmental and operational tests. These technologies help satisfy the requirements of the objective architecture set forth in the IARS. These technology investments are also identified in the Airborne Reconnaissance Technology Program Plan, published in November 1994.

Exhibits reflect Congressional Adds currently being executed as follows:

FY10 Congressional Add of $4.332M is for Fusion Exploitation Algorithm Targeting High-Altitude Reconnaisance (FEATHAR).
FY10 Congressional Add of $4.979M is for EP-3E Requirements Capability Migration Technology Integration Lab.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305206N: *Airborne Reconnaissance Sys*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	66.273	46.208	0.000	0.000	0.000
Current President's Budget	58.793	55.327	0.000	0.000	0.000
Total Adjustments	-7.480	9.119	0.000	0.000	0.000
• Congressional General Reductions		-0.231			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		9.350			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-7.480	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	0.000	0.000	0.000

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Fusion, Exploitation, Algorithm, Targeting, High-*	5.984	4.332
Congressional Add: *EP-3E requirements capability migration technology*	4.787	4.979
Congressional Add Subtotals for Project: 9999	10.771	9.311
Congressional Add Totals for all Projects	10.771	9.311

Change Summary Explanation

Technical: Not applicable.

Schedule: Project Unit 2694: RCM test events and EDM removed due to descope of efforts associated with reduction in funding. Spiral 3 EDM-2 moved from 3Q FY09 to 4Q FY09.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305206N: *Airborne Reconnaissance Sys*	PROJECT 2694: *Advanced Signal Recognition*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2694: *Advanced Signal Recognition*	48.022	46.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	274.263
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Provides funds for the development of sensor systems to improve present airborne reconnaissance capabilities fielded in both the EP-3E and P-3 Special Projects Aircraft (SPA) platforms. The developments are driven by evolving collection requirements and modern technology advances. The developments allow for the necessary changes required to meet an integrated, objective airborne reconnaissance architecture as defined in the Integrated Airborne Reconnaissance Strategy (IARS) and amplified in the Airborne Reconnaissance Information Technical Architecture (ARITA). The advanced sensor program includes technical analysis, systems engineering assessments, planning, and development for advanced airborne sensor systems. This effort focuses on developments which support sensor system interoperability and standardization of multi-Service and multi-platform applications. The EP-3E and Special Projects will undergo a series of incremental modifications via an evolutionary acquisition process which began in FY 2001. The advanced sensor developments described herein will provide the technology transition modules necessary for the overall migration of the airborne fleet to JASA, (i.e., sensors, ground systems, data links, and platforms), and provide the mechanism required for timely dissemination of intelligence information to operational forces.

FY05 began the integration of JMOD Common Configuration (JCC) into all EP-3 aircraft. These efforts carry forward the developments from prior years and continue the development efforts to ensure that EP-3 aircraft maintain their interoperability and relevance to emerging threats and changing technology. This funding provides for the development of the JCC capabilities and Spirals.

In FY06 the JCC program was further restructured due to delays in the Aerial Common Sensor (ACS) recapitalization program. The restructure added an obsolescence evolution and a JCC Spiral 3 upgrade to maintain EP-3E mission system viability until recapitalization platform can be fielded. This funding supported the required development of the restructured JCC program. The program procured an Engineering Development Model (EDM) in FY06 for Developmental Testing (DT) of the Spiral 2 system in FY07. Spiral 3 includes signal exploitation, low-band direction finding, Remote Tuning Receivers, Integrated Information Operations (I/O) and Environment Control System (ECS) upgrades. The program will procure two (2) Spiral 3 Engineering Development Models (EDM). The first EDM was procured in FY08 for Developmental Testing (DT) of the system in FY09.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305206N: *Airborne Reconnaissance Sys*	**PROJECT** 2694: *Advanced Signal Recognition*

The Special Projects Modernization and Common Configuration Baseline (MCCB) program provides rapid insertion of new capabilities including improved communications, collection and analysis capabilities and weight reduction. Additionally, MCCB addresses technology refresh and obsolescence engineering. Most of the MCCB upgrades are based on stand-alone Government-Off-The-Shelf and Commercial-Off-The-Shelf (GOTS/COTS) systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Spiral 3 development RFD, DF, I/O, ECS	32.333	20.000	0.000	0.000	0.000
FY 2009 Accomplishments: Spiral 3 development and test included low-band Radio Frequency Distribution (RFD) and Direction Finding (DF) subsystem replacement, Remote Tuning Receivers, Intergrated Information Operations (I/O) and Environmental Control System (ECS) upgrades					
FY 2010 Plans: Spiral 3 development and test includes low-band Radio Frequency Distribution (RFD) and Direction Finding (DF) subsystem replacement, Remote Tuning Receivers, Intergrated Information Operations (I/O) and Environmental Control System (ECS) upgrades.					
Technical Refresh dev for obsolete sys	4.139	2.305	0.000	0.000	0.000
FY 2009 Accomplishments: The Technical Refresh development of replacement technology for obsolete and unsupportable collection and support mission systems.					
FY 2010 Plans: The Technical Refresh development of replacement technology for obsolete and unsupportable collection and support mission systems.					
Develop Spiral upgrades to collection subsys	6.424	12.268	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305206N: *Airborne Reconnaissance Sys*	PROJECT 2694: *Advanced Signal Recognition*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Imagery engineering investigations completed. Developed and demonstrated Special Projects Projects (SPA) Direction Finding (DF) upgrades for SP Systems Requirements Review (SRR). SPA Communications/Infrastructure updated. SPA Modernization and Common Configuration Baseline (MCCB) program. Develop Spiral upgrades to the special collections subsystem, data communications and infrastructure. Addressed technology refresh and obsolescence issues. Mission system weight reduction development. *FY 2010 Plans:* Imagery engineering investigations completed. Developed and demonstrated Special Projects Projects (SPA) Direction Finding (DF) upgrades for SP Systems Requirements Review (SRR). SPA Communications/Infrastructure updated. SPA Modernization and Common Configuration Baseline (MCCB) program. Develop Spiral upgrades to the special collections subsystem, data communications and infrastructure. Address technology refresh and obsolescence issues. Mission system weight reduction development.					
QRC for emergent threat technology *FY 2009 Accomplishments:* Quick Response Capabilities (QRC) for development of capabilities to meet requirements for emergent threat technology. *FY 2010 Plans:* Continue Quick Response Capabilities (QRC) for development of capabilities to meet requirements for emergent threat technology.	0.168	3.000	0.000	0.000	0.000
EP-3E Recap capabilities migration	4.958	8.443	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Engineering development of EP-3E mission capabilities to be deployed and procured on the legacy platform for the future migration to follow-on recap platform to stay abreast of emergent threat technologies. *FY 2010 Plans:* Engineering development of EP-3E mission capabilities to be deployed and procured on the legacy platform for the future migration to follow-on recap platform to stay abreast of emergent threat technologies. RCM test events and EDM removed due to descope of efforts associated with reduction in funding.					
Accomplishments/Planned Programs Subtotals	48.022	46.016	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/0537: *EP-3E Series*	64.479	92.245	90.323	0.000	90.323	89.630	81.891	84.695	75.967	75.600	1,370.130
• APN/0567: *Special Projects Aircraft*	102.705	12.331	14.679	6.100	20.779	15.159	15.416	15.676	15.950	60.500	521.616

D. Acquisition Strategy

Leverages/complements Air Force, Naval Research Laboratory, Office of Naval Research RDTE efforts for technology insertions into EP-3E/SPA production programs.

E. Performance Metrics

Successful completion of EDM testing.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305206N: *Airborne Reconnaissance Sys*	PROJECT 2694: *Advanced Signal Recognition*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ancillary Hdw Dev - OBS	SS/CPFF	L-3 COM INT SYS WACO,TX	0.000	1.350	Jan 2010	0.000		0.000		0.000	0.000	1.350	1.350
Ancillary Hdw Dev - OBS	SS/CPFF	COHERENT SYS INT MD	4.762	0.000		0.000		0.000		0.000	0.000	4.762	4.762
Ancillary Hdw Dev - OBS	SS/CPFF	Various Various	6.267	0.000		0.000		0.000		0.000	0.000	6.267	6.267
Ancillary Hdw Dev - QRC	SS/CPFF	Various Various	0.168	2.825	Dec 2009	0.000		0.000		0.000	0.000	2.993	2.993
Ancillary Hdw Dev - RCM	C/CPFF	L-3 COM INT SYS WACO,TX	1.189	2.545	Jan 2010	0.000		0.000		0.000	0.000	3.734	3.734
Ancillary Hdw Dev - RCM	C/CPFF	RAYTHEON TECH SVC IN	2.870	3.345	Jan 2010	0.000		0.000		0.000	0.000	6.215	6.215
Ancillary Hdw Dev - RCM	C/CPFF	Various Various	0.000	0.770	Jan 2010	0.000		0.000		0.000	0.000	0.770	0.770
Ancillary Hdw Dev - SPA	SS/CPFF	ARGON ST, INC VA	16.144	1.780	Dec 2009	0.000		0.000		0.000	0.000	17.924	17.924
Ancillary Hdw Dev - SPA	SS/CPFF	L-3 COM INT SYS WACO,TX	2.240	2.680	Feb 2010	0.000		0.000		0.000	0.000	4.920	4.920
Ancillary Hdw Dev - SPA	SS/CPFF	RAYTHEON TECH SVC TX	3.413	1.000	Feb 2010	0.000		0.000		0.000	0.000	4.413	4.413

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305206N: *Airborne Reconnaissance Sys*	PROJECT 2694: *Advanced Signal Recognition*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ancillary Hdw Dev - SPA	SS/CPFF	Various Various	12.285	2.553	Dec 2009	0.000		0.000		0.000	0.000	14.838	14.838
Ancillary Hdw Dev - Spiral 2	SS/CPFF	L-3 COM INT SYS WACO,TX	28.332	0.000		0.000		0.000		0.000	0.000	28.332	28.332
Ancillary Hdw Dev - Spiral 3	SS/CPFF	L-3 COM INT SYS WACO,TX	37.386	14.139	Dec 2009	0.000		0.000		0.000	0.000	51.525	51.525
Ancillary Hdw Dev - Spiral 3	SS/CPFF	ARGON ST, INC VA	8.052	0.000		0.000		0.000		0.000	0.000	8.052	8.052
Ancillary Hdw Dev - Spiral 3	SS/CPFF	RAYTHEON TECH SVC IN	5.116	0.000		0.000		0.000		0.000	0.000	5.116	5.116
Ancillary Hdw Dev - Spiral 3	SS/CPFF	SPAWAR SYSCOM SC	8.822	0.000		0.000		0.000		0.000	0.000	8.822	8.822
Ancillary Hdw Dev - ISR	SS/CPFF	NATL SEC AGENCY MD	2.500	0.000		0.000		0.000		0.000	0.000	2.500	2.500
		Subtotal	139.546	32.987		0.000		0.000		0.000	0.000	172.533	172.533

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305206N: *Airborne Reconnaissance Sys*	PROJECT 2694: *Advanced Signal Recognition*	

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Develop Support - OBS	C/Various	VARIOUS VARIOUS	2.456	0.000		0.000		0.000		0.000	0.000	2.456	2.456
Develop Support - RCM 1	C/Various	VARIOUS VARIOUS	1.040	0.000		0.000		0.000		0.000	0.000	1.040	1.040
Develop Support - RCM 2	C/Various	VARIOUS VARIOUS	1.812	0.662	Dec 2009	0.000		0.000		0.000	0.000	2.474	2.474
Develop Support - SPA 3	C/TBD	ULTRA ELECTRONICS TX	3.181	0.000		0.000		0.000		0.000	0.000	3.181	3.181
Develop Support - SPA 4	C/Various	VARIOUS VARIOUS	2.745	1.016	Dec 2009	0.000		0.000		0.000	0.000	3.761	3.761
Develop Support - SPA 5	C/Various	VARIOUS VARIOUS	9.434	2.086	Dec 2009	0.000		0.000		0.000	0.000	11.520	11.520
Develop Support - Spiral 1	C/Various	VARIOUS VARIOUS	2.965	0.000		0.000		0.000		0.000	0.000	2.965	2.965
Develop Support - Spiral 2	C/Various	VARIOUS VARIOUS	3.350	0.000		0.000		0.000		0.000	0.000	3.350	3.350
Develop Support - Spiral 3 1	C/Various	VARIOUS VARIOUS	2.287	0.000		0.000		0.000		0.000	0.000	2.287	2.287
Develop Support - Spiral 3 2	C/Various	VARIOUS VARIOUS	2.712	0.000		0.000		0.000		0.000	0.000	2.712	2.712
Develop Support - Spiral 3 3	C/CPFF	AT&T GOVT SOL INC VA	0.000	1.500	Dec 2009	0.000		0.000		0.000	0.000	1.500	1.500
ETS (NON-FFRDC) SP2	C/CPFF	AT&T GOVT SOL INC	0.600	0.000		0.000		0.000		0.000	0.000	0.600	0.600

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305206N: *Airborne Reconnaissance Sys*	PROJECT 2694: *Advanced Signal Recognition*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		VA											
ETS (NON-FFRDC) SP3	C/CPFF	AT&T GOVT SOL INC VA	1.984	0.500	Dec 2009	0.000		0.000		0.000	0.000	2.484	2.484
ETS (NON-FFRDC) SPA	C/CPFF	AT&T GOVT SOL INC VA	1.751	0.903	Dec 2009	0.000		0.000		0.000	0.000	2.654	2.654
ETS (NON-FFRDC) RCM	C/CPFF	AT&T GOVT SOL INC VA	0.000	0.275	Dec 2009	0.000		0.000		0.000	0.000	0.275	0.275
		Subtotal	36.317	6.942		0.000		0.000		0.000	0.000	43.259	43.259

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DT/Eval - SPA	WR	NAWCAD PAX RIVER, MD	2.386	0.250	Dec 2009	0.000		0.000		0.000	0.000	2.636	Continuing
DT/OT & Eval - RCM	WR	NAWCAD PAX RIVER, MD	0.000	0.343	Dec 2009	0.000		0.000		0.000	0.000	0.343	Continuing
DT/OT & Eval - Spiral 1	WR	NAWCAD	0.056	0.000		0.000		0.000		0.000	0.000	0.056	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		PAX RIVER, MD											
DT/OT & Eval - Spiral 2	WR	NAWCAD PAX RIVER, MD	2.462	0.000		0.000		0.000		0.000	0.000	2.462	Continuing
DT/OT & Eval - Spiral 3	WR	NAWCAD PAX RIVER, MD	1.800	3.750	Dec 2009	0.000		0.000		0.000	0.000	5.550	Continuing
Test & Eval - QRC	WR	NAWCAD PAX RIVER, MD	0.000	0.175	Dec 2009	0.000		0.000		0.000	0.000	0.175	Continuing
		Subtotal	6.704	4.518		0.000		0.000		0.000	0.000	11.222	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Eng Spt - OBS	WR	NAWCAD PAX RIVER, MD	0.661	0.900	Dec 2009	0.000		0.000		0.000	0.000	1.561	Continuing
Systems Eng Spt - RCM	WR	NAWCAD PAX RIVER, MD	0.500	0.458	Dec 2009	0.000		0.000		0.000	0.000	0.958	Continuing
Systems Eng Spt - Spiral 2	WR	NAWCAD PAX RIVER, MD	1.361	0.000		0.000		0.000		0.000	0.000	1.361	Continuing
	WR	NAWCAD	1.750	0.055	Dec 2009	0.000		0.000		0.000	0.000	1.805	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Eng Spt - Spiral 3		PAX RIVER, MD											
Travel - SPA	WR	NAWCAD PAX RIVER, MD	0.302	0.000		0.000		0.000		0.000	0.000	0.302	Continuing
Travel - Spiral 2	WR	NAWCAD PAX RIVER, MD	0.227	0.000		0.000		0.000		0.000	0.000	0.227	Continuing
Travel - Spiral 3	WR	NAWCAD PAX RIVER, MD	0.700	0.055	Dec 2009	0.000		0.000		0.000	0.000	0.755	Continuing
Travel - RCM	WR	NAWCAD PAX RIVER, MD	0.000	0.046	Dec 2009	0.000		0.000		0.000	0.000	0.046	Continuing
Travel-NSMA	WR	NAWCAD PAX RIVER, MD	0.063	0.055	Dec 2009	0.000		0.000		0.000	0.000	0.118	Continuing
		Subtotal	5.564	1.569		0.000		0.000		0.000	0.000	7.133	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	188.131	46.016		0.000		0.000		0.000	0.000	234.147	215.792

Remarks

Dollars may not add due to rounding.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305206N: *Airborne Reconnaissance Sys*	PROJECT 2694: *Advanced Signal Recognition*	

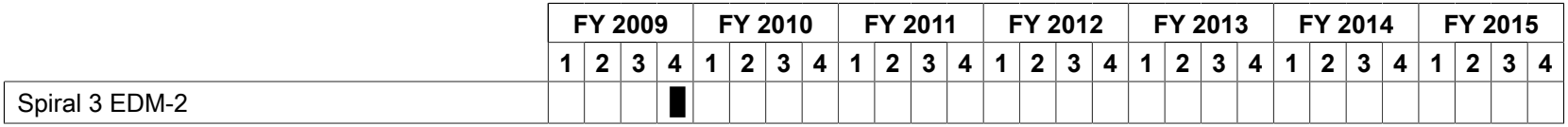

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305206N: *Airborne Reconnaissance Sys*	**PROJECT** 2694: *Advanced Signal Recognition*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Spiral 3 EDM-2	4	2009	4	2009

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305206N: *Airborne Reconnaissance Sys*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	10.771	9.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	36.993
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Exhibits reflect Congressional Adds currently being executed as follows:
FY09 Congressional Add of $5.984M is for Fusion Exploitation Algorithm Targeting High-Altitude Reconnaisance (FEATHAR).
FY09 Congressional Add of $4.787M is for EP-3E Requirements Capability Migration Technology Integration Lab.

FY10 Congressional Add of $4.332M is for Fusion Exploitation Algorithm Targeting High-Altitude Reconnaisance (FEATHAR).
FY10 Congressional Add of $4.979M is for EP-3E Requirements Capability Migration Technology Integration Lab.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
	5.984	4.332
Congressional Add: Fusion, Exploitation, Algorithm, Targeting, High-		
FY 2009 Accomplishments: Continued the development of algorithmic, cueing and software focused efforts in support of the Deployable Unmanned Systems for Targeting, Exploitation, and Reconnaissance (DUSTER) system. This system could simultaneously extend the area of intelligence gathering, keep the operators out of harms way, and provide an airborne real-time exploitation and dissemination node to identify, geo-locate, and track enemy targets.		
FY 2010 Plans: Continue the development of algorithmic, cueing and software focused efforts in support of the Deployable Unmanned Systems for Targeting, Exploitation, and Reconnaissance (DUSTER) system. This system could simultaneously extend the area of intelligence gathering, keep the operators out		

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305206N: *Airborne Reconnaissance Sys*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
of harms way, and provide an airborne real-time exploitation and dissemination node to identify, geo-locate, and track enemy targets.		
Congressional Add: EP-3E requirements capability migration technology *FY 2009 Accomplishments:* Initiated the development of an EP-3E Requirements Capability Migration Technology Integration Lab. *FY 2010 Plans:* Continue the development of an EP-3E Requirements Capability Migration Technology Integration Lab.	4.787	4.979
Congressional Adds Subtotals	10.771	9.311

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Leverages/complements Air Force, Naval Research Laboratory, Office of Naval Research RDTE efforts for technology insertions into EP-3E/SPA production programs.

E. Performance Metrics

Not required for Congressional Adds.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208M: *(U)Distributed Common Ground/Surface Systems*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	8.377	0.000	8.377	5.533	5.497	5.553	3.731	Continuing	Continuing
2268: *Distributed Common Ground System (DCGS-MC)*	0.000	0.000	8.377	0.000	8.377	5.533	5.497	5.553	3.731	Continuing	Continuing

Note

Topographic Production Capability(TPC),and Tactical Exploitation Group(TEG) have merged into DCGS-MC. Funding for these efforts under PE 0206625M has been realigned to DCGS-MC PE 0305208M effective FY 2011.

A. Mission Description and Budget Item Justification

DCGS-MC, in compliance with the Department of Defense DCGS Family of Systems(FOS) concept, is a Service-level effort to migrate select USMC Intelligence, Surveillance and Reconnaissance (ISR) processing and exploitation capabilities into a single, integrated, net-centric baseline that will be interoperable with other Services and Agencies.

Multiple functional capability sets will be configured to support Marine intelligence analysts across the MAGTF. The goal of DCGS-MC is to make external and internal ISR data more visible, accessible, and understandable.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	8.377	0.000	8.377
Total Adjustments	0.000	0.000	8.377	0.000	8.377
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	8.377	0.000	8.377

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208M: *(U)Distributed Common Ground/Surface Systems*

Change Summary Explanation

New PE established for FY11.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208M: *(U)Distributed Common Ground/Surface Systems*	PROJECT 2268: *Distributed Common Ground System (DCGS-MC)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2268: *Distributed Common Ground System (DCGS-MC)*	0.000	0.000	8.377	0.000	8.377	5.533	5.497	5.553	3.731	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Topographic Production Capability(TPC),and Tactical Exploitation Group(TEG) have merged into DCGS-MC. Funding for these efforts has been realigned to DCGS-MC PE 0305208M effective FY 2011. FY09 funding is within PE 0206313M, project C2272; FY10 funding is within PE 0206625M, project C2272.

A. Mission Description and Budget Item Justification

Distributed Common Ground System-Marine Corps DCGS-MC, in compliance with the Department of Defense DCGS Family of Systems concept, is a Service-level effort to migrate select USMC Intelligence, Surveillance and Reconnaissance (ISR) processing and exploitation capabilities into a single, integrated, net-centric baseline that will be interoperable with other Services and Agencies.

Multiple functional capability sets will be configured to support Marine intelligence analysts across the MAGTF. The goal of DCGS-MC is to make external and internal ISR data more visible, accessible, and understandable.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
TESTING AND EVALUATION SUPPORT *FY 2011 Base Plans:* PLANNED TESTING AND EVALUATION SUPPORT.	0.000	0.000	1.082	0.000	1.082
RESEARCH AND DEVELOPMENT EFFORTS FOR INTEGRATION EFFORTS *FY 2011 Base Plans:* PLANNED RESEARCH AND DEVELOPMENT EFFORTS FOR INTEGRATION.	0.000	0.000	1.157	0.000	1.157
ENGINEERING AND TECHNICAL SERVICES	0.000	0.000	0.775	0.000	0.775

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208M: *(U)Distributed Common Ground/Surface Systems*	PROJECT 2268: *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: PLANNED ENGINEERING AND TECHNICAL SERVICES.					
DESIGN AND DEVELOPMENT OF HARDWARE AND ENTERPRISE SERVICES	0.000	0.000	5.363	0.000	5.363
FY 2011 Base Plans: PLANNED DESIGN AND DEVELOPMENT OF HARDWARE AND ENTERPRISE SERVICES.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	8.377	0.000	8.377

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/4747: *DCGS-MC*	0.115	2.535	0.000	21.789	21.789	0.000	0.000	0.000	0.000	0.000	24.439
• PMC/4767: *DCGS-MC*	0.000	0.000	4.582	0.000	4.582	4.488	6.149	2.192	2.114	Continuing	Continuing

D. Acquisition Strategy

ACQUISITION STRATEGY The Acquisition Strategy (AS) shall follow the Hybrid alternative, recommended by the Analysis of Alternatives (AoA), consisting of a viable mix of alternatives that allows flexibility, agility and rapid fielding of new capabilities and will be matured prior to the first MS B to reflect results of the, Capability Development Document (CDD), Technology Development Strategy (TDS), and the updated Life Cycle Cost Estimate (LCCE). An Evolutionary Acquisition approach will be used, with a Government led integration effort in order to maintain maximum programmatic agility while reducing cost. Capabilities will be delivered via clearly defined and militarily useful increments.

The specific content of each increment will be determined by an integrated assessment of user needs, technology readiness, risk mitigation, and affordability. Currently, two increments are envisioned with increment 1 focusing on Geospatial Intelligence incorporating the functions of TEG and TPC and increment 2 on All Source Intelligence.

E. Performance Metrics

Milestone reviews.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208M: *(U)Distributed Common Ground/Surface Systems*	PROJECT 2268: *Distributed Common Ground System (DCGS-MC)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DCGS	Various/ Various	VAR VAR	0.000	0.000		1.157	Nov 2010	0.000		1.157	0.000	1.157	Continuing
		Subtotal	0.000	0.000		1.157		0.000		1.157	0.000	1.157	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DCGS	Various/ Various	VAR VAR	0.000	0.000		5.363	Nov 2010	0.000		5.363	0.000	5.363	Continuing
		Subtotal	0.000	0.000		5.363		0.000		5.363	0.000	5.363	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208M: *(U)Distributed Common Ground/Surface Systems*	PROJECT 2268: *Distributed Common Ground System (DCGS-MC)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DCGS	Various/ Various	MCOTEA QUANTICO, VA	0.000	0.000		1.082	Dec 2010	0.000		1.082	0.000	1.082	Continuing
		Subtotal	0.000	0.000		1.082		0.000		1.082	0.000	1.082	

Remarks

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DCGS	Various/ Various	VAR VAR	0.000	0.000		0.775	Mar 2010	0.000		0.775	0.000	0.775	Continuing
		Subtotal	0.000	0.000		0.775		0.000		0.775	0.000	0.775	

Remarks

	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		8.377		0.000		8.377	0.000	8.377	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208M: *(U)Distributed Common Ground/Surface Systems*	PROJECT 2268: *Distributed Common Ground System (DCGS-MC)*

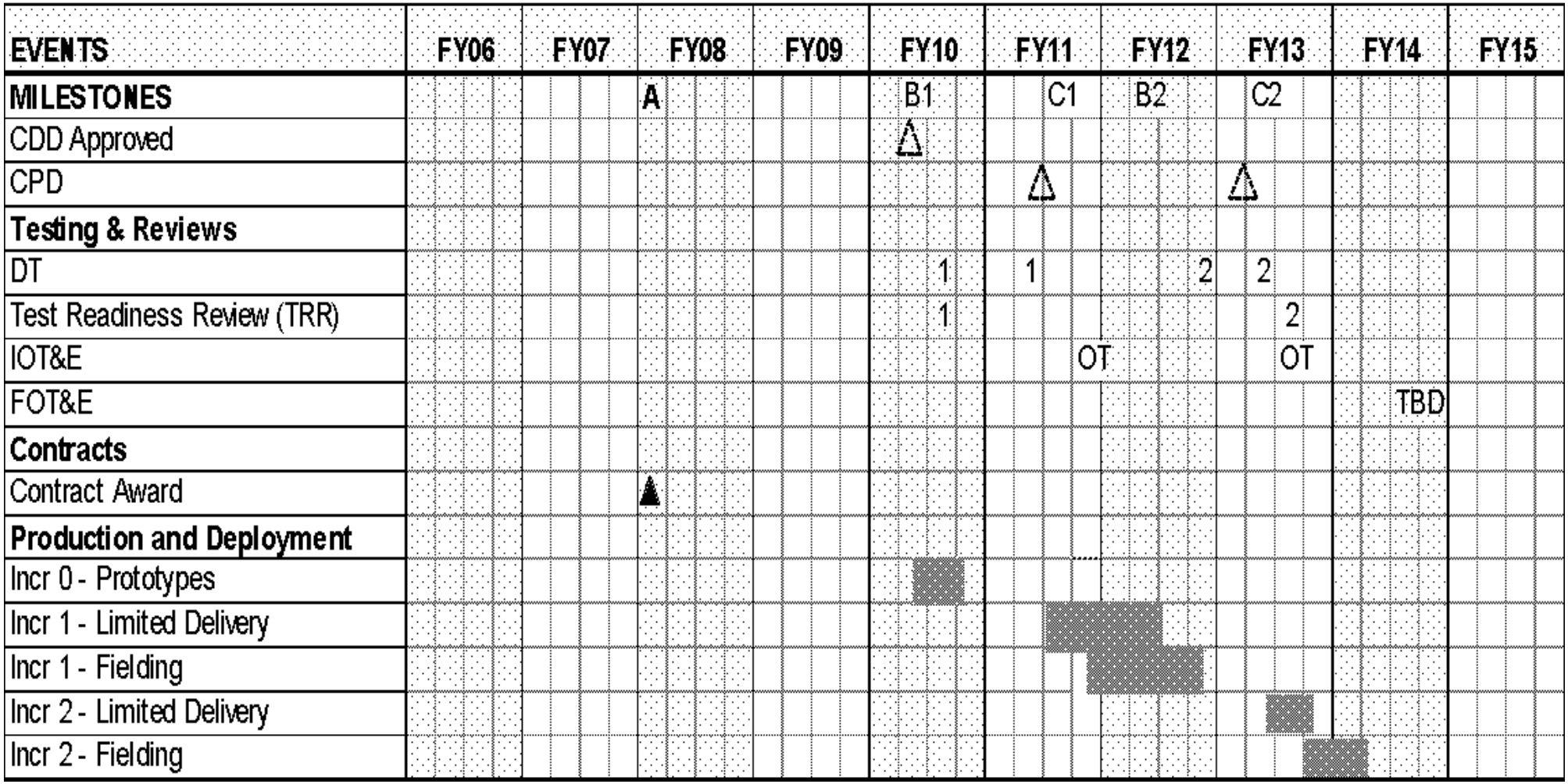

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208M: *(U)Distributed Common Ground/Surface Systems*	**PROJECT** 2268: *Distributed Common Ground System (DCGS-MC)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
DCGS MILESTONE B	2	2010	2	2010
DCGS CDD	4	2009	2	2010
DCGS DT	3	2010	4	2012
DCGS TEST READINESS REVIEW	3	2010	3	2010
DCGS IOT&E	4	2011	4	2011
DCGS PROTOTYPES	2	2010	2	2010
DCGS INCR 1 LIMITED DELIVERY	3	2010	3	2010
DCGS INCR 1 FIELDING	4	2010	4	2012

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305208N: *Distributed Common Ground Sys*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	44.222	12.228	16.665	0.000	16.665	23.777	20.545	23.789	27.830	Continuing	Continuing
2174: *CIGSS*	44.222	12.228	16.665	0.000	16.665	23.777	20.545	23.789	27.830	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Distributed Common Ground System - Navy (DCGS-N) is the Navy's portion of the Department of Defense (DOD) DCGS effort. DOD has defined a DCGS architecture that will be verifiably compatible and interoperable across all of the services' Intelligence, Surveillance and Reconnaissance (ISR) systems and operations. The DOD DCGS will process data from all ISR collection assets, intelligence databases and intelligence producers. This collected data will be shared across a joint enterprise using the DCGS Integration Backbone (DIB) to enhance interoperability of ISR information across joint forces through the use of common enterprise standards and services. It will support Joint Task Force (JTF)-level combat operations and support JTF commanders and below with critical intelligence for battle management and information dominance across the full spectrum of operations. DCGS is a cooperative effort among the services, agencies, and DOD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS is further subdivided into systems which process, exploit, and disseminate Measurements Analysis and Signatures Intelligence data, Signals Intelligence (SIGINT) data, Multi-Intelligence Reconnaissance data, and Imagery data.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	44.222	18.079	0.000	0.000	0.000
Current President's Budget	44.222	12.228	16.665	0.000	16.665
Total Adjustments	0.000	-5.851	16.665	0.000	16.665
• Congressional General Reductions		-0.051			
• Congressional Directed Reductions		-5.700			
• Congressional Rescissions	0.000	-0.100			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	16.665	0.000	16.665

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208N: *Distributed Common Ground Sys*

Change Summary Explanation

Technical: Not applicable.

Schedule: Distributed Common Ground System - Navy (DCGS-N) BLK 1 Initial Operating Capability (IOC) has shifted to 4QFY10 due to ship availabilities.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208N: *Distributed Common Ground Sys*	PROJECT 2174: *CIGSS*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2174: *CIGSS*	44.222	12.228	16.665	0.000	16.665	23.777	20.545	23.789	27.830	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Distributed Common Ground System - Navy (DCGS-N) is the Navy's portion of the Department of Defense (DOD) DCGS effort. DOD has defined a DCGS architecture that will be verifiably compatible and interoperable across all of the services' Intelligence, Surveillance and Reconnaissance (ISR) systems and operations. The DOD DCGS will process data from all ISR collection assets, intelligence databases and intelligence producers. This collected data will be shared across a joint enterprise using the DCGS Integration Backbone (DIB) to enhance interoperability of ISR information across joint forces through the use of common enterprise standards and services. It will support Joint Task Force (JTF)-level combat operations and support JTF commanders and below with critical intelligence for battle management and information dominance across the full spectrum of operations. DCGS is a cooperative effort among the services, agencies, and DOD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS is further subdivided into systems which process, exploit, and disseminate Measurements Analysis and Signatures Intelligence data, Signals Intelligence (SIGINT) data, Multi-Intelligence Reconnaissance data, and Imagery data.

The DCGS-N system represents the integration of: 1) The processing and exploitation of tactical and Imagery Intelligence (IMINT) and SIGINT; 2) Precision target geopositioning, mensuration, and imagery dissemination capabilities; 3) Selected national IMINT requirements and processing capabilities from the National Geospatial-Intelligence Agency; and 4) Sharing of Intelligence, Surveillance, Reconnaissance and Targeting and Command and Control information via DIB and Net-Centric Enterprise Services standards with a wide range of anticipated and unanticipated customers (e.g., Global Command and Control System - Maritime, GCCS-M).

The DCGS-N Enterprise Node, which incorporates DCGS DIB standards, facilitates interoperability among the DOD DCGS Family of Systems. DCGS-N will stay abreast of evolving requirements and ensure compliance with the DOD DCGS network architecture. Engineering work is funded to migrate legacy Joint Fires Network/ Joint Services Imagery Processing System - Navy (JSIPS-N) capabilities to this network environment. The government is the integrator for the DCGS-N system.

The Navy is focusing on establishing an ISR Enterprise way ahead that will emphasize a reach back strategy with a focus on Maritime Operations Center (MOC) activities providing intelligence products to support deployed ship and shore operations. The Navy will also initiate migration to a Service Oriented Architecture (SOA) that requires the development, integration, and testing of ISR Enterprise capability (MOC to MOC to afloat), development and migration of ISR SOA applications, and development and integration to leverage the Integrated Shipboard Network System strategy for a Common Computing Environment (CCE). This effort has resulted in a realignment of the program, replacing the DCGS-N 1.1 with a redesigned, smaller, more maintainable, less expensive system that will eventually migrate to the CCE

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208N: *Distributed Common Ground Sys*	PROJECT 2174: *CIGSS*

aboard ship and shift the focus of the program to producing SOA ISR applications. Additionally, DCGS-N will become the focal point for migration of Maritime Domain Awareness fusion and analysis tool applications for the Navy. As a result, the funding profile was modified to revise the procurement schedule, maintain the equipment support line, and focus on product improvement for migration to the CCE and support to fielded systems until replaced by DCGS-N systems.

Integrated Imagery and Intelligence (I3) funding transitions into the DCGS-N PE 0305208N beginning in FY10 (funds were previously budgeted under the Tactical Command System budget PE 0604231N). The Navy's Integrated Imagery and Intelligence Applications (I3 Apps) are an integrated set of applications designed to support tactical intelligence processing and provide a useful integration framework to ensure joint intelligence interoperability across the Global Command and Control System (GCCS) and Distributed Common Ground System (DCGS) enterprise. Development of I3 applications includes end to end intelligence analysis applications that leverage the Modernized Integrated Database and military integration with NGA-provided digital map and imagery systems. I3 imagery applications provide for archiving, viewing and measurement of still and video images. This effort is also continuing the transition to Commercial Off The Shelf hardware and software. The Navy's I3 effort is part of the Military Intelligence Program, managed by the Secretary of Defense through the Assistant Secretary of Defense for Command, Control, Communications, Computers and Intelligence.

JSIPS-N tech refresh and service life extension upgrades will provide shipboard digital imagery architecture with the capability to receive, exploit, store, and disseminate imagery products based on national, theater, and tactical sensors. JSIPS-N service life extension is comprised of five subsystems: Joint Concentrator Architecture, Common Geopositioning Service, Image Product Library, Imagery Exploitation Support System, and the Sharp Display System. JSIPS-N is the Navy's cooperative imagery processing system component in DCGS-N. JSIPS-N service life extension will overcome obsolescence and improve systems reliability until DCGS-N fully replaces JSIPS-N ashore and afloat.

The FY11 plan includes conducting various test events and test reviews for the DCGS-N Increment 1 Block 1 Early Adopter Engineering Change Proposal build. Increment 1 Block 2 requirements definition to incorporate collection management capabilities, Real-Time Regional Gateway (RTRG), software upgrades for new Navy sensors, and Moving Target Indicator (MTI) processor integration. Begin DCGS-N Increment 2 Analysis of Alternative (AoA), Capability Development Document development, and conduct cost analysis based on AoA findings. Continue to conduct I3 operational testing, begin new software development, and provide for the technical migration of standardized, linked intelligence data and imagery software tools and services from a platform-centric model to a SOA.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
DCGS-N	40.972	11.228	15.665	0.000	15.665

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208N: *Distributed Common Ground Sys*	PROJECT 2174: *CIGSS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
DCGS-N: Primary and ancillary system software design / development and related activities for Distributed Common Ground System - Navy (DCGS-N) Increment 1. These activities include Increment 1 development and operational testing and evaluation, integration of core components, and development of software capabilities to enhance the end-end usability of DCGS-N Increment 1 across the Navy and joint enterprise. *FY 2009 Accomplishments:* Increment 1: Continued development of DCGS-N Increment 1 Block 1 applications for fielding in migration to a Service Oriented Architecture (SOA) environment. Supported migration of additional SOA applications leveraging the Integrated Shipboard Network System (ISNS) Common Computing Environment (CCE). Began integration of SOA applications leveraging onto ISNS Increment 1 CCE hardware. Conducted Shipboard Operational Tests (OT); successfully performed Development Test (DT) and Operational Assessment (OA). Participated EMPIRE CHALLENGE - 09 demonstration. Began testing the additional SOA applications in the ISNS CCE. Conducted tests with early adopters where possible. Increment 2: Began gap analysis study efforts and pre-acquisition program tasks. JSIPS-N: Conducted Land-based Operational Assessment (OA) on a service life extension upgrade. *FY 2010 Plans:* Increment 1: Additional migration to the Navy's CCE / Afloat Core Services (ACS). Begin development of DCGS-N Increment 1 Block 1 Early Adopter Engineering Change Proposal (EA ECP) architecture, design, and prototyping efforts which continues integration of common hardware and SOA applications leveraging the ISNS and Special Compartmented Information (SCI) Local Area Network (LAN) hardware and software infrastructure. Participate in EMPIRE CHALLENGE - 10 demonstration to demonstrate interoperability between DCGS Family of Systems (FoS) utilizing the DCGS-N Enterprise Node (DEN) capability. JSIPS-N: Conduct Follow-on Operational Test and Evaluation (FOTE) for service life extension upgrades.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208N: *Distributed Common Ground Sys*	**PROJECT** 2174: *CIGSS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Increment 2: Finish the DCGS-N Increment 2 Gap Analysis. I3: Integrated Imagery and Intelligence (I3) funding transitions into the DCGS-N PE 0305208N beginning in FY10, funds were previously budgeted under the Tactical Command System budget PE 0604231N. Continue to conduct operational testing, begin new software development, and provide for the technical migration of standardized, linked intelligence data and imagery software tools and services from a platform-centric model to a services oriented architecture (SOA). The RDT&E focus includes modernizing interfaces between Special Intelligence (SI) Tools and Global Command and Control System (GCCS) / DCGS Middle and Data Tier services and Consolidated Afloat Network Enterprise Services (CANES) Infrastructure and the migration to National Geospatial Intelligence (GEOINT) Core Services (National Geospatial-Intelligence Agency (NGA) SOA). Efforts include support for end to end intelligence analysis tools that leverage Modernized Integrated Database (MIDB), NGA-related digital mapping and imagery products, and other intelligence support streams, while continuing to ensure joint intelligence interoperability across the GCCS and DCGS enterprise.					
FY 2011 Base Plans: Increment 1: Conduct System Integration Testing (SIT) and Developmental Test and Evaluation (DT&E) test events and Operation Test Readiness Review (OTRR) for the DCGS-N Increment 1 Block 1 EA ECP build. Increment 1 Block 2 requirements definition to incorporate collection management capabilities, Real-Time Regional Gateway (RTRG), software upgrades for new Navy sensors, and Moving Target Indicator (MTI) processor integration. Begin updating/developing the Block 2 Test and Evaluation Master Plan (TEMP) and commence development of two Block 2 Engineering Development Models (EDM). Blocks 1 and 2 will support/facilitate the requirements development process and lessons learned efforts for DCGS-N Increment 2. Increment 2: Begin AoA on technology exploration, CDD development, and conduct cost analysis based on AoA findings. Begin drafting the Increment 2 Acquisition Strategy Report (ASR), Systems Engineering Plan (SEP), and other required acquisition documentation. I3: Continue to conduct operational testing, begin new software development, and provide for the technical migration of standardized, linked intelligence data and imagery software tools and services					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208N: *Distributed Common Ground Sys*	PROJECT 2174: *CIGSS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
from a platform-centric model to a SOA. The RDT&E focus will be on migration to CANES SOA and DCGS-N Enterprise Services. Efforts include support for end to end intelligence analysis tools that leverage MIDB, NGA-related digital mapping and imagery products, and other intelligence support streams, while continuing to ensure joint intelligence interoperability across the GCCS and DCGS enterprise. Focus will be the migration to the United States Navy (USN) SOA framework (CANES), alignment with the new Joint Command and Control (C2) program Net-Enabled Command Capability (NECC), the DIA Department of Defense Intelligence Information System (DODIIS) Architecture (DODIIS SOA), and the Net-Centric Enterprise Services (NCES). FY11 OCO funding - N/A					
DCGS-N Testbeds DCGS-N Testbeds: Funds the Navy's contribution to the Distributed Development, Test, Demonstration, and Experimentation Network. *FY 2009 Accomplishments:* Coordinated Test and Evaluation (T&E) among various service and agency Distributed Common Ground System (DCGS) labs and test facilities to ensure continued interoperability as system changes occurred.	1.500	0.000	0.000	0.000	0.000
Common Security and Discovery Services Common Security and Discovery Services: Effort to migrate to common security and discovery services within the DCGS programs via Net-Centric Enterprise Services (NCES) and the DCGS Integrated Backbone (DIB). This effort will improve the coordination and the acceleration of the introduction of NCES and DIB services into the DCGS/Intelligence, Surveillance and Reconnaissance (ISR) enterprise. This funding provides minimal full-time staffing to support the execution of the project plan in accordance with Under Secretary of Defense (Intelligence) (USD(I)) guidance.	1.000	1.000	1.000	0.000	1.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued participation in development and demonstration of CES and in the ESWG; Continued to follow Pilot Plan; integrated DCGS testbed capabilities into Project Plan. *FY 2010 Plans:* Continue participation in development and demonstration of CES and in the ESWG; Continue to follow Pilot Plan; integrate DCGS testbed capabilities into Project Plan. *FY 2011 Base Plans:* Continue participation in development and demonstration of CES and in the ESWG; Continue to follow Pilot Plan; integrate DCGS testbed capabilities into Project Plan.					
Concept of Operations (CONOPS) *FY 2009 Accomplishments:* Continued with CONOPS that ensures DCGS interoperability with Services and Coalition partners. This effort maximized ISR processing capability and provided a common understanding of the direction and means to the desired end-state.	0.750	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	44.222	12.228	16.665	0.000	16.665

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208N: *Distributed Common Ground Sys*	PROJECT 2174: *CIGSS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN 2914: *Distributed Common Ground System-Navy (DCGS-N)*	38.220	27.547	16.634	0.000	16.634	11.494	15.894	17.574	20.295	Continuing	Continuing

D. Acquisition Strategy

The Distributed Common Ground System - Navy (DCGS-N) program will utilize contracting vehicles already in place for the existing Army Tactical Exploitation of National Capabilities (TENCAP) and Joint Services Imagery Processing System - Navy (JSIPS-N) and other fielded programs. The Navy plan is to adapt these programs and develop interoperability with the DCGS Integration Backbone (DIB) standards for support of Navy Network Centric Warfare Time Critical Targeting. The government is the system integrator for the DCGS-N Increment 1 system. For DCGS-N Increment 1 SPAWAR Systems Center (SSC) will also leverage the current Joint Global Command and Control System (GCCS-J) Integrated Imagery and Intelligence (I3) and JSIPS-N and other fielded systems. The DCGS-N Increment 2 acquisition strategy includes the award of a competitive contract for a prime product integrator.

E. Performance Metrics

DCGS-N Increment 1 GOAL: Provide Fleet with additional migration to the Navy's Common Computing Environment (CCE) / Afloat Core Services (ACS).
DCGS-N Increment 1 METRIC: Develop DCGS-N Increment 1 Block 1 Early Adopter Engineering Change Proposal (EA ECP) build. Deliver Increment 1 Block 2 Test and Evaluation Master Plan (TEMP) Update. Complete requirements definition to incorporate collection management capabilities, Real-Time Regional Gateway (RTRG), software upgrades for new Navy sensors, and Moving Target Indicator (MTI) processor integration.

DCGS-N Increment 2 GOAL: Determine future development alternatives for the DCGS-N system.
DCGS-N Increment 2 METRIC: Complete a Gap Analysis Study and Begin the Analysis of Alternatives (AoA) to determine future system development roadmap.

I3 GOAL: Demonstrate Integrated Imagery and Intelligence (I3) capabilities within DCGS-N Increment 1.
I3 METRIC: Synch and enhance software deliveries to accommodate system user requirements, data interfaces, integration, configuration, and testing.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208N: *Distributed Common Ground Sys*	PROJECT 2174: *CIGSS*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various/ Various	Various Various	4.735	0.350	Nov 2009	0.400	Nov 2010	0.000		0.400	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPAF	BAE Rancho Bernardo, CA	2.013	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	Various Various	7.762	0.991	Nov 2009	0.402	Nov 2010	0.000		0.402	Continuing	Continuing	Continuing
Systems Engineering	C/CPAF	JFCOMM Norfolk, VA	5.634	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	C/CPAF	BAE Rancho Bernardo, CA	20.124	0.800	Dec 2009	1.074	Dec 2010	0.000		1.074	Continuing	Continuing	Continuing
Systems Engineering	C/CPAF	LMSI Valley Forge, PA	3.776	0.656	Dec 2009	0.989	Dec 2010	0.000		0.989	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC Lant Charleston, SC	5.573	1.608	Nov 2009	2.095	Nov 2010	0.000		2.095	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	TBD TBD	0.000	1.273	May 2010	4.986	Nov 2010	0.000		4.986	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	SAIC Columbia, MD	3.781	1.023	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	L3 Chantilly, VA	2.786	0.796	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Licenses	Various/ Various	BAE, SSC Lant Various	0.600	0.060	Dec 2009	0.400	Dec 2010	0.000		0.400	Continuing	Continuing	Continuing
		Subtotal	56.784	7.557		10.346		0.000		10.346			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208N: *Distributed Common Ground Sys*	PROJECT 2174: *CIGSS*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Various represents several contracts in support of product development, logistics, testing, and systems engineering. The majority of these contracts are Cost Plus Award Fee (CPAF) contract awards.
TBD represents un-awarded contracts,currently under competition.

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various/ Various	Various Various	3.867	0.269	Nov 2009	0.196	Nov 2010	0.000		0.196	Continuing	Continuing	Continuing
Software Development	C/CPAF	BAE, NG Various	15.983	0.750	Dec 2009	0.950	Dec 2010	0.000		0.950	Continuing	Continuing	Continuing
Integrated Logistics Support	Various/ Various	L3, SAIC Various	3.782	0.598	Nov 2009	0.689	Nov 2010	0.000		0.689	Continuing	Continuing	Continuing
Configuration Management	C/CPAF	L3 Chantilly, VA	1.879	0.474	Dec 2009	0.525	Dec 2010	0.000		0.525	Continuing	Continuing	Continuing
Technical Data	Various/ Various	L3, SSC CHAS Various	0.352	0.225	Jan 2010	0.200	Nov 2010	0.000		0.200	Continuing	Continuing	Continuing
		Subtotal	25.863	2.316		2.560		0.000		2.560			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
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Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Various represents several contracts in support of product development, logistics, testing, and systems engineering. The majority of these contracts are Cost Plus Award Fee (CPAF) contract awards.

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various/ Various	SAIC, L3, SSC LANT Various	9.618	0.825	Nov 2009	0.502	Nov 2010	0.000		0.502	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	TBD TBD	0.000	0.000		2.055	Nov 2010	0.000		2.055	Continuing	Continuing	Continuing
Operational Test & Evaluation	Various/ Various	SAIC, NAWC, NGES, OPTEVFOR, NSWC Corona Various	4.841	0.215	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	14.459	1.040		2.557		0.000		2.557			

Remarks

Various represents several contracts in support of product development, logistics, testing, and systems engineering. The majority of these contracts are Cost Plus Award Fee (CPAF) contract awards.

TBD represents un-awarded contracts,currently under competition.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208N: *Distributed Common Ground Sys*	PROJECT 2174: *CIGSS*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	SSC LANT Charleston, SC	0.000	0.884	Nov 2009	0.778	Nov 2009	0.000		0.778	Continuing	Continuing	Continuing
Program Management Support	C/CPAF	SAIC Columbia, MD	1.005	0.311	Dec 2009	0.284	Dec 2010	0.000		0.284	Continuing	Continuing	Continuing
Travel	Allot	SPAWAR San Diego, CA	0.399	0.120	Oct 2009	0.140	Oct 2010	0.000		0.140	Continuing	Continuing	Continuing
		Subtotal	1.404	1.315		1.202		0.000		1.202			

Remarks

Various represents several contracts in support of product development, logistics, testing, and systems engineering. The majority of these contracts are Cost Plus Award Fee (CPAF) contract awards.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	98.510	12.228		16.665		0.000		16.665			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208N: *Distributed Common Ground Sys*	**PROJECT** 2174: *CIGSS*

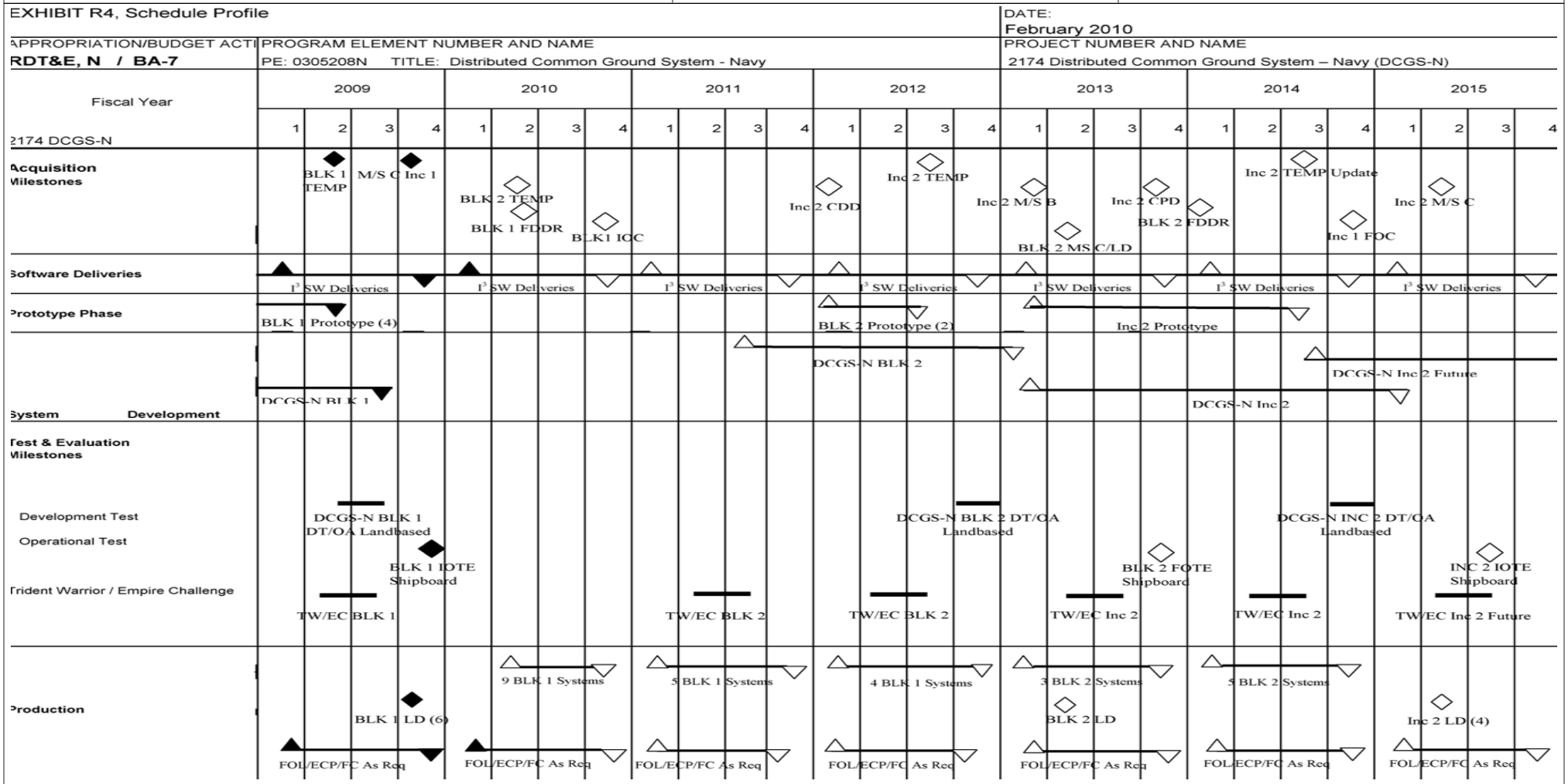

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208N: *Distributed Common Ground Sys*	**PROJECT** 2174: *CIGSS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
DCGS-N BLK 1 DT/OA Landbased	2	2009	3	2009
DCGS-N BLK 1 IOTE Shipboard	4	2009	4	2009
DCGS-N BLK 2 DT/OA Landbased	4	2012	4	2012
DCGS-N BLK 2 FOTE Shipboard	4	2013	4	2013
DCGS-N Inc 2 DT/OA Landbased	2	2014	3	2014
DCGS-N Inc 2 IOTE Shipboard	3	2015	3	2015
Trident Warrior / Empire Challenge BLK 1 2009	2	2009	3	2009
Trident Warrior / Empire Challenge BLK 2 2011	2	2011	3	2011
Trident Warrior / Empire Challenge BLK 2 2012	2	2012	3	2012
Trident Warrior / Empire Challenge Inc 2 2013	2	2013	3	2013
Trident Warrior / Empire Challenge Inc 2 Future	2	2015	3	2015
Trident Warrior / Empire Challenge Inc 2 2014	2	2014	3	2014
I3 Software Deliveries 2010	1	2010	4	2010
I3 Software Deliveries	1	2009	4	2009
I3 Software Deliveries 2011	1	2011	4	2011
I3 Software Deliveries 2012	1	2012	4	2012
I3 Software Deliveries 2013	1	2013	4	2013
I3 Software Deliveries 2014	1	2014	4	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305208N: *Distributed Common Ground Sys*	PROJECT 2174: *CIGSS*

	Start		End	
Event	Quarter	Year	Quarter	Year
I3 Software Deliveries 2015	1	2015	4	2015
DCGS-N BLK 1 Development	1	2009	3	2009
DCGS-N BLK 2 Development	3	2011	1	2013
DCGS-N Inc 2 Development	1	2013	1	2015
DCGS-N Inc 2 Future Development	3	2014	4	2015
DCGS-N BLK 1 FDDR	2	2010	2	2010
DCGS-N BLK 1 IOC	4	2010	4	2010
DCGS-N BLK 1 LD	4	2009	4	2009
DCGS-N BLK 1 TEMP	2	2009	2	2009
DCGS-N BLK 2 FDDR	1	2014	1	2014
DCGS-N BLK 2 M/S C (LD)	2	2013	2	2013
DCGS-N BLK 2 TEMP Update	2	2010	2	2010
DCGS-N Inc 2 TEMP	3	2012	3	2012
DCGS-N Inc 2 TEMP Update	3	2014	3	2014
DCGS-N Inc 1 FOC	4	2014	4	2014
DCGS-N Inc 1 M/S C Decision	4	2009	4	2009
DCGS-N Inc 2 CDD	1	2012	1	2012
DCGS-N Inc 2 CPD	4	2013	4	2013
DCGS-N Inc 2 M/S C Decision	2	2015	2	2015
DCGS-N Inc 2 LD	2	2015	2	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305208N: *Distributed Common Ground Sys*	**PROJECT** 2174: *CIGSS*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
DCGS-N Inc 2 M/S B Decision	1	2013	1	2013
DCGS-N Procurement	2	2010	4	2014
Fact of Life Upgrades/ECPs/Field Changes to Fielded Equipment	1	2009	4	2015
BLK 1 Prototype	1	2009	2	2009
BLK 2 Prototype	1	2012	3	2012
INC 2 Prototype 1	1	2013	4	2013
INC 2 Prototype 2	1	2014	4	2014

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305220N: *RQ-4 UAV*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	439.010	529.250	0.000	529.250	540.992	695.924	224.156	122.169	Continuing	Continuing
4020: *BAMS UAS*	0.000	439.010	529.250	0.000	529.250	540.992	695.924	224.156	122.169	Continuing	Continuing

A. Mission Description and Budget Item Justification

RQ-4 Broad Area Maritime Surveillance (BAMS) Unmanned Aircraft System (UAS)
The BAMS RQ-4 is a High Altitude-Long Endurance Unmanned Aircraft System designed to provide Fleet and Combatant Commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. Envisioned as an unmanned adjunct to the P-8A Multi-Mission Maritime Aircraft (MMA), and crucial to the recapitalization of Navy's airborne maritime ISR capability, the system will seek to leverage Maritime Patrol and Reconnaissance Force (MPRF) manpower, training and maintenance efficiencies.

The RQ-4 air vehicle is based on Northrop Grumman's Block 20 Global Hawk and features sensors designed to provide near worldwide coverage through a network of five CONUS and OCONUS orbits, with sufficient air vehicles to remain airborne for 24 hours a day, 7 days a week, out to ranges of 2000 nautical miles. Onboard sensors will provide detection, classification, tracking and identification of maritime targets and include maritime radar, electro-optical/infrared (EO/IR), and Electronic Support Measures (ESM) systems. Additionally, the RQ-4 will have a communications relay capability designed to link dispersed forces in the theater of operations and serve as a node in the Navy's FORCEnet strategy. Tactical-level data analysis will occur in real-time at shore-based Mission Control sites connected to the air vehicle via satellite communications. Further intelligence exploitation can be conducted at Fleet shore-based sites or aboard Aircraft Carriers and other ships in the sea base.

RQ-4 will play a significant role in the Sea Shield and FORCEnet pillars of Sea Power 21. In its Sea Shield role, the system will rely on its key attribute of persistence to provide the supported COCOM or Fleet Commander with unparalleled situational awareness of the maritime battle space as it develops and sustains the Common Operational Tactical Picture (COTP). The system will also serve as a Fleet Response Plan enabler, while acting as a trip wire for Intelligence Preparation of the Environment (IPE). Additionally, BAMS UAS will be a FORCEnet enabler and relay platform, directly connected to both the Global Information Grid (GiG) and the DCGS-N Information Backbone (DIB).

Prior to FY10, BAMS was budgeted for in PE 0305205N.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305220N: *RQ-4 UAV*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	465.839	0.000	0.000	0.000
Current President's Budget	0.000	439.010	529.250	0.000	529.250
Total Adjustments	0.000	-26.829	529.250	0.000	529.250
• Congressional General Reductions		-1.829			
• Congressional Directed Reductions		-25.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	529.250	0.000	529.250

Change Summary Explanation

Technical: Not applicable.

Schedule: System Functional Review moved from 4Q to 3Q FY09.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305220N: *RQ-4 UAV*	PROJECT 4020: *BAMS UAS*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
4020: *BAMS UAS*	0.000	439.010	529.250	0.000	529.250	540.992	695.924	224.156	122.169	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

RQ-4 is a High Altitude-Long Endurance Unmanned Aircraft System designed to provide Fleet and Combatant Commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. Envisioned as an unmanned adjunct to the P-8A Multi-Mission Maritime Aircraft (MMA), and crucial to the recapitalization of Navy's airborne maritime ISR capability, the system will seek to leverage Maritime Patrol and Reconnaissance Force (MPRF) manpower, training and maintenance efficiencies.

The RQ-4 air vehicle is based on Northrop Grumman's Block 20 Global Hawk and features sensors designed to provide near worldwide coverage through a network of five CONUS and OCONUS orbits, with sufficient air vehicles to remain airborne for 24 hours a day, 7 days a week, out to ranges of 2000 nautical miles. Onboard sensors will provide detection, classification, tracking and identification of maritime targets and include maritime radar, electro-optical/infrared (EO/IR), and Electronic Support Measures (ESM) systems. Additionally, BAMS will have a communications relay capability designed to link dispersed forces in the theater of operations and serve as a node in the Navy's FORCEnet strategy. Tactical-level data analysis will occur in real-time at shore-based Mission Control sites connected to the air vehicle via satellite communications. Further intelligence exploitation can be conducted at Fleet shore-based sites or aboard Aircraft Carriers and other ships in the sea base.

RQ-4 will play a significant role in the Sea Shield and FORCEnet pillars of Sea Power 21. In its Sea Shield role, the system will rely on its key attribute of persistence to provide the supported COCOM or Fleet Commander with unparalleled situational awareness of the maritime battle space as it develops and sustains the Common Operational Tactical Picture (COTP). The system will also serve as a Fleet Response Plan enabler, while acting as a trip wire for Intelligence Preparation of the Environment (IPE). Additionally, RQ-4 will be a FORCEnet enabler and relay platform, directly connected to both the Global Information Grid (GiG) and the DCGS-N Information Backbone (DIB).

The RQ-4 system is an evolutionary based acquisition, using an incremental development approach. Two Mission Need Statements (MNSs) support the requirement; 1) BAMS and Littoral Armed ISR MNS, and 2) Long Endurance, Reconnaissance, Surveillance and Target Acquisition (RSTA) Capability MNS. The BAMS UAS Capability Development Document (CDD) was approved May 2007 by the Joint Requirements Oversight Council (JROC).

Prior to FY10, BAMS was budgeted for in PE 0305205N: Endurance Unmanned Aer Veh.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305220N: *RQ-4 UAV*	PROJECT 4020: *BAMS UAS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Product Development Awarded contract in FY08 to initiate the Engineering and Manufacturing Development (EMD) phase effort. The Prime Contractor is responsible for overall system development and performance, as well as associated management, engineering and logistics activities. *FY 2010 Plans:* Continue EMD, including Government engineering support related to EMD. *FY 2011 Base Plans:* Continue EMD, including Government engineering support related to EMD.	0.000	414.991	499.042	0.000	499.042
ILS, Support, Studies & Analysis Integrated Logistics Support, Studies and Analysis. *FY 2010 Plans:* Continue integrated logistics support, technical engineering services, sensor risk reduction, logistics supportability analyses and environmental planning, modeling and simulation, development of manpower and basing assessments, and development of technical data to support fielding of the BAMS UAS capabilities. *FY 2011 Base Plans:* Continue integrated logistics support, technical engineering services, sensor risk reduction, logistics supportability analyses and environmental planning, modeling and simulation, development of manpower and basing assessments, and development of technical data to support fielding of the BAMS UAS capabilities.	0.000	11.928	12.625	0.000	12.625
Program Management	0.000	5.434	6.600	0.000	6.600

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305220N: *RQ-4 UAV*	PROJECT 4020: *BAMS UAS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program Management Support and travel. *FY 2010 Plans:* Continue the following: Program Management Support and travel; development of milestone and acquisition-related documentation; capability refinement and open systems architecture development; resource justification; affordability assessments and cost analyses; risk reduction and risk management; system integration and interoperability planning; technology maturity reviews; program protection planning; corrosion prevention planning; and Joint and International Cooperation efforts. *FY 2011 Base Plans:* Continue the following: Program Management Support and travel; development of milestone and acquisition-related documentation; capability refinement and open systems architecture development; resource justification; affordability assessments and cost analyses; risk reduction and risk management; system integration and interoperability planning; technology maturity reviews; program protection planning; corrosion prevention planning; and Joint and International Cooperation efforts.					
Test & Evaluation Test and Evaluation efforts. *FY 2010 Plans:* Continue test and evaluation support activities to allow test and fielding of the BAMS UAS. *FY 2011 Base Plans:* Continue test and evaluation support activities to allow test and fielding of the BAMS UAS.	0.000	6.657	10.983	0.000	10.983
Accomplishments/Planned Programs Subtotals	0.000	439.010	529.250	0.000	529.250

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305220N: *RQ-4 UAV*	PROJECT 4020: *BAMS UAS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDTE/0305205N: *BAMS UAS*	420.405	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	588.909
• APN-4/044200: *RQ-4 UAV (BAMS UAV)*	0.000	0.000	0.000	0.000	0.000	0.000	48.264	583.068	601.030	8,756.248	9,988.610
• APN-6/060510: *BAMS UAV*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.599	90.584	1,273.845	1,394.028
• MILCON/0816376N: *BAMS UAS Operator Training Facility*	0.000	0.000	42.211	0.000	42.211	0.000	0.000	0.000	0.000	0.000	42.211
• MILCON/0815976N: *Broad Area Maritime Surveillance T&E Facility*	0.000	0.000	0.000	0.000	0.000	2.285	0.000	57.686	54.280	251.864	366.115

D. Acquisition Strategy

The BAMS UAS is an evolutionary-based acquisition, using an incremental development approach. During the pre-Milestone B phase, the program performed technical risk reduction through studies and demonstrations, Engineering and Manufacturing Development (EMD) contract preparation, and Milestone B documentation development activities. Milestone B occurred on 8 April 2008 and EMD award occurred on 22 April 2008. The EMD contract was based on a competitive selection process for a Prime Contractor.

The BAMS UAS program office is pursuing joint efficiency with the Air Force on the Global Hawk UAS. However, the integration of the BAMS UAS into the Maritime Patrol Reconnaissance Force (MPRF) and the unique maritime sensors employed dictate a Navy-led acquisition program focused on joint efficiencies, where possible.

E. Performance Metrics

Successfully achieve Critical Design Review, Flight Readiness Review, Milestone C, Integrated Test, and Operational Evaluation.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305220N: *RQ-4 UAV*	PROJECT 4020: *BAMS UAS*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	Northrop Grumman Bethpage, NY	0.000	380.843	Nov 2009	459.063	Nov 2010	0.000		459.063	1,343.238	2,183.144	2,183.144
Systems Engineering	WR	Various Various	0.000	26.060	Nov 2009	30.200	Nov 2010	0.000		30.200	95.794	152.054	Continuing
Award Fees	C/CPAF	Northrop Grumman Bethpage, NY	0.000	8.088	Dec 2010	9.779	Dec 2011	0.000		9.779	38.616	56.483	56.483
		Subtotal	0.000	414.991		499.042		0.000		499.042	1,477.648	2,391.681	2,239.627

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various/ Various	Various Various	0.000	6.325	Nov 2009	6.425	Nov 2010	0.000		6.425	39.193	51.943	Continuing
Integrated Logistics Support	WR	Various Various	0.000	4.835	Nov 2009	6.200	Nov 2010	0.000		6.200	27.878	38.913	Continuing
Studies & Analyses	Various/ Various	Various Various	0.000	0.768	Nov 2009	0.000		0.000		0.000	0.000	0.768	Continuing
		Subtotal	0.000	11.928		12.625		0.000		12.625	67.071	91.624	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305220N: *RQ-4 UAV*	PROJECT 4020: *BAMS UAS*	

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Prior to FY10, BAMs was budgeted for in PE 0305205N: Endurance Unmanned Aer Veh

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various/ Various	Various Various	0.000	6.657	Nov 2009	10.983	Nov 2010	0.000		10.983	70.897	88.537	Continuing
Operational Test & Evaluation	Various/ Various	Not Specified Not Specified	0.000	0.000		0.000		0.000		0.000	22.949	22.949	Continuing
		Subtotal	0.000	6.657		10.983		0.000		10.983	93.846	111.486	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305220N: *RQ-4 UAV*	PROJECT 4020: *BAMS UAS*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPFF	Mitre McLean, VA	0.000	0.514	Nov 2009	1.600	Nov 2010	0.000		1.600	5.073	7.187	7.187
Program Management Support	Various/ Various	Various Various	0.000	4.598	Nov 2009	4.700	Nov 2010	0.000		4.700	14.897	24.195	Continuing
Travel	WR	Various Various	0.000	0.322	Nov 2009	0.300	Nov 2010	0.000		0.300	1.296	1.918	Continuing
		Subtotal	0.000	5.434		6.600		0.000		6.600	21.266	33.300	7.187

Remarks

Travel funding vehicle type is TO.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	439.010		529.250		0.000		529.250	1,659.831	2,628.091	2,246.814

Remarks

Prior to FY10, BAMs was budgeted for in PE 0305205N: Endurance Unmanned Aer Veh.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305220N: *RQ-4 UAV*	**PROJECT** 4020: *BAMS UAS*

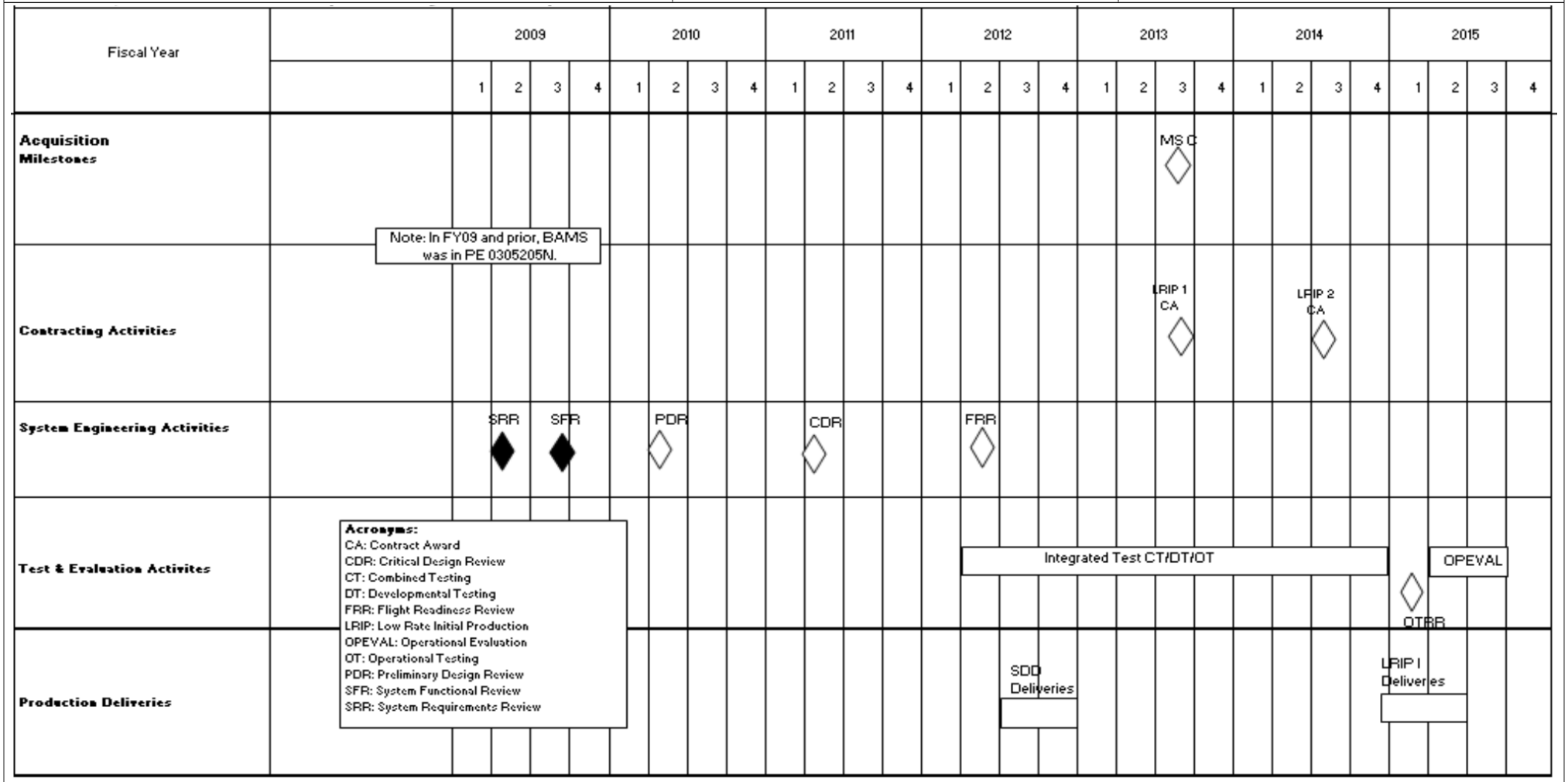

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305220N: *RQ-4 UAV*	**PROJECT** 4020: *BAMS UAS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
System Readiness Review (SRR)	2	2009	2	2009
System Functional Review (SFR)	3	2009	3	2009
Preliminary Design Review (PDR)	2	2010	2	2010
Critical Design Review (CDR)	2	2011	2	2011
Flight Readiness Review (FRR)	2	2012	2	2012
SDD Engineering Development Model (EDM) Delivery	3	2012	4	2012
Integrated Test CT/DT/OT	2	2012	4	2014
Milestone C (MS-C)	3	2013	3	2013
Low Rate Initial Production 1 (LRIP 1) CA	3	2013	3	2013
Low Rate Initial Production 2 (LRIP 2) CA	3	2014	3	2014
Low Rate Initial Production 1 (LRIP 1) Delivery	4	2014	2	2015
Operational Test Readiness Review (OTRR)	1	2015	1	2015
OPEVAL	2	2015	3	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305231N: *MQ-8 UAV*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	25.533	10.665	0.000	10.665	3.638	0.508	0.516	0.524	Continuing	Continuing
2768: *VTUAV*	0.000	25.533	10.665	0.000	10.665	3.638	0.508	0.516	0.524	Continuing	Continuing

Note

Prior to FY10, VTUAV was budgeted in PE 0305204N.

A. Mission Description and Budget Item Justification

The MQ-8 (popular name "Fire Scout") Vertical Take-off Unmanned Aerial Vehicle (VTUAV) provides real-time and non-real-time Intelligence, Surveillance and Reconnaissance (ISR) data to tactical users without the use of manned aircraft or reliance on limited joint theater or national assets. The baseline MQ-8B can accomplish missions including over-the-horizon tactical reconnaissance, classification,targeting, laser designation and battle management (including communications relay). The MQ-8 launches and recovers vertically and can operate from air capable ships, as well as confined area land bases. Other characteristics include autonomous air vehicle launch and recovery, autonomous waypoint navigation with command override capability and the incorporation of an electro-optical/infrared/ laser designator-laser range finder modular mission payload. Increment 2 is underway providing the multi-mode RADAR capability. Interoperability is achieved through the use of the Tactical Control System (TCS) software in the ground control station, and through the use of the Tactical Common Data Link (TCDL). The data from the MQ-8B will be provided through standard DoD Command, Control, Communications, Computers and Intelligence Surveillance, and Reconnaissance (C4ISR).

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305231N: *MQ-8 UAV*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	25.639	0.000	0.000	0.000
Current President's Budget	0.000	25.533	10.665	0.000	10.665
Total Adjustments	0.000	-0.106	10.665	0.000	10.665
• Congressional General Reductions		-0.106			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	10.665	0.000	10.665

Change Summary Explanation

Technical: Not applicable.

Schedule:

Acquisition milestones have been adjusted due to software and flight test delays. IOC and the completion of OT-C1 OPEVAL moved from 4Q FY09 to 2Q FY10, and the completion of VTUAV EMD moved from the end of 4Q FY09 to the end of 2Q FY10. Added Littoral Combat Ship (LCS) Integration to enable VTUAV to integrate, test and deploy onboard LCS 1&2 for the Surface Warfare, Mine Counter-Measures and Anti Submarine Warfare modules. Increment 2 Radar payload procurement starts in FY13 with Increment 2 IOC in FY15. Studies and analysis schedule updated to reflect a continuing effort vice a new start in FY10. COBRA and Radar were a spiral effort. Due to the Sub-Program designation of the Radar upgrade program, the schedule has been updated to show these programs separately. FRP moved 2 months due to delayed OPEVAL entry. Extended deliveries (LRIP II) per updated production estimates from Prime Contractor. New delivery period is from 2Q FY10 to 2Q FY11.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305231N: *MQ-8 UAV*	PROJECT 2768: *VTUAV*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2768: *VTUAV*	0.000	25.533	10.665	0.000	10.665	3.638	0.508	0.516	0.524	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The MQ-8 (popular name "Fire Scout") provides real-time and non-real-time Intelligence, Surveillance and Reconnaissance (ISR) data to tactical users without the use of manned aircraft or reliance on limited joint theater or national assets. The baseline MQ-8 can accomplish missions including over-the-horizon tactical reconnaissance, classification, targeting, laser designation and battle management (including communications relay). The MQ-8 launches and recovers vertically and can operate from air capable ships, as well as confined area land bases. Other characteristics include autonomous air vehicle launch and recovery, autonomous waypoint navigation with command override capability, and the incorporation of an electro-optical/infrared laser designator-laser range finder modular mission payload. Interoperability is achieved through the use of the Tactical Control System (TCS) software in the ground control station, and through the use of the Tactical Common Data Link (TCDL). The data from the MQ-8 will be provided through standard DoD Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance (C4ISR) system architectures and protocols.

A MQ-8 system is comprised of air vehicles, electro-optical/infrared/laser designator-rangefinder payloads, Ground Control Stations (with TCS) and Aircraft TCDL integrated for interoperability and a UAV Common Automatic Recovery System (UCARS) for automatic take-off and landings, and associated spares and support equipment. The MQ-8 system will support Surface Warfare, Mine Interdiction Warfare, and Anti-Submarine Warfare mission modules while operating onboard LCS. The System Design will also be integrated on select surface combatants that are air capable and can host MQ-8 ancillary equipment. A limited number of land-based ground control stations supplement the system to support shore-based operations, such as predeployment or acceptance functional check flights. These land-based ground control stations will also support depot level maintenance/post-maintenance activities.

Development for the program continues with Increment 2 which adds the multi-mode RADAR. Integration of the Coastal Battlefield Reconnaissance and Analysis (COBRA) payload continues. VTUAV development and testing activity will continue to support LCS development.

The U.S. Army has selected the MQ-8 as their Class IV UAV for the Future Combat Systems (FCS). Coordination with the U.S. Army FCS Program is on-going to investigate the potential cost savings for both programs where system commonalities and common logistics support can be identified.

The VTUAV program received Milestone C approval in May 2007, authorizing Low Rate Initial Production (LRIP).

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305231N: *MQ-8 UAV*	PROJECT 2768: *VTUAV*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SD&D Hardware and System Development	0.000	25.300	4.000	0.000	4.000
FY 2010 Plans: Continue incremental integration of EMD MQ-8B Air Vehicles to support the Engineering and Manufacturing Development (EMD) program. Continue integration of MQ-8B Increment 2. Continue combined developmental and operational testing of increment 2. Continue integration of the Coastal Battlefield Reconnaissance and Analysis (COBRA) payload. Continue to support LCS integration.					
FY 2011 Base Plans: Continue incremental integration of EMD MQ-8B Air Vehicles to support the Engineering and Manufacturing Development (EMD) program. Continue integration of MQ-8B Increment 2. Continue combined developmental and operational testing of increment 2. Continue integration of the Coastal Battlefield Reconnaissance and Analysis (COBRA) payload. Continue to support LCS integration.					
Development Testing	0.000	0.137	3.103	0.000	3.103
FY 2010 Plans: Continue incremental integration of EMD MQ-8B Air Vehicles to support the Engineering and Manufacturing Development (EMD) program. Continue testing of the VTUAV system and complete OPEVAL. Continue LCS integration efforts.					
FY 2011 Base Plans: Start increment 2 testing of the VTUAV system. Transition to start OPEVAL in FY12. Continue LCS integration efforts.					
Engineering and Technical Services	0.000	0.096	3.562	0.000	3.562

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305231N: *MQ-8 UAV*	PROJECT 2768: *VTUAV*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue incremental integration of EMD MQ-8B Air Vehicles to support the Engineering and Manufacturing Development (EMD) program. Continue engineering management, program technical management, and management support for the VTUAV system. These include transportation of system assets, program office personnel travel, and contract support services. Continue to support LCS integration and Increment 2 testing. *FY 2011 Base Plans:* Continue engineering management, program technical management, and management support for the VTUAV system. These include transportation of system assets, program office personnel travel, and contract support services. Continue to support LCS integration and Increment 2 testing.					
Accomplishments/Planned Programs Subtotals	0.000	25.533	10.665	0.000	10.665

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDTEN, 0305204N: *Tactical Unmanned Aerial Vehicles*	22.514	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	562.137
• APN, 044300: *MQ-8 UAV*	50.189	90.777	47.484	0.000	47.484	46.242	67.442	89.553	89.485	1,309.849	1,865.872
• APN, 060510: *MQ-8 UAV Spares*	6.894	2.333	3.488	0.000	3.488	0.982	2.300	0.734	0.744	127.184	158.650

D. Acquisition Strategy

Continue incremental integration of EMD MQ-8B Air Vehicles to support the Engineering and Manufacturing Development (EMD) program. Continue the MQ-8 program, Increment 2 and LCS integration support. FRP and IOC will follow completion of OPEVAL.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305231N: *MQ-8 UAV*	**PROJECT** 2768: *VTUAV*

E. Performance Metrics

Successfully achieve Initial Operational Capability. Successfully continue COBRA Integration. Successfully continue Radar Sensor Integration. Successfully continue LCS Ship Integration. Successfully complete Operational Test.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305231N: *MQ-8 UAV*	PROJECT 2768: *VTUAV*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/FFP	Northrop Grumman Corp San Diego, CA	0.000	25.300	Nov 2009	0.000		0.000		0.000	0.000	25.300	25.300
Primary Hardware Development	SS/FFP	Raytheon Corp Falls Church, VA	0.000	0.000		4.000	Apr 2010	0.000		4.000	0.000	4.000	4.000
		Subtotal	0.000	25.300		4.000		0.000		4.000	0.000	29.300	29.300

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	Various/ Various	Various Various	0.000	0.000		2.462	Nov 2010	0.000		2.462	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		2.462		0.000		2.462			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305231N: *MQ-8 UAV*	PROJECT 2768: *VTUAV*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	WR	NAWCAD PAXRV, MD	0.000	0.050	Nov 2009	3.103	Nov 2010	0.000		3.103	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	NAWCWD PAXRV,MD	0.000	0.087	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	0.137		3.103		0.000		3.103			

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCWD China Lake, CA	0.000	0.036	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWCAD PAXRV, MD	0.000	0.030	Nov 2009	0.700	Nov 2010	0.000		0.700	Continuing	Continuing	Continuing
Program Management Support	Various/ Various	Various Various	0.000	0.000		0.370	Nov 2010	0.000		0.370	Continuing	Continuing	Continuing
Travel	WR	NAVAIR PAXRV, MD	0.000	0.030	Oct 2009	0.030	Oct 2010	0.000		0.030	Continuing	Continuing	Continuing
		Subtotal	0.000	0.096		1.100		0.000		1.100			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305231N: *MQ-8 UAV*	PROJECT 2768: *VTUAV*	

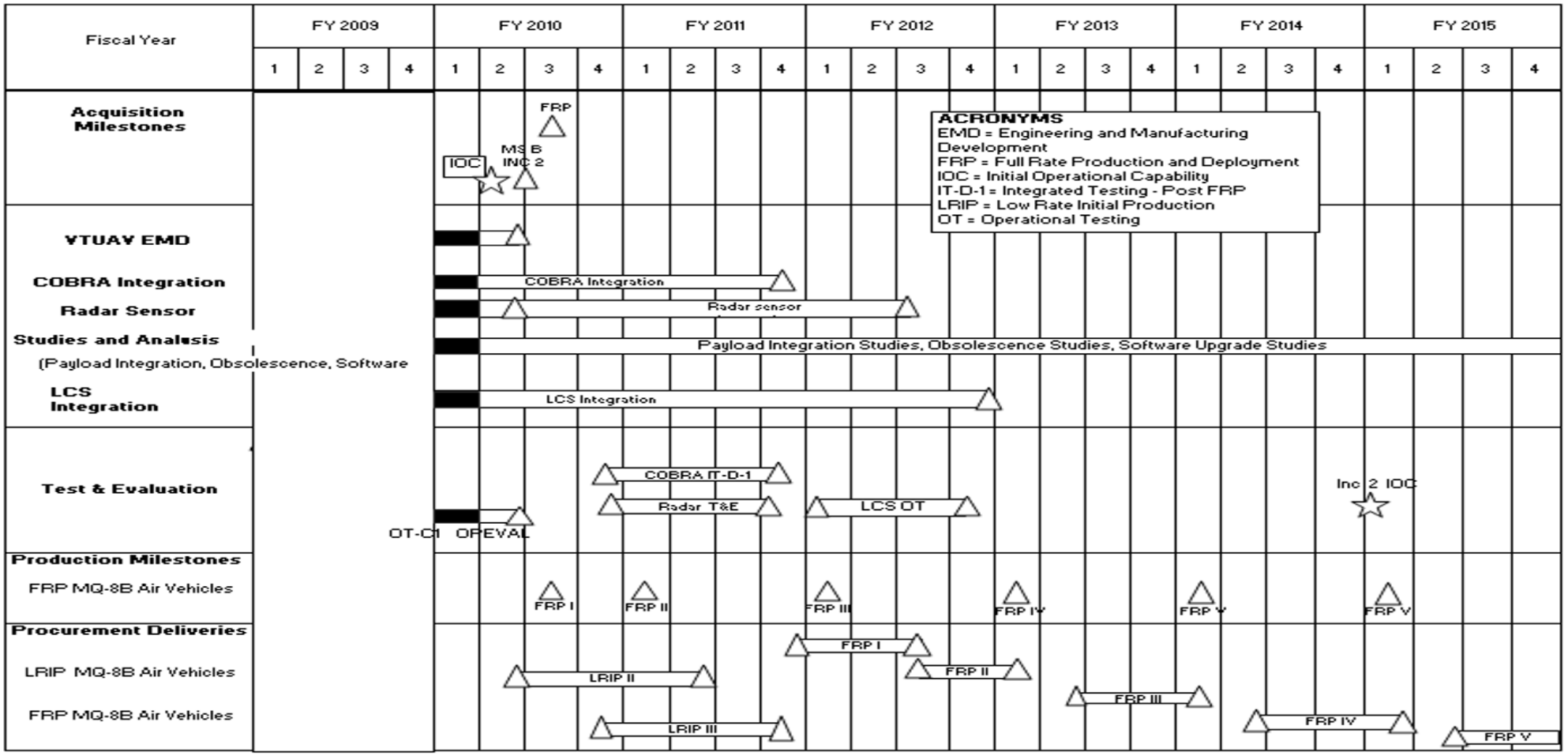
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks Travel contract type is TO.													

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	25.533		10.665		0.000		10.665			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305231N: *MQ-8 UAV*	**PROJECT** 2768: *VTUAV*



Remarks: Prior to FY10, VTUAV was budgeted for in PE 0305204N.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305231N: *MQ-8 UAV*	PROJECT 2768: *VTUAV*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Acquisition Milestones	1	2010	4	2015
- Initial Operational Capability (IOC)	2	2010	2	2010
- MS B Inc 2	3	2010	3	2010
- Full Rate Production	3	2010	3	2010
- VTUAV EMD	1	2009	2	2010
- COBRA Integration	1	2010	4	2011
- Radar Sensor Integration	1	2010	3	2012
- Radar Sensor Integration Award	2	2010	2	2010
- Studies & Analysis	1	2010	4	2015
- LCS Integration	1	2010	4	2012
Test & Evaluation Milestones	1	2010	4	2015
- OT-C1 OPEVAL	1	2010	2	2010
- COBRA IT-D-1	4	2010	4	2011
- Radar T&E	4	2010	4	2011
- LCS OT	1	2012	4	2012
- Inc 2 IOC	1	2015	1	2015
FRP Contract awards (I-IV)	3	2010	1	2015
Delivery	1	2010	4	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305231N: *MQ-8 UAV*	PROJECT 2768: *VTUAV*

	Start		End	
Event	Quarter	Year	Quarter	Year
- Air Vehicles - FY08 LRIP II	2	2010	2	2011
- Air Vehicles - FY09 LRIP III	4	2010	4	2011
- Air Vehicles - FRP I	4	2011	3	2012
- Air Vehicles - FRP II	3	2012	1	2013
- Air Vehicles - FRP III	2	2013	1	2014
- Air Vehicles - FRP IV	2	2014	1	2015
- Air Vehicles - FRP V	2	2015	4	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy											DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305232M: *RQ-11 UAV*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.551	0.512	0.000	0.512	1.021	1.052	1.076	1.099	Continuing	Continuing
2272: *Intel Command and Control (C2) Sys*	0.000	0.551	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.551
2292: *RQ-11 UAV*	0.000	0.000	0.512	0.000	0.512	1.021	1.052	1.076	1.099	Continuing	Continuing

Note

In FY 2009 and prior, RQ-11 Unmanned Aerial Vehicle (UAV) was funded in PE 0206313M, C2273. Project will be funded in PE 0305232M C2292 for FY 2011 and out.

A. Mission Description and Budget Item Justification

(U) Intelligence Command and Control (C2) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that all-source tactical intelligence is tailored to meet specific mission requirements. The systems below collect and convert raw intelligence data on the battlefield into processed information and deliver the processed products to the Intelligence Analysis Systems (IAS) for analysis and dissemination.

GROUP 1 (formerly known as TIER I UAS) - The Program Office is pursuing a rapid acquisition approach to quickly field new technology and capabilities to the warfighter. The strategy is to use evolutionary acquisition with two incremental developments to meet the final desired Small Unit Remote Scouting System (SURSS) requirements (Joint USMC/USA/SOCOM capabiities). The SURSS Block 0, Dragon Eye, was the first increment and is currently fielded to deployed units. For the Block 1 increment the USMC adopted the USSOCOM Rucksack Portable UAV (RPUAV) ORD, which meets the USMC's requirement and began migrating to the joint materiel solution, the Raven B.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305232M: *RQ-11 UAV*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	0.553	0.000	0.000	0.000
Current President's Budget	0.000	0.551	0.512	0.000	0.512
Total Adjustments	0.000	-0.002	0.512	0.000	0.512
• Congressional General Reductions		-0.002			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	0.512	0.000	0.512

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305232M: *RQ-11 UAV*	PROJECT 2272: *Intel Command and Control (C2) Sys*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2272: *Intel Command and Control (C2) Sys*	0.000	0.551	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.551
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) Intelligence Command and Control (C2) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that all-source tactical intelligence is tailored to meet specific mission requirements. The systems below collect and convert raw intelligence data on the battlefield into processed information and deliver the processed products to the Intelligence Analysis Systems (IAS) for analysis and dissemination.

GROUP 1 (formerly known as TIER I UAS) - The Program Office is pursuing a rapid acquisition approach to quickly field new technology and capabilities to the warfighter. The strategy is to use evolutionary acquisition with two incremental developments to meet the final desired Small Unit Remote Scouting System (SURSS) requirements (Joint USMC/USA/SOCOM capabiities). The SURSS Block 0, Dragon Eye, was the first increment and is currently fielded to deployed units. For the Block 1 increment the USMC adopted the USSOCOM Rucksack Portable UAV (RPUAV) ORD, which meets the USMC's requirement and began migrating to the joint materiel solution, the Raven B.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program Management Support	0.000	0.551	0.000	0.000	0.000
FY 2010 Plans: To fund Tactical Network Sensor Suite (TNS2) program. This initiative supports the experimentation, integration and product enhancement of the Marine Corps UAS program, communications hardware and C2 software.					
Accomplishments/Planned Programs Subtotals	0.000	0.551	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305232M: *RQ-11 UAV*	PROJECT 2272: *Intel Command and Control (C2) Sys*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/4747: *Tier I UAS*	15.348	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.348
• PMC/4640: *Tier I UAS*	0.000	3.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.021
• PMC/4757: *Tier I UAS*	0.000	41.492	6.189	0.000	6.189	5.445	4.529	4.787	4.576	0.000	67.018

D. Acquisition Strategy

The Program Office is pursuing a rapid acquisition approach to quickly field new technology and capabilities to the warfighter. The strategy is to use evolutionary acquisition with two incremental developments to meet the final desired Small Unit Remote Scouting System (SURSS) requirements (Joint USMC/USA/SOCOM capabiities).

E. Performance Metrics

Fielded joint material solution.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305232M: *RQ-11 UAV*	PROJECT 2292: *RQ-11 UAV*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2292: *RQ-11 UAV*	0.000	0.000	0.512	0.000	0.512	1.021	1.052	1.076	1.099	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Intelligence Command and Control (C2) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that all-source tactical intelligence is tailored to meet specific mission requirements. The systems below collect and convert raw intelligence data on the battlefield into processed information and deliver the processed products to the Intelligence Analysis Systems (IAS) for analysis and dissemination.

GROUP 1 (formerly known as TIER I UAS) - The Program Office is pursuing a rapid acquisition approach to quickly field new technology and capabilities to the warfighter. The strategy is to use evolutionary acquisition with two incremental developments to meet the final desired Small Unit Remote Scouting System (SURSS) requirements (Joint USMC/USA/SOCOM capabiities). The SURSS Block 0, Dragon Eye, was the first increment and is currently fielded to deployed units. For the Block 1 increment the USMC adopted the USSOCOM Rucksack Portable UAV (RPUAV) ORD, which meets the USMC's requirement and began migrating to the joint materiel solution, the Raven B.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program Management Support	0.000	0.000	0.512	0.000	0.512
FY 2011 Base Plans: To fund Tactical Network Sensor Suite (TNS2) program. This initiative supports the experimentation, integration and product enhancement of the Marine Corps Unmanned Areial System (UAS) program, communications hardware and Command and Control (C2) software.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.512	0.000	0.512

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305232M: *RQ-11 UAV*	PROJECT 2292: *RQ-11 UAV*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/4747: *Tier I UAS*	15.348	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.348
• PMC/4640: *Tier I UAS*	0.000	3.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.021
• PMC/4757: *Tier I UAS*	0.000	41.492	6.189	0.000	6.189	5.445	4.529	4.787	4.576	0.000	67.018

D. Acquisition Strategy

The Program Office is pursuing a rapid acquisition approach to quickly field new technology and capabilities to the warfighter. The strategy is to use evolutionary acquisition with two incremental developments to meet the final desired Small Unit Remote Scouting System (SURSS) requirements (Joint USMC/USA/SOCOM capabiities).

E. Performance Metrics

Fielded joint material solution.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305233N: *RQ-7 UAV*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.982	0.934	6.900	7.834	0.928	0.928	0.931	0.932	Continuing	Continuing
9156: *Wide Focal Plane Array Camera (WFPAC)*	0.000	0.000	0.000	6.900	6.900	0.000	0.000	0.000	0.000	0.000	6.900
9C84: *MCTUAS*	0.000	0.982	0.934	0.000	0.934	0.928	0.928	0.931	0.932	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element supports additional capability development for the RQ-7 Shadow non-lethal joint tactical UAV system for DoD to provide the warfighter with the capability for day/night aerial Reconnaissance, Surveillance and Target Acquisition (RSTA); intelligence; battle damage assessment and force protection.

FY 2011 request includes $6.9M in OCO funds for Wide Focal Plane Array Camera (WFPAC) in support of OEF-Afghanistan.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	0.986	0.000	0.000	0.000
Current President's Budget	0.000	0.982	0.934	6.900	7.834
Total Adjustments	0.000	-0.004	0.934	6.900	7.834
• Congressional General Reductions		-0.004			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	0.934	0.000	0.934
• Rate/Misc Adjustments	0.000	0.000	0.000	6.900	6.900

Change Summary Explanation

Technical: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305233N: *RQ-7 UAV*

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305233N: *RQ-7 UAV*	PROJECT 9156: *Wide Focal Plane Array Camera (WFPAC)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9156: *Wide Focal Plane Array Camera (WFPAC)*	0.000	0.000	0.000	6.900	6.900	0.000	0.000	0.000	0.000	0.000	6.900
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

This is a new start OCO request for $6.9M in FY 2011.

A. Mission Description and Budget Item Justification

Program completes development, testing, integration and initial procurement of a Wide Focal Plane Array Camera (WFPAC) sensor for the RQ-7 Shadow UAS in support of OEF-Afghanistan. The Office of Naval Research is leading the development and funding the low rate initial procurement. These funds will support the test and integration efforts for the Marine Corps Shadow systems.

The WFPAC sensor enhancement will address the Marine Expeditionary Brigade's near-term organic persistent Intelligence, Surveillance and Reconnaissance (ISR) requirement in Afghanistan as well as provide an enduring capability in a reduced form factor tactical UAS sensor.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Wide Focal Plane Array Camera Sensor	0.000	0.000	0.000	6.900	6.900
FY 2011 Base Plans: N/A *FY 2011 OCO Plans:* Funding will support integration and testing of the Wide Focal Plane Array Camera (WFPAC) Sensor on the RQ-7 Shadow UAS.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000	6.900	6.900

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305233N: *RQ-7 UAV*	PROJECT 9156: *Wide Focal Plane Array Camera (WFPAC)*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

TBD.

E. Performance Metrics

TBD.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305233N: *RQ-7 UAV*	PROJECT 9156: *Wide Focal Plane Array Camera (WFPAC)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integration and Testing	WR	NAWCAD Pax River, MD	0.000	0.000		0.000		6.900		6.900	0.000	6.900	Continuing
		Subtotal	0.000	0.000		0.000		6.900		6.900	0.000	6.900	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		6.900		6.900	0.000	6.900	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305233N: *RQ-7 UAV*	PROJECT 9156: *Wide Focal Plane Array Camera (WFPAC)*

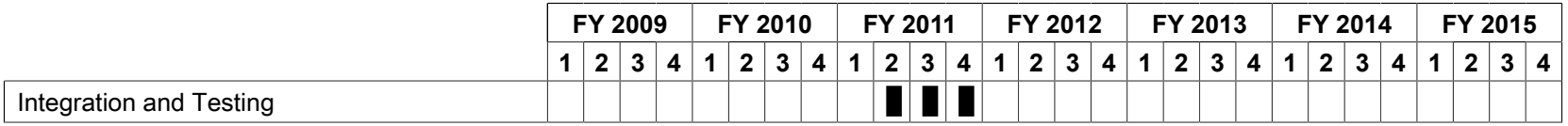


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305233N: *RQ-7 UAV*	PROJECT 9156: *Wide Focal Plane Array Camera (WFPAC)*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Integration and Testing	2	2011	4	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305233N: *RQ-7 UAV*	PROJECT 9C84: *MCTUAS*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9C84: *MCTUAS*	0.000	0.982	0.934	0.000	0.934	0.928	0.928	0.931	0.932	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This Marine Corps Tactical Unmanned Aircraft System (MCTUAS) Project supports the fielded RQ-7 system by conducting research, development, test, and evaluation for improvement of the RQ-7 capabilities in Reconnaissance, Surveillance and Target Acquisition, Intelligence, Battle Damage Assessment and Force Protection. The RQ-7 provides critical battlefield intelligence and targeting information in the rapid cycle time required for success at the tactical level.

RQ-7B MCTUAS systems are acquired through the Army's UAS Program Office to fulfill Marine Corps UAS requirements. In order to optimize Marine Corps and Army's interoperability, maintenance, and capability with minimal cost, the two services plan to develop additional capability for the common system. These funds will provide the Marine Corps share of the combined development cost.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MCTUAS Development Support	0.000	0.982	0.934	0.000	0.934
Joint development efforts with US Army RQ-7 Shadow Program and associated government engineering support for block upgrades required for continued improvement and interoperability.					
FY 2010 Plans:					
The RQ-7 MCTUAS program will benefit and share in cost for the following upgrades: Common Systems Integration is required to ensure interoperability with other weapon systems, manned and unmanned. Included in this category is Universal Ground Control Station (UGCS), Trainer upgrades and One System Remote Video Transceiver (OSRVT) and Advance Payloads. Small Sense and Avoid System (SSAASy) is required to meet the requirement for a traffic alert and collision avoidance system and to allow for operations in the National Airspace (NAS). Rolling Take Off and Launch and					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305233N: *RQ-7 UAV*	PROJECT 9C84: *MCTUAS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Land Heavier Air Vehicle (LALHAV) is required to improve reliability and provides redundant take off capability for the system. FY10 funds the Marine Corps share of the combined development cost. Also funding for Government Engineering Support. *FY 2011 Base Plans:* FY11 funding continues development efforts and Government Engineering Support begun in FY10.					
Accomplishments/Planned Programs Subtotals	0.000	0.982	0.934	0.000	0.934

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• WPN/422700: *MCTUAS*	20.471	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.471
• APN/044100: *RQ-7 UAV*	0.000	51.372	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	51.372
• APN/058900: *RQ-7 UAV*	0.000	0.000	18.121	8.000	26.121	11.585	11.702	11.964	8.525	Continuing	Continuing

D. Acquisition Strategy

Sole source engineering development services contract with AAI through Army PM UAS.

E. Performance Metrics

Attainment of targeted development effort improvement upgrades improving operational capability of the RQ-7 UAV (MCTUAS).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	18.685	26.209	0.000	26.209	16.864	22.764	11.546	9.657	Continuing	Continuing
2272: *Intel Command and Control (C2) Sys*	0.000	18.685	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.685
2298: *SMALL (LEVEL 0) TACTICAL UAS (STUAL0)*	0.000	0.000	26.209	0.000	26.209	16.864	22.764	11.546	9.657	Continuing	Continuing

A. Mission Description and Budget Item Justification

Intelligence Command and Control (C2) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that all-source tactical intelligence is tailored to meet specific mission requirements. The systems below collect and convert raw intelligence data on the battlefield into processed information and deliver the processed products to the Intelligence Analysis Systems (IAS) for analysis and dissemination.

TIER II - This is a combined Navy (PE 0305204N) and Marine Corps (PE 0206313M and 0305234M) budget submission. The Tier II/UAS will provide persistent, Intelligence, Surveillance, and Reconnaissance (ISR) support for tactical level maneuver decisions and unit level force defense/force protection for Navy ships and Marine Corps land forces. This system will fill the ISR capability shortfalls identified by the Navy Small Tactical Unmanned Aircraft System (STUAS) and Marine Corps Tier II UAS efforts. Consisting of four air vehicles, two ground control stations, multiple payloads, and associated launch, recovery and support equipment, this system will support the Navy missions including building the Recognized Maritime Picture, Maritime Security Operations, Maritime Interdiction Operations, and support of Navy units operating from sea/shore and the Marine Corps close range (<50 nautical miles (nm)) UAS enabling enhanced decision-making and improved integration with ground schemes of maneuver. This submission is the Marine Corps portion of the program and has been coordinated with the Navy budget submission PE 0305204N.

This program was in PE 0206313M project 2273 until FY 2009.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	18.763	0.000	0.000	0.000
Current President's Budget	0.000	18.685	26.209	0.000	26.209
Total Adjustments	0.000	-0.078	26.209	0.000	26.209
• Congressional General Reductions		-0.078			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	26.209	0.000	26.209

Change Summary Explanation

WIPEB (Warfighting Investment Program Evaluation Board) PR (Program Review) $16M funding increase to support the program as a result of reprioritization of Navy RDT&E funding and funding for ship design and integration.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2272: *Intel Command and Control (C2) Sys*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2272: *Intel Command and Control (C2) Sys*	0.000	18.685	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.685
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

This project will be funded under project C2298 in FY2011 and beyond.

A. Mission Description and Budget Item Justification

(U) Intelligence Command and Control (C2) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that all-source tactical intelligence is tailored to meet specific mission requirements. The systems below collect and convert raw intelligence data on the battlefield into processed information and deliver the processed products to the Intelligence Analysis Systems (IAS) for analysis and dissemination.

TIER II - This is a combined Navy (PE 0305204N) and Marine Corps (PE 0206313M and 0305234M) budget submission. The Tier II/UAS will provide persistent, Intelligence, Surveillance, and Reconnaissance (ISR) support for tactical level maneuver decisions and unit level force defense/force protection for Navy ships and Marine Corps land forces. This system will fill the ISR capability shortfalls identified by the Navy Small Tactical Unmanned Aircraft System (STUAS) and Marine Corps Tier II UAS efforts. Consisting of four air vehicles, two ground control stations, multiple payloads, and associated launch, recovery and support equipment, this system will support the Navy missions including building the Recognized Maritime Picture, Maritime Security Operations, Maritime Interdiction Operations, and support of Navy units operating from sea/shore and the Marine Corps close range (<50 nautical miles (nm)) UAS enabling enhanced decision-making and improved integration with ground schemes of maneuver. This submission is the Marine Corps portion of the program and has been coordinated with the Navy budget submission PE 0305204N.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Tier II UAS: Marine Corps C4I Integration	0.000	1.345	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2272: *Intel Command and Control (C2) Sys*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: MCTSSA (Marine Corps Tactical Systems Support Activity) TSO (Technical Support Office) and to establish a Help Desk. Engineering, Manufacturing and Development Contract with Low Rate Initial Production (LRIP) and Early Operational Capability (EOC) Options awarded. Preliminary Design Review (PDR) held. Initial Operational Assessment and Development Testing completed as part of IT B1 test phase.					
Tier II UAS: Development Command Support *FY 2010 Plans:* MCCDC (Marine Corps Combat Development Center) support to complete JCIDS (Joint Capabilities Integration and Development System) documentation.	0.000	0.640	0.000	0.000	0.000
Tier II UAS: Test Community Support *FY 2010 Plans:* MCOTEA (Marine Corps Operational Test and Evaluation Activity) support to observe Testing and Evaluation and complete TEMP (Test & Evaluation Master Plan).	0.000	0.220	0.000	0.000	0.000
Tier II UAS: Navy Program Management Support *FY 2010 Plans:* NAVAIR contract award and program management support.	0.000	15.470	0.000	0.000	0.000
Tier II UAS: Program Management Support *FY 2010 Plans:* MCSC (Marine Corps Systems Command) program management and CEOSS (Commercial Enterprise Omnibus Support Services) support.	0.000	1.010	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	18.685	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2272: *Intel Command and Control (C2) Sys*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/4757: *TIER II*	0.000	0.000	26.301	0.000	26.301	39.343	67.893	65.071	67.106	Continuing	Continuing

D. Acquisition Strategy

The program office expects to utilize a competitive acquisition approach to quickly field a capability with limited development. Spiral development will be utilized to field a system fully compliant with documented requirements.

E. Performance Metrics

Down select to final solution.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2272: *Intel Command and Control (C2) Sys*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Tier II	WR	MCTSSA San Diego, CA	0.000	0.184	Mar 2010	0.000		0.000		0.000	0.000	0.184	Continuing
		Subtotal	0.000	0.184		0.000		0.000		0.000	0.000	0.184	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Tier II	C/FP	Eagan Mcallister Lexington park, MD	0.000	0.640	Mar 2010	0.000		0.000		0.000	0.000	0.640	Continuing
		Subtotal	0.000	0.640		0.000		0.000		0.000	0.000	0.640	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2272: *Intel Command and Control (C2) Sys*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Tier II	Various/ TBD	Not Specified Not Specified	0.000	0.220	Mar 2010	0.000		0.000		0.000	0.000	0.220	Continuing
		Subtotal	0.000	0.220		0.000		0.000		0.000	0.000	0.220	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Tier II	C/FP	QNA Stafford, VA	0.000	1.010	Mar 2010	0.000		0.000		0.000	0.000	1.010	Continuing
Tier II	WR	MCSC Quantico, VA	0.000	0.978	Mar 2010	0.000		0.000		0.000	0.000	0.978	Continuing
Tier II	C/TBD	TBD Navy PMA-263	0.000	15.470	Mar 2010	0.000		0.000		0.000	0.000	15.470	Continuing
Tier II	WR	NSWC Dahlgren, VA	0.000	0.183	Nov 2009	0.000		0.000		0.000	0.000	0.183	Continuing
		Subtotal	0.000	17.641		0.000		0.000		0.000	0.000	17.641	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2272: *Intel Command and Control (C2) Sys*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	18.685		0.000		0.000		0.000	0.000	18.685	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2272: *Intel Command and Control (C2) Sys*

STUAS/TIER II
Program Schedule

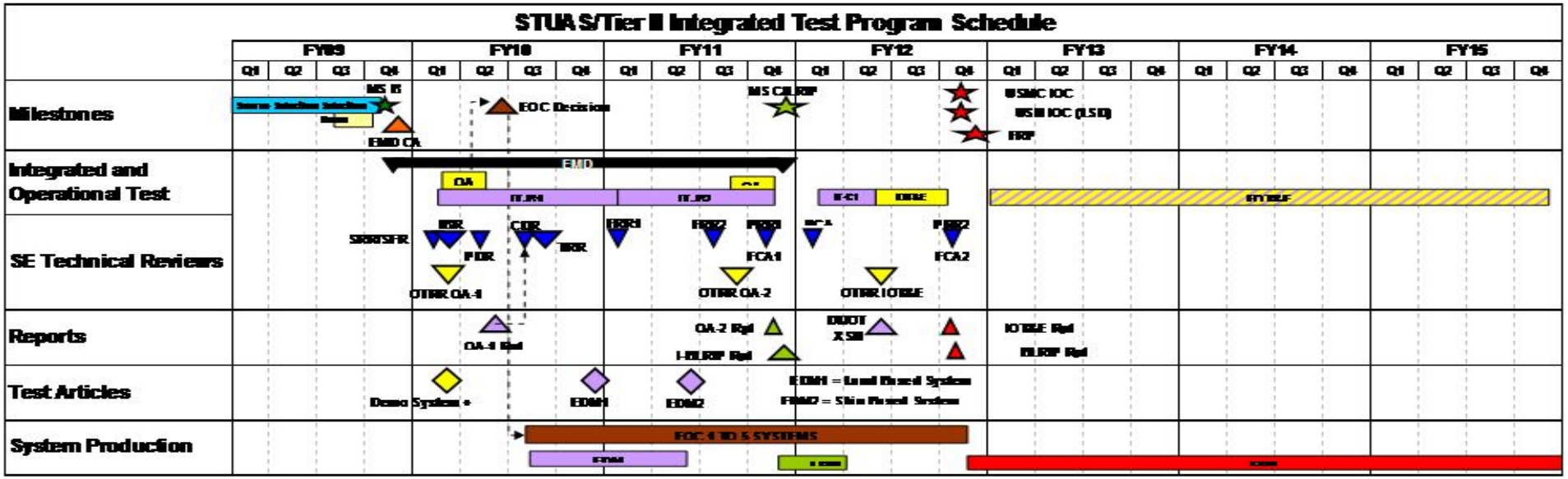

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	**PROJECT** 2272: *Intel Command and Control (C2) Sys*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Milestone B	4	2009	4	2009
Milestone C	4	2011	4	2011
Marine Corps IOC	4	2012	4	2012
Navy IOC	4	2012	4	2012
Ship Integration	1	2011	4	2013

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2298: *SMALL (LEVEL 0) TACTICAL UAS (STUAL0)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2298: *SMALL (LEVEL 0) TACTICAL UAS (STUAL0)*	0.000	0.000	26.209	0.000	26.209	16.864	22.764	11.546	9.657	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) Intelligence Command and Control (C2) supports the employment of reconnaissance, surveillance, and target acquisition resources and the timely planning and processing of all-source intelligence. It ensures that all-source tactical intelligence is tailored to meet specific mission requirements. The systems below collect and convert raw intelligence data on the battlefield into processed information and deliver the processed products to the Intelligence Analysis Systems (IAS) for analysis and dissemination.

TIER II - This is a combined Navy (PE#0305204N) and Marine Corps (PEs#0206313M/#0305234M) budget submission. The Tier II/UAS will provide persistent, Intelligence, Surveillance, and Reconnaissance (ISR) support for tactical level maneuver decisions and unit level force defense/force protection for Navy ships and Marine Corps land forces. This system will fill the ISR capability shortfalls identified by the Navy Small Tactical Unmanned Aircraft System (STUAS) and Marine Corps Tier II UAS efforts. Consisting of four air vehicles, two ground control stations, multiple payloads, and associated launch, recovery and support equipment, this system will support the Navy missions including building the Recognized Maritime Picture, Maritime Security Operations, Maritime Interdiction Operations, and support of Navy units operating from sea/shore in OCO and the Marine Corps close range (<50 nautical miles (nm)) UAS enabling enhanced decision-making and improved integration with ground schemes of maneuver. This submission is the Marine Corps portion of the program and has been coordinated with the Navy budget submission PE# 0305204N. This program was moved to P.E. 0305234M in FY10 and beyond.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*Tier II UAS: Marine Corps C4I Integration	0.000	0.000	1.735	0.000	1.735
FY 2011 Base Plans: EOC (Early Operational Capability) option exercised. One (1) to Five (5) systems fielded. Engineering Development Model (EDM) one (1) delivered for Developmental Testing for IT B2 test phase.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2298: *SMALL (LEVEL 0) TACTICAL UAS (STUAL0)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
*Tier II UAS: Development Command Support *FY 2011 Base Plans:* EOC (Early Operational Capability) option exercised. One (1) to Five (5) systems fielded. Engineering Development Model (EDM) one (1) delivered for Developmental Testing for IT B2 test phase.	0.000	0.000	0.650	0.000	0.650
*Tier II UAS: Test Community Support *FY 2011 Base Plans:* MCOTEA (Marine Corps Operational Test & Evaluation Activity) Test & Evaluation of performer.	0.000	0.000	0.230	0.000	0.230
*Tier II UAS: Navy Program Management Support *FY 2011 Base Plans:* NAVAIR Product development and program management support.	0.000	0.000	22.574	0.000	22.574
*Tier II UAS: Program Management Support *FY 2011 Base Plans:* MCSC (Marine Corps Systems Command) program management and CEOSS (Commercial Enterprise Omnibus Support Services) support.	0.000	0.000	1.020	0.000	1.020
Accomplishments/Planned Programs Subtotals	0.000	0.000	26.209	0.000	26.209

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PMC/4757: *TIER II*	0.000	0.000	26.301	0.000	26.301	39.343	67.893	65.071	67.106	Continuing	Continuing

D. Acquisition Strategy

The program office expects to utilize a competitive acquisition approach to quickly field a capability with limited development. Spiral development will be utilized to field a system fully compliant with documented requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2298: *SMALL (LEVEL 0) TACTICAL UAS (STUAL0)*

E. Performance Metrics

Down select to final solution.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2298: *SMALL (LEVEL 0) TACTICAL UAS (STUAL0)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Tier II	WR	MCTSSA San Diego, CA	0.000	0.000		0.194	Mar 2010	0.000		0.194	0.000	0.194	Continuing
		Subtotal	0.000	0.000		0.194		0.000		0.194	0.000	0.194	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Tier II	C/FP	Eagan Mcallister Lexington Park. MD	0.000	0.000		0.527	Mar 2010	0.000		0.527	0.000	0.527	Continuing
		Subtotal	0.000	0.000		0.527		0.000		0.527	0.000	0.527	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2298: *SMALL (LEVEL 0) TACTICAL UAS (STUAL0)*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Tier II	Various/ Various	TBD TBD	0.000	0.000		0.230	Mar 2010	0.000		0.230	0.000	0.230	Continuing
		Subtotal	0.000	0.000		0.230		0.000		0.230	0.000	0.230	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Tier II	Various/ Various	QNA Stafford, VA	0.000	0.000		1.020	Mar 2010	0.000		1.020	0.000	1.020	Continuing
Tier II	WR	MCSC Quantico, VA	0.000	0.000		1.357	Mar 2010	0.000		1.357	0.000	1.357	Continuing
Tier II	Various/ TBD	Navy PMA-263	0.000	0.000		22.697	Mar 2010	0.000		22.697	0.000	22.697	Continuing
Tier II	WR	NSWC Dahlgren, VA	0.000	0.000		0.184	Nov 2009	0.000		0.184	0.000	0.184	Continuing
		Subtotal	0.000	0.000		25.258		0.000		25.258	0.000	25.258	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2298: *SMALL (LEVEL 0) TACTICAL UAS (STUAL0)*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		26.209		0.000		26.209	0.000	26.209	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2298: *SMALL (LEVEL 0) TACTICAL UAS (STUAL0)*

STUAS/TIER II Program Schedule

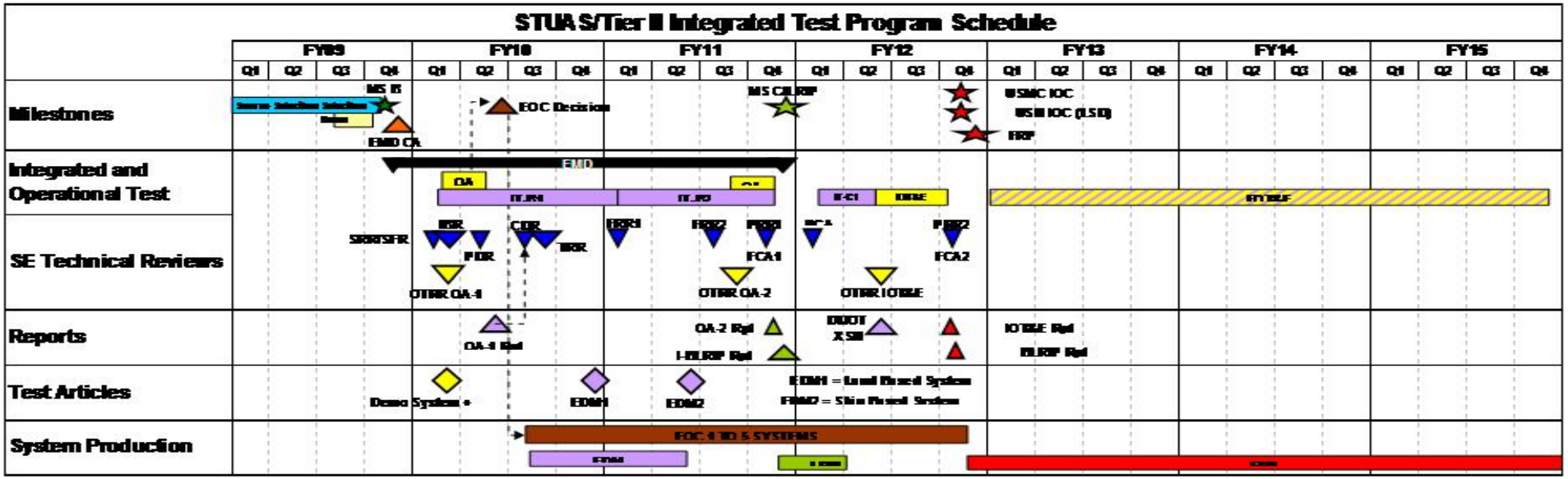

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305234M: *Small (LEVEL 0) Tactical UAS (STUASL0)*	**PROJECT** 2298: *SMALL (LEVEL 0) TACTICAL UAS (STUAL0)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Milestone B	4	2009	4	2009
Milestone C	4	2011	4	2011
Marine Corps IOC	4	2012	4	2012
Navy IOC	4	2012	4	2012
Amphib Ship Integration	1	2011	4	2013

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	23.496	18.098	0.000	18.098	12.603	5.740	5.869	5.992	Continuing	Continuing
2787: *STUAS Lite*	0.000	4.979	5.388	0.000	5.388	0.000	0.000	0.000	0.000	0.000	10.367
3192: *STUAS*	0.000	18.517	12.710	0.000	12.710	12.603	5.740	5.869	5.992	Continuing	Continuing

Note

STUAS Lite is a new start effort beginning FY 2010.

A. Mission Description and Budget Item Justification

This PE includes STUAS and the new start STUAS-Lite non-lethal joint tactical UAV systems for DoD to provide Persistent Intelligence, Surveillance and Reconnaissance / Target Acquisition (ISR/TA) which will fill the capability gap in ISR services available to Fleet and Marine forces.

FY09 and prior, STUAS is funded under PE 0305204N.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	23.594	0.000	0.000	0.000
Current President's Budget	0.000	23.496	18.098	0.000	18.098
Total Adjustments	0.000	-0.098	18.098	0.000	18.098
• Congressional General Reductions		-0.098			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	18.098	0.000	18.098

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*

Change Summary Explanation

Technical: Not applicable.

Schedule:

STUAS Lite - Pre Milestone Activities for this new start effort has been updated following the approval of FY10 appropriation. Operational Test and Evaluation starts 3Q FY11.

STUAS - System Development and Demonstration changed terminology to Engineering, Manufacturing and Development per DOD Inst 5000.02. Schedule changed due to delay in the on-going source selection for the EMD contract.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2787: *STUAS Lite*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2787: *STUAS Lite*	0.000	4.979	5.388	0.000	5.388	0.000	0.000	0.000	0.000	0.000	10.367
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Small Tactical Unmanned Aircraft System - Lite (STUAS-Lite) is a FY10 new start program that integrates a Commercial-Off-The-Shelf (COTS) system onto Navy surface combatant (multi-ship classes) vessels and will provide Persistent Intelligence, Surveillance, and Reconnaissance/Target Acquisition (ISR/TA) support for tactical level maneuver decisions and unit level force defense/force protection for surface combatant ships and Naval expeditionary forces. This system will fill the ISR capability shortfalls currently filled by the ISR services contracts. This system will support Naval Missions such as building the Recognized Maritime Picture, Maritime Security Operations, Maritime Interdiction Operations, and Naval Units operating from sea/shore in support of Overseas Contingency Operations.

Operational Test Assets consists of one air vehicle to be used in identifying and assessing reliability issues.

A notional system consists of four air vehicles, ground control station(s), multi-mission (plug-and-play) payloads, and associated launch, recovery and support equipment.

This project will continue to evolve and upgrade STUAS Lite capabilities to satisfy capabilities shortfalls, new requirements, and reliability, maintainability, and safety issues. Upgraded capabilities may include Navy C2 integration, Signals Intelligence, Synthetic Aperture Radar payloads and weapons integration.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Engineering and Technical Services	0.000	4.979	5.388	0.000	5.388
The Prime System Contractor will be responsible for overall system integration and performance as well as systems engineering, interim integrated logistics support, and associated management activities.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2787: *STUAS Lite*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY10 new start project will award the contract to initiate STUAS-Lite Group 2 UAS program. Will fund Government Engineering Technical Support, Logistics Support, Contractor Support Services, Program Management Support and program related travel. *FY 2011 Base Plans:* FY11 will continue all FY10 efforts as well as beginning Operational Test and Evaluation.					
Accomplishments/Planned Programs Subtotals	0.000	4.979	5.388	0.000	5.388

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN-4/044400: *STUASL0 (STUAS-Lite)*	0.000	0.000	14.906	0.000	14.906	0.000	0.000	0.000	0.000	0.000	14.906

D. Acquisition Strategy

STUAS Lite acquisition strategy is on-going, continuing to be based on Commercial-Off-The-Shelf systems that will enter into Milestone C. FY11 Operational Test Asset is expected to be procured either through the prime contractor (TBD) or the GSA catalog if available.

E. Performance Metrics

Attainment of STUAS Lite IOC in accordance with approved schedule.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2787: *STUAS Lite*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Integration	C/CPIF	TBD TBD	0.000	1.649	Apr 2010	1.634	Apr 2011	0.000		1.634	0.000	3.283	3.283
Ship Suitability	Various/ Various	Various Various	0.000	0.200	Mar 2010	0.200	Apr 2011	0.000		0.200	0.000	0.400	Continuing
Systems Engineering	Various/ Various	Various Various	0.000	0.250	Mar 2010	0.275	Apr 2011	0.000		0.275	0.000	0.525	Continuing
Training Development	Various/ Various	Various Various	0.000	0.250	Mar 2010	0.275	Dec 2010	0.000		0.275	0.000	0.525	Continuing
		Subtotal	0.000	2.349		2.384		0.000		2.384	0.000	4.733	3.283

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	Various/ Various	Various Various	0.000	0.500	Mar 2010	0.500	Dec 2010	0.000		0.500	0.000	1.000	Continuing
Integrated Logistics Support	WR	Various Various	0.000	0.250	Mar 2010	0.364	Dec 2010	0.000		0.364	0.000	0.614	Continuing
Configuration Management	Various/ Various	Various Various	0.000	0.100	Mar 2010	0.100	Dec 2010	0.000		0.100	0.000	0.200	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2787: *STUAS Lite*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.850		0.964		0.000		0.964	0.000	1.814	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	WR	OPTEVFOR Norfolk, VA	0.000	0.000		0.225	Apr 2011	0.000		0.225	0.000	0.225	Continuing
Test Assets	C/CPIF	TBD TBD	0.000	0.000		0.125	Apr 2011	0.000		0.125	0.000	0.125	0.125
		Subtotal	0.000	0.000		0.350		0.000		0.350	0.000	0.350	0.125

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2787: *STUAS Lite*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	Various Various	0.000	0.700	Mar 2010	0.650	Dec 2010	0.000		0.650	0.000	1.350	Continuing
Government Engineering Support	WR	Various Various	0.000	0.530	Feb 2010	0.510	Dec 2010	0.000		0.510	0.000	1.040	Continuing
Program Management Support	Various/ Various	Various Various	0.000	0.530	Feb 2010	0.510	Dec 2010	0.000		0.510	0.000	1.040	Continuing
Travel	WR	NAVAIR HQ Pax River, MD	0.000	0.020	Feb 2010	0.020	Dec 2010	0.000		0.020	0.000	0.040	Continuing
		Subtotal	0.000	1.780		1.690		0.000		1.690	0.000	3.470	

Remarks

Travel contract type is TO.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	4.979		5.388		0.000		5.388	0.000	10.367	3.408

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 2787: *STUAS Lite*

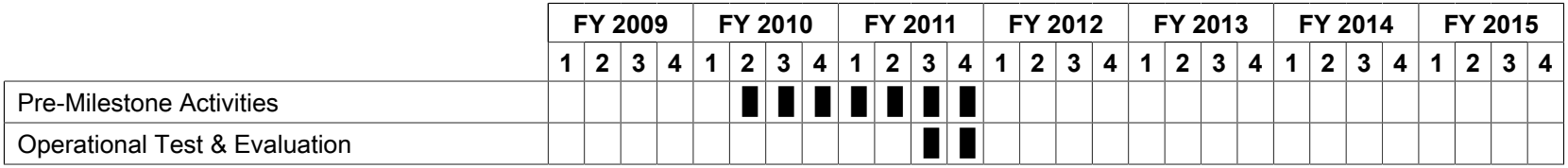

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	**PROJECT** 2787: *STUAS Lite*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Pre-Milestone Activities	2	2010	4	2011
Operational Test & Evaluation	3	2011	4	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 3192: *STUAS*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3192: *STUAS*	0.000	18.517	12.710	0.000	12.710	12.603	5.740	5.869	5.992	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Small Tactical Unmanned Aircraft System (STUAS) is a combined Navy and Marine Corps program that provides Persistent Intelligence, Surveillance, and Reconnaissance/Target Acquisition (ISR/TA) support for tactical level maneuver decisions and unit level force defense/force protection for Naval amphibious assualt ships (multi-ship classes) and Navy and Marine land forces. This system will support Naval Missions such as building the Recognized Maritime Picture, Maritime Security Operations, Maritime Interdiction Operations, and provide support for Naval Units operating from sea/shore in Overseas Contingency Operations.

A notional system consists of four air vehicles, ground control station(s), multi-mission (plug-and-play) payloads, and associated launch, recovery and support equipment.

The STUAS system will continue to evolve and upgrade capabilities to satisfy capabilities shortfalls, new requirements, and reliability, maintainability, and safety issues. Upgraded capabilities may include Navy C2 integration, Signals Intelligence and Synthetic Aperture Radar payloads, weapons integration, Heavy Fuel Engine, Laser Designator and Digital Common Data Link.

FY09 and prior, STUAS is funded under PE 0305204N.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Engineering and Manufacturing Development	0.000	7.550	7.550	0.000	7.550
Prime System Contractor will be responsible for overall system development and performance as well as systems engineering, integrated logistics support, and associated management activities.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 3192: *STUAS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Funding continues the Engineering and Manufacturing Development efforts for the STUAS/Tier II UAS program. *FY 2011 Base Plans:* Funding continues the Engineering and Manufacturing Development efforts for the STUAS/Tier II UAS program.					
Engineering and Technical Services Provides for the Government Engineering Technical Support, Logistics Support, Test and Evaluation, Contractor Support Services, Program Management Support and program related travel. *FY 2010 Plans:* Continue support for Government Engineering Technical Support, Logistics Support, Test and Evaluation, Contractor Support Services, Program Management Support and program related travel. *FY 2011 Base Plans:* Continue support for Government Engineering Technical Support, Logistics Support, Test and Evaluation, Contractor Support Services, Program Management Support and program related travel.	0.000	10.967	5.160	0.000	5.160
Accomplishments/Planned Programs Subtotals	0.000	18.517	12.710	0.000	12.710

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDT&E,N/0305204N: *STUAS*	12.464	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.569
• RDT&E,N/0206625M: *TIER II UAS*	13.529	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.960

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 3192: *STUAS*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDT&E,N/0305234M: *Tier II UAS*	0.000	18.685	26.209	0.000	26.209	16.864	22.764	11.546	9.657	Continuing	Continuing
• APN-4/044400: *STUASLO (Tier II)*	0.000	0.000	23.912	0.000	23.912	13.097	9.707	9.876	10.043	Continuing	Continuing
• APN-6/060510: *STUASLO (Tier II)*	0.000	0.000	0.000	0.000	0.000	2.117	3.712	5.014	6.624	Continuing	Continuing
• PMC-475700: *Tier II UAS*	0.000	0.000	26.301	23.500	49.801	39.343	67.893	65.071	67.106	Continuing	Continuing

D. Acquisition Strategy

The program office is utilizing a competitive acquisition approach for award of the Engineering and Manufacturing Development effort to field a capability which meets threshold requirements. Incremental development will be utilized to field a system fully compliant with documented requirements. An Early Operational Capability option to field an existing offerer's system is included as part of the acquisition approach.

E. Performance Metrics

Attainment of STUAS IOC in accordance with approved schedule.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 3192: *STUAS*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPIF	TBD TBD	0.000	7.550	Apr 2010	7.550	Mar 2011	0.000		7.550	Continuing	Continuing	Continuing
		Subtotal	0.000	7.550		7.550		0.000		7.550			

Remarks

FY09 and prior, STUAS is funded under PE 0305204N.

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	Various Various	0.000	1.306	Dec 2009	0.666	Nov 2010	0.000		0.666	Continuing	Continuing	Continuing
Training Support	WR	TSD Orlando, FL	0.000	0.675	Dec 2009	0.624		0.000		0.624	Continuing	Continuing	Continuing
Software Engineering Support	WR	NAWC-WD Chinal Lake, CA	0.000	1.050	Dec 2009	1.071		0.000		1.071	Continuing	Continuing	Continuing
		Subtotal	0.000	3.031		2.361		0.000		2.361			

Remarks

FY09 and prior, STUAS is funded under PE 0305204N.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 3192: *STUAS*

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	OPTEVFOR Norfolk, VA	0.000	0.463	Dec 2009	0.374	Dec 2010	0.000		0.374	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	OPTEVFOR Norfolk, VA	0.000	0.225	Dec 2009	0.200	Dec 2010	0.000		0.200	Continuing	Continuing	Continuing
Simulation and Modeling	MIPR	JTC/SIL Redstone Arsenal, AL	0.000	1.136	Dec 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	1.824		0.574		0.000		0.574			

Remarks

FY09 and prior, STUAS is funded under PE 0305204N.

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	Various Various	0.000	0.730	Dec 2009	0.576	Dec 2010	0.000		0.576	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various Various	0.000	4.411	Dec 2009	1.165	Dec 2010	0.000		1.165	Continuing	Continuing	Continuing
Program Management Support	Various/ Various	Various Various	0.000	0.931	Dec 2009	0.449	Dec 2010	0.000		0.449	Continuing	Continuing	Continuing
Travel	WR	Various	0.000	0.040	Dec 2009	0.035	Dec 2010	0.000		0.035	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	PROJECT 3192: *STUAS*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Various											
		Subtotal	0.000	6.112		2.225		0.000		2.225			

Remarks

FY09 and prior, STUAS is funded under PE 0305204N.
Travel contract type is TO.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	18.517		12.710		0.000		12.710			

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	**PROJECT** 3192: *STUAS*

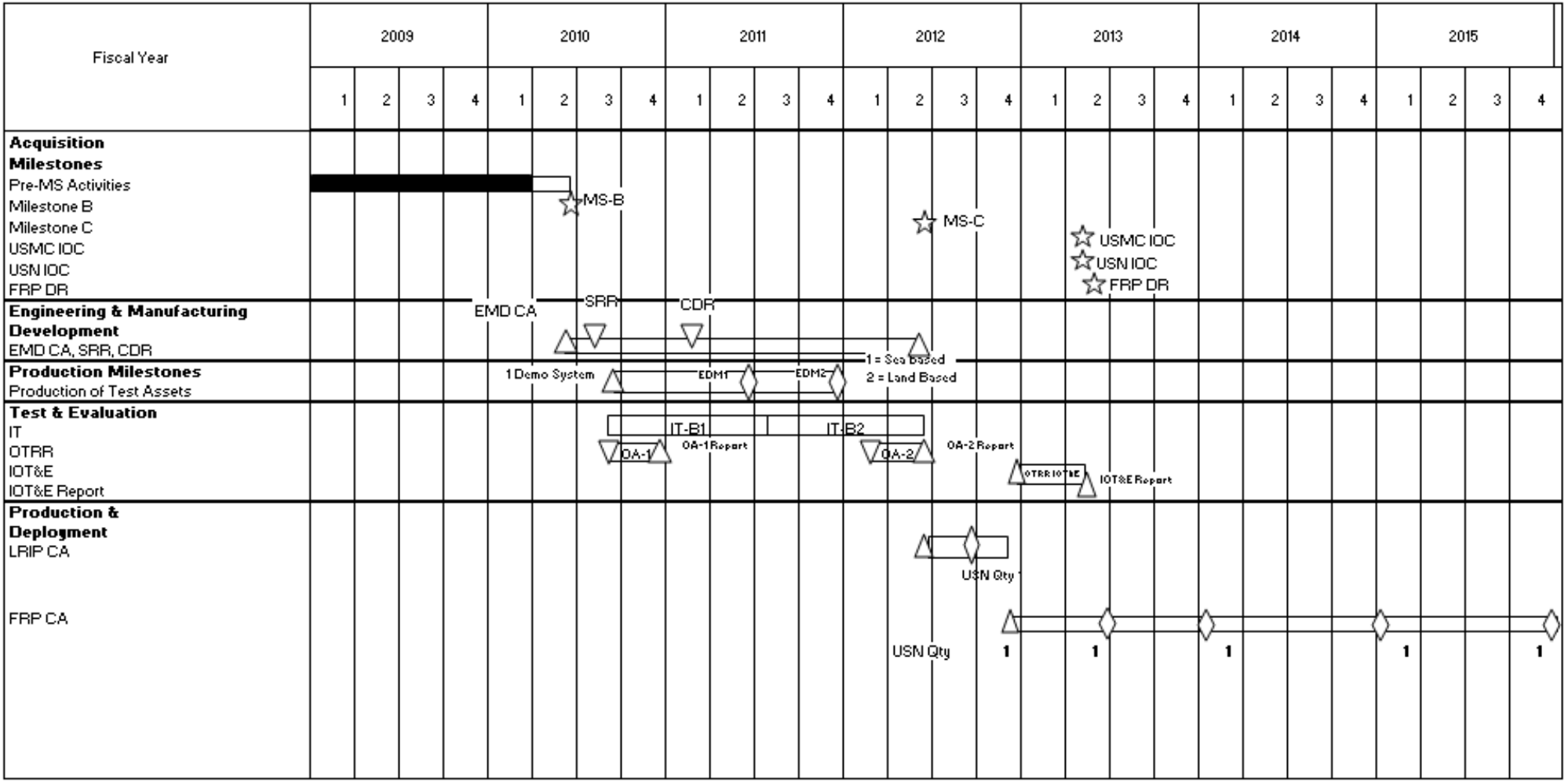

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	**PROJECT** 3192: *STUAS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones - Pre Milestones Activities	1	2009	2	2010
Milestone B	2	2010	2	2010
Milestone C	2	2012	2	2012
USMC IOC	2	2013	2	2013
USN IOC	2	2013	2	2013
FRP DR	2	2013	2	2013
Engineering & Manufacturing Development - EMD CA	2	2010	2	2010
EMD	2	2010	2	2012
SRR	3	2010	3	2010
Critical Design Review (CDR)	1	2011	1	2011
Production Milestones - EDM 1	2	2011	2	2011
EDM 2	4	2011	4	2011
Test & Evaluation - IT-B1	3	2010	3	2011
IT-B2	3	2011	2	2012
OTRR OA-1	3	2010	4	2010
OTRR OA-2	1	2012	2	2012
IOT&E	4	2012	2	2013
IOT&E Report	2	2013	2	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305234N: *Small (LEVEL 0) Tactical UAS (STUASL0)*	**PROJECT** 3192: *STUAS*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Production & Deployment - LRIP CA, Production & Delivery	2	2012	4	2012
FRP CA, Production & Delivery	4	2012	4	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0307207N: *Aerial Common Sensor (JMIP)*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	34.235	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	86.478
3015: *EPX (EP-3E Replacement)*	34.235	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	86.478

A. Mission Description and Budget Item Justification

Funding starting in FY 2010 is shifted to new Program Element, PE 0307217N - EPX (EP-3 replacement).

Provides funding for the Navy's EPX (EP-3 replacement) program. EPX is the Navy's recapitalization of existing manned airborne Intelligence, Surveillance, Reconnaissance (ISR) capabilities and will be a transformational multi-intelligence platform to fulfill Navy and OSD requirements. EPX RDT&E efforts will develop the system to meet the multi-intelligence ISR&Targeting requirements, ensure connectivity to other service platforms and ground stations, and address an ISR capability gap presented by service life limits of the legacy P-3 derivative aircraft.

The Joint Requirements Oversight Council (JROC) validated Navy service requirements in December 2007, and the Navy has established EPX as the program to accomplish their ISR&T re-capitalization in accordance with JROC validation.

FY08 Pre-MS A risk reduction efforts with industry participation included requirements analysis, Concept of Operations (CONOPS) development, trade study analysis, specification development, system concept development, and threat analysis. Analysis of Alternatives (AoA) was initated in FY09.

The Program will utilize PE 0307207N FY09 funds during transition of program effort to new PE 0307217N in FY10.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207N: *Aerial Common Sensor (JMIP)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	74.230	0.000	0.000	0.000	0.000
Current President's Budget	34.235	0.000	0.000	0.000	0.000
Total Adjustments	-39.995	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-9.995	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Congressional Recision Adjustments	-30.000	0.000	0.000	0.000	0.000

Change Summary Explanation

Technical: FY09 tasks included initiation of AoA and preparation for FY10 activity.

Schedule: USD, AT&L directed that an EPX Analysis of Alternatives (AoA) be completed assessing a wide range of alternatives.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0307207N: *Aerial Common Sensor (JMIP)*	PROJECT 3015: *EPX (EP-3E Replacement)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3015: *EPX (EP-3E Replacement)*	34.235	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	86.478
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Funding starting in FY 2010 is shifted to new Program Element, PE 0307217N - EPX (EP-3 replacement).

Provides funding for the Navy's EPX (EP-3 replacement) program. EPX is the Navy's recapitalization of existing manned airborne Intelligence, Surveillance, Reconnaissance (ISR) capabilities and will be a transformational multi-intelligence platform to fulfill Navy and OSD requirements. EPX RDT&E efforts will develop the system to meet the multi-intelligence ISR&Targeting requirements, ensure connectivity to other service platforms and ground stations, and address an ISR capability gap presented by service life limits of the legacy P-3 derivative aircraft.

The Joint Requirements Oversight Council (JROC) validated Navy service requirements in December 2007, and the Navy has established EPX as the program to accomplish their ISR&T re-capitalization in accordance with JROC validation.

FY08 Pre-MS A risk reduction efforts with industry participation included requirements analysis, Concept of Operations (CONOPS) development, trade study analysis, specification development, system concept development, and threat analysis. Analysis of Alternatives (AoA) was initated in FY09.

The Program will utilize PE 0307207N FY09 funds during transition of program effort to new PE 0307217N in FY10.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
EPX Trade Study and Tech Develop Activities *FY 2009 Accomplishments:* Finalized analysis plan and initiated alternatives evaluation.	6.412	0.000	0.000	0.000	0.000
EPX govt/contr sys eng support; ISR study	27.823	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0307207N: *Aerial Common Sensor (JMIP)*	PROJECT 3015: *EPX (EP-3E Replacement)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Funded Government and Contractor systems engineering and program management support to accomplish technical activities.					
Accomplishments/Planned Programs Subtotals	34.235	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Analysis of Alternatives (AoA) will inform way ahead.

E. Performance Metrics

Completed AoA.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0307207N: *Aerial Common Sensor (JMIP)*	PROJECT 3015: *EPX (EP-3E Replacement)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HWD Dev	C/CPAF	Various Various	19.590	0.000		0.000		0.000		0.000	0.000	19.590	Continuing
Primary Hdw Dev - Trade Study	C/FFP	Various Various	5.250	0.000		0.000		0.000		0.000	0.000	5.250	Continuing
Studies & Analyses	WR	NAWCAD PAX RIVER, MD	6.412	0.000		0.000		0.000		0.000	0.000	6.412	Continuing
Systems Engineering	WR	NAWCAD PAX RIVER, MD	8.318	0.000		0.000		0.000		0.000	0.000	8.318	Continuing
Training Development	WR	NAWCTSD ORLANDO, FL	0.952	0.000		0.000		0.000		0.000	0.000	0.952	Continuing
		Subtotal	40.522	0.000		0.000		0.000		0.000	0.000	40.522	

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NAWCAD PAX RIVER, MD	0.498	0.000		0.000		0.000		0.000	0.000	0.498	Continuing
Development Support	WR	Various Various	0.320	0.000		0.000		0.000		0.000	0.000	0.320	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0307207N: *Aerial Common Sensor (JMIP)*	PROJECT 3015: *EPX (EP-3E Replacement)*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	NAWCAD PAX RIVER, MD	0.780	0.000		0.000		0.000		0.000	0.000	0.780	Continuing
		Subtotal	1.598	0.000		0.000		0.000		0.000	0.000	1.598	

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD PAX RIVER, MD	0.950	0.000		0.000		0.000		0.000	0.000	0.950	Continuing
		Subtotal	0.950	0.000		0.000		0.000		0.000	0.000	0.950	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0307207N: *Aerial Common Sensor (JMIP)*	PROJECT 3015: *EPX (EP-3E Replacement)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ENG & TECH SRVC (NON-FFRDC)	C/CPFF	AT&T GOVT SOL Virginia	13.261	0.000		0.000		0.000		0.000	0.000	13.261	Continuing
ENG & TECH SRVC (NON-FFRDC)	C/CPFF	JHU COLUMBIA, MD	6.721	0.000		0.000		0.000		0.000	0.000	6.721	Continuing
Government Engineering Support	WR	NAWCAD PAX RIVER, MD	4.996	0.000		0.000		0.000		0.000	0.000	4.996	Continuing
Government Engineering Support	WR	Various Various	6.386	0.000		0.000		0.000		0.000	0.000	6.386	Continuing
Program Management Support	WR	NAWCAD PAX RIVER, MD	8.613	0.000		0.000		0.000		0.000	0.000	8.613	Continuing
Travel	WR	NAWCAD PAX RIVER, MD	0.598	0.000		0.000		0.000		0.000	0.000	0.598	Continuing
		Subtotal	40.575	0.000		0.000		0.000		0.000	0.000	40.575	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	83.645	0.000		0.000		0.000		0.000	0.000	83.645	

Remarks

Dollars may not add due to rounding.

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207N: *Aerial Common Sensor (JMIP)*	**PROJECT** 3015: *EPX (EP-3E Replacement)*

EXHIBIT R4, Schedule Profile

DATE: **February 2010**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
1319 RDT&E, N / BA-7 Operational System Development	0307207N, AERIAL COMMON SENSOR	3015 AERIAL COMMON SENSOR

Fiscal Year		2009				2010				2011				2012				2013				2014				2015			
		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										△ MS A																			
Comtract Milestones									△ Study Contract Award																				
System Development																													
Analysis of Alternatives				■ AoA																									
Software 1XXSW Delivery 2XXSW Delivery																													
Test & Evaluation Milestones Development Test Operational Test																													
Production Milestones																													
Production Deliveries																													

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307207N: *Aerial Common Sensor (JMIP)*	**PROJECT** 3015: *EPX (EP-3E Replacement)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
AoA	3	2009	3	2010
Study Contracts	4	2010	4	2010
Milestone A	1	2011	1	2011

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0307217N: *EPX (EP-3E Replacement)*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	11.926	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.926
3015: *EPX (EP-3E Replacement)*	0.000	11.926	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.926

A. Mission Description and Budget Item Justification

Provides funding for the Navy's EPX program. EPX is the Navy's recapitalization of existing manned airborne Intelligence, Surveillance, Reconnaissance (ISR) capabilities and will be a transformational multi-intelligence platform to fulfill Navy and OSD requirements. EPX RDT&E efforts will develop the system to meet the multi-intelligence ISR&Targeting (ISR&T) requirements, ensure connectivity to other service platforms and ground stations, and address an ISR capability gap presented by service life limits of the legacy P-3 derivative aircraft.

The Joint Requirements Oversight Council (JROC) validated Navy service requirements in December 2007, and the Navy has established EPX as the program to accomplish their ISR&T re-capitalization in accordance with JROC validation.

FY08 Pre-MS A risk reduction efforts with industry participation included requirements analysis, Concept of Operations (CONOPS) development, trade study analysis, specification development, system concept development, and threat analysis. USD, AT&L directed that an EPX Analysis of Alternatives (AoA) be completed focusing on a wide range of alternatives. The AoA was initiated in FY09 with planned completion in FY10. Award of study contract(s) to continue the pre-MS A risk reduction efforts planned for FY10.

FY09 funds budgeted under PE 0307207N Aerial Common Sensor (ACS).

The Program will utilize PE 0307207N FY09 funds during transition of program effort to new PE 0307217N in FY10.

FY2011 Budget Justification: No funds requested. Department of the Navy decision to terminate current program, pending further definition of requirements and options. Results of the AoA will inform future acquisition strategy and funding decisions.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307217N: *EPX (EP-3E Replacement)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	11.976	0.000	0.000	0.000
Current President's Budget	0.000	11.926	0.000	0.000	0.000
Total Adjustments	0.000	-0.050	0.000	0.000	0.000
• Congressional General Reductions		-0.050			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: USD, AT&L directed that an EPX Analysis of Alternatives (AoA) be completed assessing a wide range of alternatives. AoA will inform way ahead. AoA moved from 3Q FY09 through 1Q FY10 to 3Q FY09 through 3Q FY10. The AoA Acquistion Decision Memorandum (ADM) replaced the 3Q FY09 MDD. Decision to terminate current program, pending further definition of requirements and options has been made by the Department of the Navy.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0307217N: *EPX (EP-3E Replacement)*	PROJECT 3015: *EPX (EP-3E Replacement)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3015: *EPX (EP-3E Replacement)*	0.000	11.926	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.926
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Provides funding for the Navy's EPX program. EPX is the Navy's recapitalization of existing manned airborne Intelligence, Surveillance, Reconnaissance (ISR) capabilities and will be a transformational multi-intelligence platform to fulfill Navy and OSD requirements. EPX RDT&E efforts will develop the system to meet the multi-intelligence ISR&Targeting (ISR&T) requirements, ensure connectivity to other service platforms and ground stations, and address an ISR capability gap presented by service life limits of the legacy P-3 derivative aircraft.

The Joint Requirements Oversight Council (JROC) validated Navy service requirements in December 2007, and the Navy has established EPX as the program to accomplish their ISR&T re-capitalization in accordance with JROC validation.

FY08 Pre-MS A risk reduction efforts with industry participation included requirements analysis, Concept of Operations (CONOPS) development, trade study analysis, specification development, system concept development, and threat analysis. USD, AT&L directed that an EPX Analysis of Alternatives (AoA) be completed focusing on a wide range of alternatives. The AoA was initiated in FY09 with planned completion in FY10. Award of study contract(s) to continue the pre-MS A risk reduction efforts planned for FY10. MS A is planned in 1Q FY11.

FY09 funds budgeted under PE 0307207N Aerial Common Sensor (ACS).

The Program will utilize PE 0307207N FY09 funds during transition of program effort to new PE 0307217N in FY10.

Department of the Navy decision to terminate current program, pending further definition of requirements and options. Results of the AoA will inform future acquisition strategy and funding decisions.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0307217N: *EPX (EP-3E Replacement)*	PROJECT 3015: *EPX (EP-3E Replacement)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
EPX Trade Study and Tech Develop Activities *FY 2010 Plans:* Funds AoA and Study contract.	0.000	6.000	0.000	0.000	0.000
EPX govt/contr sys eng support; ISR study *FY 2010 Plans:* Fund Government EPX program management.	0.000	5.926	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	11.926	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

AoA will inform future acquisition strategy and funding decisions.

E. Performance Metrics

Completed AoA.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0307217N: *EPX (EP-3E Replacement)*	PROJECT 3015: *EPX (EP-3E Replacement)*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Dev - Trade Study	C/FFP	Various Various	0.000	5.596	Jan 2010	0.000		0.000		0.000	0.000	5.596	5.596
Systems Engineering	WR	SPAWARSYSCEN SD, CA	0.000	0.025	Nov 2009	0.000		0.000		0.000	0.000	0.025	Continuing
Systems Engineering	WR	NAWCAD PAX RIVER, MD	0.000	0.359	Nov 2009	0.000		0.000		0.000	0.000	0.359	Continuing
Training Development	WR	NAWCTSD ORLANDO, FL	0.000	0.020	Nov 2009	0.000		0.000		0.000	0.000	0.020	Continuing
		Subtotal	0.000	6.000		0.000		0.000		0.000	0.000	6.000	5.596

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCAD PAX River, MD	0.000	1.605	Nov 2009	0.000		0.000		0.000	0.000	1.605	Continuing
Government Engineering Support	WR	Various Various	0.000	0.260	Nov 2009	0.000		0.000		0.000	0.000	0.260	Continuing
ENG & TECH SRVC (NON_FFRDC)	C/CPFF	JHU Columbia,MD	0.000	0.418	Nov 2009	0.000		0.000		0.000	0.000	0.418	0.418

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0307217N: *EPX (EP-3E Replacement)*	PROJECT 3015: *EPX (EP-3E Replacement)*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ENG & TECH SRVC (NON_FFRDC)	C/CPFF	AT&T Govt SOL INC Virginia	0.000	0.523	Nov 2009	0.000		0.000		0.000	0.000	0.523	0.523
		Subtotal	0.000	2.806		0.000		0.000		0.000	0.000	2.806	0.941

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ENG & TECH SRVC (NON_FFRDC)	C/CPFF	TBD TBD	0.000	0.655	Nov 2009	0.000		0.000		0.000	0.000	0.655	0.655
Program Management Support	WR	NAWCAD PAX RIVER, MD	0.000	2.420	Nov 2009	0.000		0.000		0.000	0.000	2.420	Continuing
Travel	WR	NAWCAD PAX RIVER, MD	0.000	0.045	Nov 2009	0.000		0.000		0.000	0.000	0.045	Continuing
		Subtotal	0.000	3.120		0.000		0.000		0.000	0.000	3.120	0.655

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0307217N: *EPX (EP-3E Replacement)*	PROJECT 3015: *EPX (EP-3E Replacement)*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	11.926		0.000		0.000		0.000	0.000	11.926	7.192

Remarks

Dollars may not add due to rounding.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0307217N: *EPX (EP-3E Replacement)*	PROJECT 3015: *EPX (EP-3E Replacement)*

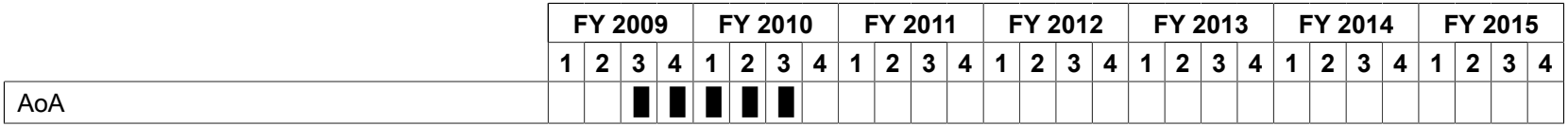

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0307217N: *EPX (EP-3E Replacement)*	**PROJECT** 3015: *EPX (EP-3E Replacement)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
AoA	3	2009	3	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0308601N: *Modeling & Simulation Support*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	7.737	7.995	8.158	0.000	8.158	8.306	8.456	8.645	8.823	Continuing	Continuing
2222: *Modeling & Simulation*	7.737	7.995	8.158	0.000	8.158	8.306	8.456	8.645	8.823	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element addresses projects under the Navy Modeling and Simulation (M&S) Office. It supports technical and management initiatives directed by Congress, Department of Defense (DoD), Secretary of the Navy (SECNAV), and Chief of Naval Operations (CNO) with the aim of bringing organization and focus to the development and use of M&S throughout the Navy and DoD. It provides a central agency for the formulation and implementation of policy and guidance in M&S, and represents Navy interests in Joint and other agency initiatives. It funds efforts to define and coordinate the corporate Navy M&S policy and guidance to evolve an interoperable and reusable core M&S capability consistent with the M&S technical framework prescribed by DoD. Efforts are organized around four product areas: (1) Engineering Studies and Analysis: identifies and measures the relevance of existing and emerging standards, technologies and services necessary to guide Navy M&S use; (2) Products and Services: promotes the policy, standards and technologies necessary to guide more efficient development and use of M&S across the Navy, including development and management of the Navy Modeling and Simulation Information Service (NMSIS); (3) M&S Quality Assurance Program: establishes and manages a disciplined process of model Verification, Validation and Accreditation (VV&A); and (4) Simulation Experiments: supports M&S use in Navy exercises and experiments across a wide variety of warfighting and supporting communities. Specifically, Simulation Experiments integrate appropriate models and simulations into Fleet exercises to test, validate and evaluate for possible transition to operationally relevant M&S products in support of Navy operations, training, acquisition, analysis and assessment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0308601N: *Modeling & Simulation Support*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	7.985	8.028	0.000	0.000	0.000
Current President's Budget	7.737	7.995	8.158	0.000	8.158
Total Adjustments	-0.248	-0.033	8.158	0.000	8.158
• Congressional General Reductions		-0.033			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.248	0.000			
• Program Adjustments	0.000	0.000	8.158	0.000	8.158

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0308601N: *Modeling & Simulation Support*	PROJECT 2222: *Modeling & Simulation*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2222: *Modeling & Simulation*	7.737	7.995	8.158	0.000	8.158	8.306	8.456	8.645	8.823	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 addresses critical coordination of Navy M&S efforts, integrates individual programs into a coherent whole, promotes reuse of resources, and aligns Navy efforts with Joint programs. It develops and maintains a comprehensive repository of models, simulations and authoritative data to support broad-based Navy requirements. It promotes reusability through the Quality Assurance process for models, simulations and data, and enhances interoperability by coordinating and reviewing Navy's transition to DoD-mandated standards for distributed simulations. The project participates in Fleet exercise experiments, distributed simulations and demonstrations such as Limited Objective Experiments (LOE), Virtual at Sea Training (VAST), and Virtual Missile Range (VMR).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ENGINEERING STUDIES AND ANALYSIS	3.664	3.792	3.854	0.000	3.854
This activity conducts engineering studies and analyses aimed at determining the feasibility and applicability of proposed standards or technical approaches to Navy M&S, and investigate Service-unique requirements for standards or guidance. Individual efforts focus on developing or evaluating approaches to optimize training, assessments and acquisition functional/mission objectives through more efficient development and use of M&S. This activity develops methodologies and standards that will result in model and data reusability and interoperability through the formulation of a technical framework. These standards will support the full range of architecture and engineering design and analysis requirements across the Navy. This activity also provides an M&S degree program through the Naval Postgraduate School, Modeling Virtual Environments and Simulation (MOVES) curriculum.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0308601N: *Modeling & Simulation Support*	**PROJECT** 2222: *Modeling & Simulation*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: " Eighteen officers completed postgraduate degrees in modeling and simulation at Naval Postgraduate School. " Completed Beta test of new DoD wide M&S catalog capability that enables visibility and reuse. " Completed efforts to assist the Training Community in their efforts to expand their Virtualat SEA Training (VAST) capability *FY 2010 Plans:* Continued to work with the MOVES Institute and the MOVES degree program to provide military relevant thesis topics for research. " Continued M&S support to Fleet Forces Command (FFC) for the CNO-directed Task Force Sim. " Continued M&S utilization in Campaign/Mission assessments to support OPNAV N81 analysis of warfighting requirements. *FY 2011 Base Plans:* Continue all efforts of FY-2010					
PRODUCT AND SERVICES This activity supports development of common services, tools, databases and standards to ensure the integration and connectivity of M&S products employed in Naval assessments, in training and acquisition, and among operational communities. It manages and maintains the Navy M&S Information System (NMSIS), as a central M&S information resource to support informed M&S investment decision making across Navy. It provides essential planning and coordination of M&S efforts with other Services, the Office of Secretary of Defense (OSD), the Joint Staff, and other agencies to develop policies and procedures necessary for M&S standardization within the Navy. It provides annual updates to the Naval M&S Catalog, Master Plan, and Investment Strategy.	1.616	1.682	1.730	0.000	1.730

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0308601N: *Modeling & Simulation Support*	PROJECT 2222: *Modeling & Simulation*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: " Deployed a new SOA to enable the collection review and prioritization of M&S requirements " Designed and assisted DoD in bringing the M&S Standards Vetting Tool on line *FY 2010 Plans:* " Continued to promote and enhance state-of-practice M&S catalog and technology within the Navy M&S community. " Continued the development, servicing and use of M&S catalog as directed under applicable DoD DIR, SECNAVINST, and OPNAVINST. " Continued to organize and facilitate quarterly NAVY M&S Technical Interchange Meetings to bring together the Navy M&S community for a direct interchange of M&S requirements, technology, standards and experience. " Continued to foster and develop the DoD M&S Standards Process that draws M&S experts from the acquisition, training and operational communities, and from industry. " Update DON VV&A Instructions to ensure compliance with new DoD Instructions *FY 2011 Base Plans:* Continue all efforts of FY-2010					
M&S QUALITY ASSURANCE PROGRAM This activity implements and manages the Modeling and Simulation (M&S) Quality Assurance development of the VV&A process and guidelines for modeling, simulation, and data. It reviews both new and legacy M&S VV&A plans and reports, and develops and maintains the Naval M&S VV&A repository. It establishes and implements a VV&A training curriculum for developers and accreditors, and provides an annual VV&A assessment to CNO. *FY 2009 Accomplishments:* " Assisted DoD in completing the DoD Instruction VV&A of M&S	0.512	0.553	0.580	0.000	0.580

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0308601N: *Modeling & Simulation Support*	PROJECT 2222: *Modeling & Simulation*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
" Assist DoD in completing its rewrite of the VV&A Instruction *FY 2010 Plans:* " Continue to develop and update case studies within the VV&A Handbook " Continued to incorporate information developed for training/education into the VV&A Handbook. " Continued to coordinate with the NMSIS and DoD M&S catalog effort to update and Beta test new VV&A data entry fields as required. " Assist the Navy Virtual SYSCOM in writing a VV&A Instruction for the SYSCOMS " Lead the DoD Acquisition Community's VV&A Subcommittee in its attempt to bring VV&A data to the M&S catalog *FY 2011 Base Plans:* Continue all efforts of FY-2010					
SIMULATION EXPERIMENTS This activity supports Fleet exercises and experiments through the application of distributed simulations across a wide variety of warfighting and supporting communities. Specifically, it develops and integrates appropriate M&S into Fleet Synthetic Training (FST), and develops simulation efforts to test and evolve the standards for models, interfaces, and data. It supports development of tools necessary to enable the seamless access and use of operationally relevant M&S products to support Navy training, warfare assessments and acquisition requirements. *FY 2009 Accomplishments:* " Completed first phase additions to POM analysis model STORM (USAF) for Navy and USMC to enable more consisent POMand model reuse. " Continued to define Fleet training initiatives and M&S enhancements. " Continued development of Naval capabilities in the USAF/USN Strategic Analysis tool STORM.	1.945	1.968	1.994	0.000	1.994

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0308601N: *Modeling & Simulation Support*	PROJECT 2222: *Modeling & Simulation*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
" Continued to document elements of the maritime virtual environment and models that can be used effectively to enable reuse in naval simulations and to establish best practices where standards are not yet feasible. " Continued the mission level M&S data interchange capability with OT&E testing scripts and acquisition mission threads to demonstrate a capability to exchange M&S structual data with architectural data. *FY 2010 Plans:* Continue all efforts of FY-2009 *FY 2011 Base Plans:* Continue all efforts of FY-2010					
Accomplishments/Planned Programs Subtotals	7.737	7.995	8.158	0.000	8.158

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

This program supports ongoing efforts to define, develop and utilize M&S technologies, standards and techniques in DoN and Joint programs across a wide range of disciplines and technical arenas. As such, performance metrics are specific to individual projects initiated under this program element. Representative examples of performance criteria for M&S support include the following: VV&A of deployed M&S systems to support Fleet and Force missions and assessments; degree of composability and adaptability of system architectures employed in M&S systems; ability of M&S systems to replicate and permit recreation of force or system interactions that otherwise would be performed by more labor-intensive or expensive personnel, forces or elements; degree to which M&S frameworks would permit rapid integration and employment of analytic capabilities for the analysis and documentation of warfighter missions, weapons systems or Tactics, Techniques and Procedures (TT&P); and ability of a specific M&S technology or technique to meet the requirements specified in an individual project supported by this program.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702207N: *Depot Maintenance (NON-IF)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	9.839	14.614	18.649	0.000	18.649	21.257	15.487	21.803	20.020	Continuing	Continuing
3030: *FA-18 SLAP*	5.547	13.631	18.649	0.000	18.649	21.257	15.487	21.803	20.020	Continuing	Continuing
3182: *T-45 SLAP*	4.292	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.345

A. Mission Description and Budget Item Justification

3030: The F/A-18A-F Service Life Assessment Program (SLAP) is assessing the structural condition of the F/A-18 fleet in order to determine what modifications are necessary to extend the aircraft designed life limits to allow it to achieve Chief of Naval Operations (CNO) inventory requirements.

3182: The T-45 SLAP is assessing the structural condition of the T-45 Fleet in order to determine structural modifications necessary to extend the aircraft designed service life to support Pilot Training Requirements (PTR) and Naval Flight Officer Training Requirements (NTR) until 2021.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	11.093	14.675	0.000	0.000	0.000
Current President's Budget	9.839	14.614	18.649	0.000	18.649
Total Adjustments	-1.254	-0.061	18.649	0.000	18.649
• Congressional General Reductions		-0.061			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.921	0.000			
• SBIR/STTR Transfer	-0.334	0.000			
• Program Adjustments	0.000	0.000	18.649	0.000	18.649
• Rate/Misc Adjustments	0.001	0.000	0.000	0.000	0.000

Change Summary Explanation

Technical: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702207N: *Depot Maintenance (NON-IF)*

Schedule: 3030 F/A-18 SLAP schedule changes are due to schedule descriptions and events that have been updated to more accurately reflect the efforts of the SLAP Program.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702207N: *Depot Maintenance (NON-IF)*	PROJECT 3030: *FA-18 SLAP*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3030: *FA-18 SLAP*	5.547	13.631	18.649	0.000	18.649	21.257	15.487	21.803	20.020	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The F/A-18E/F Service Life Assessment Program (SLAP) is assessing the structural condition of the F/A-18E/F fleet in order to determine what modifications are necessary to extend the aircraft designed life limits to allow it to achieve Chief of Naval Operations (CNO) inventory requirements. The goal of the SLAP program is to identify critical structures and components that can achieve the extended service life limit goals. An increase in total landings and flight hours would allow the F/A-18E/F to meet CNO inventory requirements, to include planning for the announced one year Joint Strike Fighter slide. This effort is required to be conducted for these airframes to ascertain what actions and modifications must be taken to safely operate each system beyond its designed life until the targeted end of service life.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FA-18 SLAP	5.547	13.631	18.649	0.000	18.649
Funding supports assessing the structural condition of the F/A-18 fleet in order to determine what modifications are necessary to extend the aircraft designed life limits to allow it to achieve Chief of Naval Operations (CNO) inventory requirements.					
FY 2009 Accomplishments: Began analysis of numerous data points to provide exploitation of complete structural fatigue testing with the expectation of extending the current service life of F/A-18E/F flight hours from 6,000 to 9,000 hours.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702207N: *Depot Maintenance (NON-IF)*	PROJECT 3030: *FA-18 SLAP*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue analysis of numerous data points to provide exploitation of complete structural fatigue testing with the expectation of extending the current service life of F/A-18E/F flight hours from 6,000 to 9,000 hours. *FY 2011 Base Plans:* Continue analysis of numerous data points to provide exploitation of complete structural fatigue testing with the expectation of extending the current service life of F/A-18E/F flight hours from 6,000 to 9,000 hours.					
Accomplishments/Planned Programs Subtotals	5.547	13.631	18.649	0.000	18.649

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/0525: *F-18 Series (OSIP 011-99)*	101.451	118.074	117.266	0.000	117.266	122.520	166.868	161.300	139.308	235.600	1,651.147

D. Acquisition Strategy

The Service Life Assessment Program (SLAP) program employs sole source contracts with Boeing, the aircraft prime manufacturer. SLAP consists of structural analyses of the main landing gear, arresting hook and catapult back-up structures, vertical tails, wings and fuselage. The current life limits for the F/A-18 E/F are 6,000FH, 2,250 Cat/Traps and 15,750 total landings. The F/A-18 E/F SLAP program of record states the SLAP goals as 12,000FH, 3,500 Cat/Traps and 22,500 total landings. The primary objective of F/A-18 E/F SLAP is to determine if the stated SLAP goals are feasible. These analyses will provide for the development of aircraft modifications necessary to extend total aircraft landings, catapults /arrestments, and flight hours. The F/A-18 E/F SLAP Program is broken into three phases: Phase A , Phase B, and Phase C. Completion of F/A-18 E/F Phase A will select, but not provide, the fatigue lives for the "Hot-Spots." Phase B of the F/A-18 E/F will provide the fatigue lives for all "Hot-Spots." Phase C will provide a set of fatigue lives for "Hot-Spots" across the entire fuselage and wing. Engineering Change Proposals (ECPs) generated by the SLAP analyses will be incorporated into the Service Life Management Program (SLMP) under OSIP (11-99). The program will consist of

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702207N: *Depot Maintenance (NON-IF)*	PROJECT 3030: *FA-18 SLAP*

exploitation of complete structural fatigue testing with the expectation of extending the current service life of the F/A-18E/F. Conducting F/A-18E/F SLAP to study the aircraft lifetime will provide a better estimate of aircraft service life and a follow on Service Life Extension Program (SLEP).

E. Performance Metrics

The SLAP provides an assessment of aircraft structure fatigue life as affected by flight maneuver, catapults, arrestments and landings, based on actual usage and identifies the efforts required to extend the aircraft life to SLAP goals. During SLAP Phase A (FY08-FY12) tools and modeling necessary to assess usage and fatigue life are developed. During SLAP Phase B (FY11-FY13) specific structural locations which do not meet SLAP goals are identified and analyzed. Flight Control Surface and Subsystems SLAP is also initiated in Phase B. Retrofit concepts and repairs for deficient locations are developed during SLAP Phase C (FY13-FY17). SLAP is followed by the Service Life Extension Program (SLEP) during which the actual retrofit and repairs are undertaken.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702207N: *Depot Maintenance (NON-IF)*	PROJECT 3030: *FA-18 SLAP*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prod Dev SLAP F/ A-18A-D	SS/CPFF	Boeing St. Louis, MO	28.775	0.000		0.000		0.000		0.000	0.000	28.775	28.775
Prod Dev SLAP F/ A-18E-F	SS/CPFF	Boeing St. Louis, MO	20.123	11.971	Mar 2010	12.235	Mar 2011	0.000		12.235	55.800	100.129	100.129
		Subtotal	48.898	11.971		12.235		0.000		12.235	55.800	128.904	128.904

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev Test & Eval - SLAP E/F	WR	NAWCAD Pax River, MD	0.000	0.000		0.500	Jan 2011	0.000		0.500	0.500	1.000	Continuing
		Subtotal	0.000	0.000		0.500		0.000		0.500	0.500	1.000	

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702207N: *Depot Maintenance (NON-IF)*	PROJECT 3030: *FA-18 SLAP*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Govt ETS SLAP F/A-18 E/F	WR	NAWCAD Pax River, MD	2.289	0.758	Dec 2009	0.641	Dec 2010	0.000		0.641	2.911	6.599	Continuing
Govt ETS SLAP F/A-18 E/F	WR	FRC North Island, CA	1.020	0.902	Dec 2009	5.273	Dec 2010	0.000		5.273	22.841	30.036	Continuing
		Subtotal	3.309	1.660		5.914		0.000		5.914	25.752	36.635	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	52.207	13.631		18.649		0.000		18.649	82.052	166.539	128.904

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702207N: *Depot Maintenance (NON-IF)*	**PROJECT** 3030: *FA-18 SLAP*

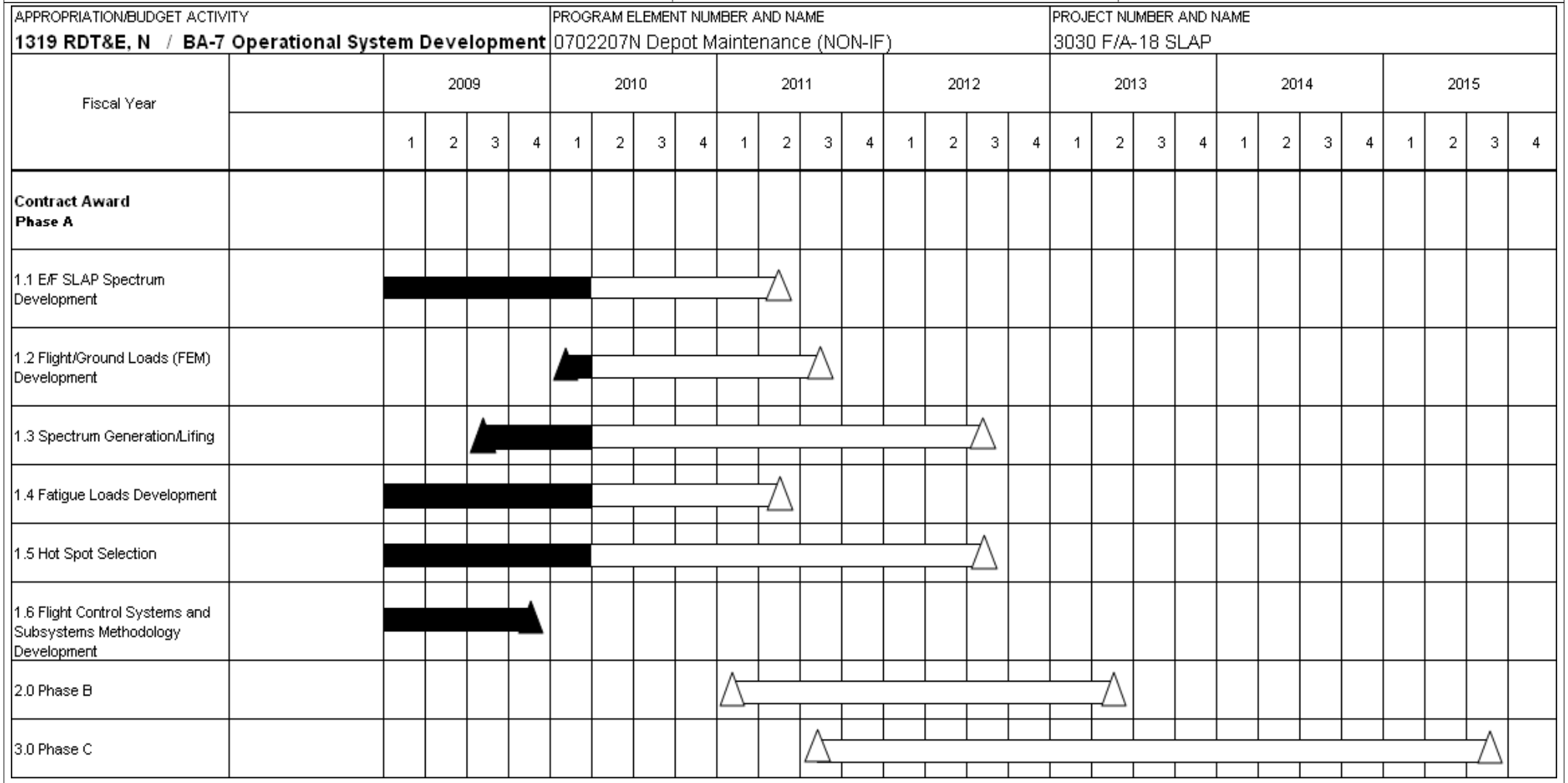

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702207N: *Depot Maintenance (NON-IF)*	**PROJECT** 3030: *FA-18 SLAP*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
1.1 E/F SLAP Spectrum Development	1	2009	2	2011
1.2 Flight/Ground Loads (FEM) Development	1	2010	3	2011
1.3 Spectrum Generation/Lifing	3	2009	3	2012
1.4 Fatigue Loads Development	1	2009	2	2011
1.5 Hot Spot Selection	1	2009	3	2012
1.6 Flight Control System and Subsystem Methodology Development	1	2009	4	2009
2.0 Phase B	1	2011	2	2013
3.0 Phase C	3	2011	3	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702207N: *Depot Maintenance (NON-IF)*	PROJECT 3182: *T-45 SLAP*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3182: *T-45 SLAP*	4.292	0.983	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.345
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The T-45 Service Life Assessment Program (SLAP) is assessing the structural condition of the T-45 fleet in order to determine structural modifications necessary to extend the aircraft designed service life to support Pilot Training Requirements (PTR) and Naval Flight Officer Training Requirements (NTR) until 2021. The T-45 aircraft structure is currently fatigue limited to 14,400 flight hours based on initial full-scale fatigue tests conducted from 1992-1996. This service life limit prevents the T-45 fleet from meeting PTR/NTR requirements past 2016. Recent studies have determined that the fleet squadrons have not been flying the T-45 aircraft as aggressively as the initial fatigue studies predicted. These studies demonstrate that the 14,400 flight hour service life can likely be extended to 21,600 flight hours, which will support meeting PTR/NTR until 2021. A T-45 Service Life Assessment Program (SLAP) is required to assess the critical areas within the structure that require modifications to achieve a 21,600 flight hour service life. This assessment will be based on the updated fleet aircraft usage spectrum and future predicted training missions of the T-45 aircraft. The assessment will address critical structural areas that are either landing and/or flight hour limited. To maintain PTR/NTR beyond 2021, analysis and studies willl be conducted to outline improvements, assess manufacturing capabilities and develop specifications for future trainer aircraft.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
T-45 SLAP	4.292	0.983	0.000	0.000	0.000
FY 2009 Accomplishments: Analyzed structural critical areas requiring modification to increase service life from 14,400 flight hours to 21,600 flight hours.					
FY 2010 Plans: Build/Publish results in three separate reports (Updated Finite Element Model report, SLAP Internal Loads Methodology report, and SLAP Fatigue Analysis report).					
Accomplishments/Planned Programs Subtotals	4.292	0.983	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702207N: *Depot Maintenance (NON-IF)*	PROJECT 3182: *T-45 SLAP*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The Service Life Assessment Program (SLAP) is a sole source contract effort with Boeing, the aircraft prime contractor. SLAP consists of structural analyses of landing gear, arresting hook and catapult back-up structure, vertical tail, wings and fuselage. These analyses will facilitate the future development of aircraft modifications necessary to extend the total aircraft service life from 14,400 to 21,600 flight hours.

E. Performance Metrics

SLAP provides an assessment of aircraft structure fatigue life as affected by flight maneuver, catapults, arrestments and landings, based on actual usage and identifies the efforts required to extend the aircraft life to SLAP goals. Effort delineates tasking incrementally to include; Tools and modeling necessary to assess usage and fatigue life are developed, specific structural locations which do not meet SLAP goals are identified and analyzed. Retrofit concepts and repairs for deficient locations are developed, followed by the Service Life Extension Program (SLEP) during which the actual retrofit and repairs are undertaken.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0702239N: *Avionics Component Improvement Program*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	1.772	3.511	3.250	0.000	3.250	3.322	3.410	3.496	3.575	Continuing	Continuing
3170: *Avionics Component Improvement Program(AVCIP)*	1.772	2.714	3.250	0.000	3.250	3.322	3.410	3.496	3.575	Continuing	Continuing
9999: *Congressional Adds*	0.000	0.797	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.797

A. Mission Description and Budget Item Justification

Project 3170 - The Avionics Component Improvement Program (AvCIP) develops, demonstrates, integrates, tests and evaluates solutions to address critical readiness and reliability deficiencies, obsolescence, loss of sustainability, and top repair cost drivers in Navy in-service avionics systems. Project candidates are collected from across all platforms, reviewed, competed and selected in the year prior to funding allocation.

Project 9999 - Research targeted toward extending the life of legacy avionics systems. The project will build on previous avionics life extension developments. The extension of existing avionics systems will allow the deferral of upgrades that could save the Department of Defense millions of dollars.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	1.871	2.725	0.000	0.000	0.000
Current President's Budget	1.772	3.511	3.250	0.000	3.250
Total Adjustments	-0.099	0.786	3.250	0.000	3.250
• Congressional General Reductions		-0.014			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.800			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.099	0.000			
• Program Adjustments	0.000	0.000	3.250	0.000	3.250

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702239N: *Avionics Component Improvement Program*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Avionics Life Extension*	0.000	0.797
Congressional Add Subtotals for Project: 9999	0.000	0.797
Congressional Add Totals for all Projects	0.000	0.797

Change Summary Explanation

Technical: Not applicable.

Schedule:
AVCIP - Candidate Collection-Moved from the 1st Qtr-2nd Qtr FY09 to 2nd Qtr-3rd Qtr FY09 and 1st Qtr-2nd Qtr FY10 to 2nd Qtr-3rd Qtr FY10.
07B F/A-18 Radar Altimeter Shock Mount-Test was not completed in FY08 and moved to 4th Qtr FY09. Qualification was not complete in FY08 and moved to 1st Qtr FY10. Test completion and qualification delayed for late contract start and delays of test asset deliveries from sub-contractor.
08A NACES Sequencer-Qualification from 4th Qtr FY08 to 2nd Qtr FY09 due to set-up delays and qualification report processing.
08C SCADC Testbench Redesign-Design review from 2nd Qtr FY09 to 1st Qtr FY09 and Qualification moved from 3rd Qtr FY09 to 4th Qtr FY09 due to delays with parallel Air Force set qualification.
09A E-2C APS-145 WRA-29-Added Contract award 3rd Qtr FY09, Design Review 1st Qtr FY10, Test 3rd Qtr FY10 and Qualification 4th Qtr FY10.

Congressional Adds: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702239N: *Avionics Component Improvement Program*	PROJECT 3170: *Avionics Component Improvement Program(AVCIP)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3170: *Avionics Component Improvement Program(AVCIP)*	1.772	2.714	3.250	0.000	3.250	3.322	3.410	3.496	3.575	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Avionics Component Improvement Program (AvCIP) provides design, development, demonstration, test and evaluation, and integration support to resolve critical readiness and reliability deficiencies, obsolescence, loss of sustainability and top repair cost drivers of in-service Navy avionics systems. Funds are competitively allocated across multi-platform commodity and platform-specific projects with the objective of maintaining Avionics systems effectiveness at levels required to ensure mission success. AvCIP has been endorsed by the OSD Business Initiatives Council (BIC) as a cooperative tri-service program that adopts the better business practices and proven resourcing models of the Engine CIP. Resources are directed just prior to the execution year, allowing funds to address the most current fleet issues and accelerate solution fielding. Lack of out-year deliverable specificity is mitigated through definition of Avionics capability evolution in the Core Avionics Master Plan. Although Avionics association to digital technology brings challenges to keep pace with Moore's Law and stay ahead of obsolescence, it also affords significant opportunity to reap benefits of emerging advancements. Conversion of legacy systems from analog to digital components has consistently resulted in reliability gains that significantly reduce maintenance/repair activity/costs, save weight and space, and increase operational availability. Modern open system architecture technology insertion improves system upgradeability, by reducing integration time and cost. Avionics systems are the vehicles that enable platform connectivity and interoperability. AvCIP will help platforms integrate the modern technology that will allow them to keep pace with the rapid evolution of transformational network centric operations development. AvCIP also provides a vehicle to address unanticipated performance issues or critical changes in threat, tactics or operational demands revealed during deployment without disrupting program budget profiles designed for other purposes. AvCIP is designed to support manned and unmanned, common and unique, fixed and rotary wing aircraft electronic systems, including communications, navigation, surveillance, sensors, combat identification, civil interoperability, safety, mission data processing and display, and network connectivity equipment. Initiative selection is based upon analysis of operational priority, performance improvement, capability benefit, scope of applicability across fleet platform or weapon system inventory, technical risk, delivery time, cost and life cycle return on investment. In FY 2007, AVCIP transferred from Standards Development, PE 0604215N, Project Unit 0572.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Avionics Component Improvement Program(AVCIP)	1.772	2.714	3.250	0.000	3.250

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702239N: *Avionics Component Improvement Program*	PROJECT 3170: *Avionics Component Improvement Program(AVCIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Investigate High Value Return on Investment Candidates, addressing avionics critical readiness and reliability deficiencies, obsolescence, loss of sustainability and top repair cost drivers. Prioritize critical avionics performance, capability and obsolescence problems that require immediate attention. Pursue solutions to these problems based upon urgency, warfighting contribution and return on investment. Develop and test system solutions based on priority. Resources will cover program management, engineering, contracting and logistics efforts; design and development, logistics elements such as technical data, support equipment, provisioning, and training; prototypes; platform integration; and developmental/operational testing. *FY 2009 Accomplishments:* FY 09: Completed design and development of a test capability (Modular Automated Test Equipment) for the Standard Central Air Data Computer used on EA-6B, E-2C and C-2A aircraft. Commenced the first phase of a two-year design and development of modern solid state RF Amplifier for clean and reliable power control for the E-2C APS-145 Radar system. *FY 2010 Plans:* FY 10: (a) Second (last) phase of E-2C APS-145 Radar RF Amplifier; (b) Design and develop modern digital auto-pilot for EP-3; (c) Design, develop and qualify a modern expeditionary (transportable) Air Traffic Control and Landing System; (d) Design and qualify a 24 channel GPS signal reception card to enable compliance with Required Navigational Performance criteria; (e) Design a modern component cockpit lighting system to address unsafe loss of illumination issues in the E-2C; (f) Design a modern component sensor for reliable activation of emergency hatch lighting in the E-2C. *FY 2011 Base Plans:* FY 11 Base: Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters). Projects will be similar to those addressed above in FY09 and FY10. They will be chosen following a comprehensive review of most important and executable project submissions. In order to address those issues with more imminent					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702239N: *Avionics Component Improvement Program*	PROJECT 3170: *Avionics Component Improvement Program(AVCIP)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
and direct Fleet operational impacts, this review is completed following a formal solicitation and review that is completed mid-year in the year prior to execution. Candidate prioritization and selection are followed by project endorsement which leads to contract award in year of execution.					
Accomplishments/Planned Programs Subtotals	1.772	2.714	3.250	0.000	3.250

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• APN/0577: *Common Avionics*	2.000	2.000	2.000	0.000	2.000	2.000	2.000	2.000	2.000	116.185	130.185

D. Acquisition Strategy

The Avionics Component Improvement Program (AvCIP) will annually compete candidate solutions according to criticality of operational contribution, technical risk, return on investment, and breadth of application. OPNAV N88 and N43, NAVAIR, NAVICP and the Fleet will participate in project selection for execution year allocation. The AvCIP IPT will monitor project execution and track return on investment using Fleet supply and component performance tracking systems (Snapshot, NALCOMIS, NALDA, LMDS/Deckplate, VAMOSC). Demonstrated Fleet operation/sustainment cost avoidances will be coordinated with N43 Flying Hour Program. Modification solutions include modular hardware, software and material upgrades. Resources will cover program management, engineering, contracting and logistics efforts; design and development, logistics elements such as technical data, support equipment, provisioning, and training; prototypes; platform integration; and developmental/operational testing.

E. Performance Metrics

The AVCIP program goal is successful establishment of AVCIP projects, execution and benefits tracking mechanisms.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702239N: *Avionics Component Improvement Program*	PROJECT 3170: *Avionics Component Improvement Program(AVCIP)*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various/ Various	Various Various	2.748	0.000		0.550	Mar 2011	0.000		0.550	Continuing	Continuing	Continuing
Ancillary Hardware Development	Various/ TBD	TBD TBD	0.000	0.514	Mar 2010	0.450	Mar 2011	0.000		0.450	Continuing	Continuing	Continuing
Aircraft Integration	Various/ TBD	TBD TBD	0.457	0.500	Mar 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD Patuxent River, MD	0.090	0.350	Mar 2010	1.094	Mar 2011	0.000		1.094	Continuing	Continuing	Continuing
		Subtotal	3.295	1.364		2.094		0.000		2.094			

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various/ TBD	TBD TBD	0.000	0.300	Mar 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	Various Various	0.132	0.000		0.150	Mar 2011	0.000		0.150	Continuing	Continuing	Continuing
Studies & Analyses	WR	NAWCAD	0.000	0.269	Mar 2010	0.300	Mar 2011	0.000		0.300	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702239N: *Avionics Component Improvement Program*	PROJECT 3170: *Avionics Component Improvement Program(AVCIP)*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Patuxent River, MD											
		Subtotal	0.132	0.569		0.450		0.000		0.450			

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD Patuxent River, MD	0.000	0.230	Nov 2009	0.350	Nov 2010	0.000		0.350	Continuing	Continuing	Continuing
		Subtotal	0.000	0.230		0.350		0.000		0.350			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702239N: *Avionics Component Improvement Program*	PROJECT 3170: *Avionics Component Improvement Program(AVCIP)*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	Various Various	0.072	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWCAD Patuxent River, MD	0.500	0.250	Nov 2009	0.150	Nov 2010	0.000		0.150	Continuing	Continuing	Continuing
Program Management Support	Various/ Various	Various Various	0.625	0.301	Nov 2009	0.206	Nov 2010	0.000		0.206	Continuing	Continuing	Continuing
		Subtotal	1.197	0.551		0.356		0.000		0.356			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.624	2.714		3.250		0.000		3.250			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702239N: *Avionics Component Improvement Program*	**PROJECT** 3170: *Avionics Component Improvement Program(AVCIP)*

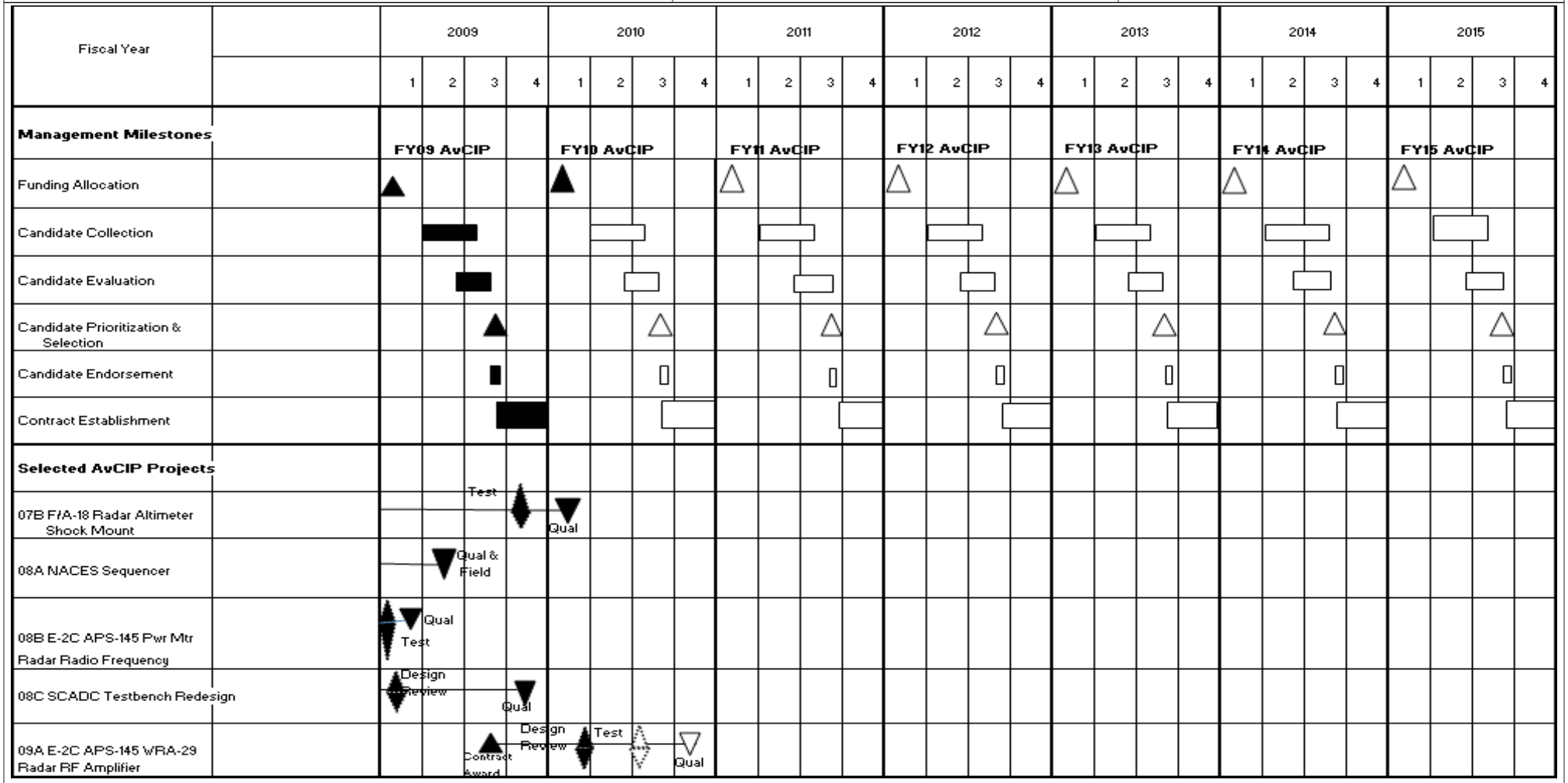

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702239N: *Avionics Component Improvement Program*	**PROJECT** 3170: *Avionics Component Improvement Program(AVCIP)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
AvCIP Funding Allocation 1	1	2009	1	2009
AvCIP Funding Allocation 2	1	2010	1	2010
AvCIP Funding Allocation 3	1	2011	1	2011
AvCIP Funding Allocation 4	1	2012	1	2012
AvCIP Funding Allocation 5	1	2013	1	2013
AvCIP Funding Allocation 6	1	2014	1	2014
AvCIP Funding Allocation 7	1	2015	1	2015
AvCIP Candidate Collection 1	2	2009	3	2009
AvCIP Candidate Collection 2	2	2010	3	2010
AvCIP Candidate Collection 3	2	2011	3	2011
AvCIP Candidate Collection 4	2	2012	3	2012
AvCIP Candidate Collection 5	2	2013	3	2013
AvCIP Candidate Collection 6	2	2014	3	2014
AvCIP Candidate Collection 7	2	2015	3	2015
AvCIP Candidate Evaluation 1	2	2009	3	2009
AvCIP Candidate Evaluation 2	2	2010	3	2010
AvCIP Candidate Evaluation 3	2	2011	3	2011
AvCIP Candidate Evaluation 4	2	2012	3	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702239N: *Avionics Component Improvement Program*	PROJECT 3170: *Avionics Component Improvement Program(AVCIP)*

	Start		End	
Event	Quarter	Year	Quarter	Year
AvCIP Candidate Evaluation 5	2	2013	3	2013
AvCIP Candidate Evaluation 6	2	2014	3	2014
AvCIP Candidate Evaluation 7	2	2015	3	2015
AvCIP Candidate Prioritization & Selection 1	3	2009	3	2009
AvCIP Candidate Prioritization & Selection 2	3	2010	3	2010
AvCIP Candidate Prioritization & Selection 3	3	2011	3	2011
AvCIP Candidate Prioritization & Selection 4	3	2012	3	2012
AvCIP Candidate Prioritization & Selection 5	3	2013	3	2013
AvCIP Candidate Prioritization & Selection 6	3	2014	3	2014
AvCIP Candidate Prioritization & Selection 7	3	2015	3	2015
AvCIP Candidate Endorsement 1	3	2009	3	2009
AvCIP Candidate Endorsement 2	3	2010	3	2010
AvCIP Candidate Endorsement 3	3	2011	3	2011
AvCIP Candidate Endorsement 4	3	2012	3	2012
AvCIP Candidate Endorsement 5	3	2013	3	2013
AvCIP Candidate Endorsement 6	3	2014	3	2014
AvCIP Candidate Endorsement 7	3	2015	3	2015
AvCIP Project Contract Establishment 1	3	2009	4	2009
AvCIP Project Contract Establishment 2	3	2010	4	2010
AvCIP Project Contract Establishment 3	3	2011	4	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0702239N: *Avionics Component Improvement Program*	**PROJECT** 3170: *Avionics Component Improvement Program(AVCIP)*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
AvCIP Project Contract Establishment 4	3	2012	4	2012
AvCIP Project Contract Establishment 5	3	2013	4	2013
AvCIP Project Contract Establishment 6	3	2014	4	2014
AvCIP Project Contract Establishment 7	3	2015	4	2015
07B F/A-18 Radar Altimeter Mod	1	2009	1	2009
-Testing Complete F/A-18	4	2009	4	2009
-Qualification F/A-18	1	2010	1	2010
08A NACES Sequencer Test Bench	1	2009	1	2009
-Qualification & Fielding	2	2009	2	2009
08B E-2C APS-145 WRA-17 Radar Power Meter	1	2009	1	2009
-Testing Complete E-2C	1	2009	1	2009
-Qualification E-2C	1	2009	1	2009
08C SCADC Testbench Redesign	1	2009	1	2009
-Design Review SCADC	1	2009	1	2009
-Qualification DCADC	4	2009	4	2009
09A E-2C APS-145 WRA-29 Radar RF Amplifier	1	2009	1	2009
-Contract Award E-2C AP-145	3	2009	3	2009
-Design Review E-2C AP-145	1	2010	1	2010
-Testing Complete E-2C AP-145	3	2010	3	2010
-Qualification E-2C AP-145	4	2010	4	2010

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702239N: *Avionics Component Improvement Program*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	0.797	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.797
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Add. Research targeted toward extending the life of legacy avionics systems. The project will build on previous avionics life extension developments. The extension of existing avionics systems will allow the deferral of upgrades that could save the Department of Defense millions of dollars.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Avionics Life Extension *FY 2010 Plans:* Research targeted toward extending the life of legacy avionics systems. The project will build on previous avionics life extension developments. The extension of existing avionics systems will allow the deferral of upgrades that could save the Department of Defense millions of dollars.	0.000	0.797
Congressional Adds Subtotals	0.000	0.797

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not Required for Congressional Adds

E. Performance Metrics

Not Required for Congressional Adds

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0702239N: *Avionics Component Improvement Program*	PROJECT 9999: *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	Various/ TBD	Various Various	0.000	0.797	Mar 2010	0.000		0.000		0.000	0.000	0.797	0.797
		Subtotal	0.000	0.797		0.000		0.000		0.000	0.000	0.797	0.797

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.797		0.000		0.000		0.000	0.000	0.797	0.797

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	59.976	74.880	46.173	0.000	46.173	55.652	52.880	53.204	55.528	Continuing	Continuing
1050: *Manufacturing Tech*	54.790	56.456	46.173	0.000	46.173	55.652	52.880	53.204	55.528	Continuing	Continuing
9999: *Congressional Adds*	5.186	18.424	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.666

A. Mission Description and Budget Item Justification

The Manufacturing Technology (ManTech) program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development and transition of leading edge manufacturing technologies. The ManTech program is executed through a Center of Excellence (COE) strategy. A majority of the COEs are consortium based with only a small group of technical and management personnel at the center. ManTech projects are primarily performed by industry participants that bill the COE which, in turn, bills the Navy which causes a non-traditional financial execution profile for the program. The program therefore does not meet traditional execution benchmarks. The ManTech program, by providing seed funding for the development of moderate to high risk process and equipment technology, permits contractors to upgrade their manufacturing capabilities. Ultimately, the program aims to produce high-quality weapon systems with shorter lead times and reduced acquisition costs.

Due to the number of efforts in this PE, the programs described herein are representative of the work included in this PE.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	61.693	56.691	0.000	0.000	0.000
Current President's Budget	59.976	74.880	46.173	0.000	46.173
Total Adjustments	-1.717	18.189	46.173	0.000	46.173
• Congressional General Reductions		-0.311			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		18.500			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.717	0.000			
• Program Adjustments	0.000	0.000	46.173	0.000	46.173

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708011N: *Industrial Preparedness*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Flight/Hangar Deck Cleaner*	0.000	1.394
Congressional Add: *Laser Optimization Remote Lighting System*	0.000	1.992
Congressional Add: *Weps Sys Life Ext Program*	0.000	2.490
Congressional Add: *Low Acoustic and Thermal Signature Battlefield Power Source*	0.000	3.187
Congressional Add: *Manufacturing S&T for Next-Generation Energetics*	0.000	4.979
Congressional Add: *E-Beam Free Form Repair Qualification*	1.197	0.000
Congressional Add: *Next Generation Scalable Lean Manufacturing Initia*	2.393	2.390
Congressional Add: *Out of Autoclave Composite Processing*	1.596	1.992
Congressional Add Subtotals for Project: 9999	5.186	18.424
Congressional Add Totals for all Projects	5.186	18.424

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
1050: *Manufacturing Tech*	54.790	56.456	46.173	0.000	46.173	55.652	52.880	53.204	55.528	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The ManTech Program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development of manufacturing technologies. Major areas of endeavor both underway and planned include: advanced manufacturing technology for metalworking, joining, electronics and electro-optics, composites, shipbuilding, and above-the-factory-floor business operations technology. The ManTech Program is aimed at assisting acquisition programs in meeting performance and affordability goals by inserting manufacturing process solutions early into the design phase.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
COMPOSITES PROCESSING AND FABRICATION	5.700	6.000	6.000	0.000	6.000
The primary technical goal of the Composites Processing and Fabrication activity is improving weapon systems affordability, enhancing weapon system effectiveness and improving reliability / war-fighter readiness through the increased utilization of composite materials and structures. This is being achieved through the development and maturation of affordable, robust manufacturing and assembly processes that fully exploit the benefits of composite materials. Concentration in FY 2009 and the outyears is on composites processing for the following four platforms: DDG-1000, CVN-21, VCS, and LCS although ManTech will continue to develop composites manufacturing technology for high priority air platforms.					
FY 2009 Accomplishments: - Continued Composite Materials and Process Improvement Thrust for VCS Shipbuilding Affordability Initiative. Includes completion of Composite Sail Cusp and VCS Impeller and continuation / initiation					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
of efforts to develop / optimize composite materials fabrication technology for reduced cost VCS construction. - Continued other composites thrusts (formerly projects) to address improvements / affordability of DDG-1000, CVN-21, VCS, and other acquisition program offices. - Continued Composite Materials and Process Improvement Thrust for DDG-1000 Shipbuilding Affordability Initiative. Includes continuation of DDG-1000 Helodeck Stiffeners Affordability; and continuation of DDG-1000 Radomes Affordability. - Continued Composite Materials and Process Improvement Thrust for CVN-21 Shipbuilding Affordability Initiative. - Continued Composite Materials and Process Improvement Thrust for Air Platforms. Includes completion of Composite Frame Manufacturing Technology - V-22 and H-53 and continuation / initiation of efforts to develop / optimize composite materials fabrication technology for reduced cost Air Platform construction. *FY 2010 Plans:* - Continue Composite Materials and Process Improvement Thrust for VCS Shipbuilding Affordability Initiative. Includes continuation of efforts to develop / optimize composite materials fabrication technology for reduced cost VCS construction. - Continue Composite Materials and Process Improvement Thrust for DDG-1000 Shipbuilding Affordability Initiative. - Continue Composite Materials and Process Improvement Thrust for CVN-21 Shipbuilding Affordability Initiative. - Continue Composite Materials and Process Improvement Thrust for Air Platforms. Includes continuation of efforts to develop / optimize composite materials fabrication technology for reduced cost Air Platform construction. - Complete other composites thrusts (formerly projects) to address improvements / affordability of DDG-1000, CVN-21, VCS, and other acquisition program offices.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: - Continue Composite Materials and Process Improvement Thrust for VCS Shipbuilding Affordability Initiative. Includes continuation of efforts to develop / optimize composite materials fabrication technology for reduced cost VCS construction. - Continue Composite Materials and Process Improvement Thrust for DDG-1000 Shipbuilding Affordability Initiative. - Continue Composite Materials and Process Improvement Thrust for CVN-21 Shipbuilding Affordability Initiative. - Continue Composite Materials and Process Improvement Thrust for Air Platforms. Includes continuation of efforts to develop / optimize composite materials fabrication technology for reduced cost Air Platform construction.					
CORPORATE INVESTMENTS The Corporate Investments activity is focused on accelerating defense industrial enterprise progress toward implementation of world-class industrial practices as well as advanced design and information systems that support weapon system development, production, and sustainment. Key emphasis areas include: 1) Benchmarking and accelerating the implementation of world-class industrial practices throughout the contractor base; 2) Demonstrating and validating advanced business practices and information technologies capable of streamlining management functions in all industrial base tiers; and 3) Leveraging information technologies in pursuit of tighter coupling of all defense industrial enterprise elements. Corporate Investment efforts create improvements to cost and cycle time for weapon system development, production, and repair. Additionally, Corporate Investments include the funding of recently identified near-term high priority shipbuilding affordability efforts for the four major platforms - DDG-1000, CVN-21, VCS, and LCS. The funding decrease from FY 2010 to FY 2011 will eliminate several high payoff ship reduction efforts supporting LCS and VIRGINIA Class submarines. Moreover, planned work such as developing pervasive technology for improved supply chain management and model based ship production will be reduced.	12.593	12.246	5.663	0.000	5.663

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
The reduction of funding from FY10 to FY11 reflects programmatic realignments to other Navy priorities. *FY 2009 Accomplishments:* - Continued Near-Term High Priority Shipbuilding Affordability Thrust for CVN-21. Includes continuation of Light Activated Semiconductor Switches; completion of HSLA-115 Evaluation and Implementation Support; and completion of Digital Radiography Support. - Continued Near-Term High Priority Shipbuilding Affordability Thrust for LCS. - Continued efforts to improve the Navy industrial base through above-the-factory-floor enhancements and supply chain processes / technology improvements for Navy weapon system acquisition programs such as the DDG-1000, CVN 21, LCS, VCS, and others. - Continued Near-Term, High Priority Shipbuilding Affordability Thrust for DDG-1000. Includes continuation of SiGe-based System-on-Chip Low Cost / Weight Phased Array Antennas; completion of Pallet Manufacturing Process Modeling; and completion of Power Electronic Module Cost Out Effort. - Continued Near-Term High Priority Shipbuilding Affordability Thrust for VCS. Includes completion of Design for Production Process Improvement, Automated Install of Studs, Deckplate Construction Information Network (renamed Paperless Deckplate MIP OQE Data Capture), Outfitting Process Improvement, and VCS Material Management and initiation of additional near-term high priority shipbuilding affordability efforts for VCS. Also includes completion of Low Cost Impeller Support effort for Navy submarines / aircraft carriers and for shafts for Navy surface combatants. -Continued Benchmarking and Best Practices effort to identify, validate, and disseminate best-in-class practices, processes, and technologies to help improve the competitiveness of the defense industrial base and the affordability / performance of Navy and defense platforms and weapon systems. *FY 2010 Plans:* - Continue Near-Term High Priority Shipbuilding Affordability Thrust for CVN-21.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Continue Near-Term High Priority Shipbuilding Affordability Thrust for LCS. - Continue efforts to improve the Navy industrial base through above-the-factory-floor enhancements and supply chain processes / technology improvements for Navy weapon system acquisition programs such as the DDG-1000, CVN 21, LCS, VCS, and others. - Continue Near-Term, High Priority Shipbuilding Affordability Thrust for DDG-1000. - Continue Near-Term High Priority Shipbuilding Affordability Thrust for VCS. - Continue Benchmarking and Best Practices effort to identify, validate, and disseminate best-in-class practices, processes, and technologies to help improve the competitiveness of the defense industrial base and the affordability / performance of Navy and defense platforms and weapon systems. *FY 2011 Base Plans:* - Continue Near-Term High Priority Shipbuilding Affordability Thrust for CVN-21. - Continue Near-Term High Priority Shipbuilding Affordability Thrust for LCS. - Continue efforts to improve the Navy industrial base through above-the-factory-floor enhancements and supply chain processes / technology improvements for Navy weapon system acquisition programs such as the DDG-1000, CVN 21, LCS, VCS, and others. - Continue Near-Term, High Priority Shipbuilding Affordability Thrust for DDG-1000. - Continue Near-Term High Priority Shipbuilding Affordability Thrust for VCS. - Continue Benchmarking and Best Practices effort to identify, validate, and disseminate best-in-class practices, processes, and technologies to help improve the competitiveness of the defense industrial base and the affordability / performance of Navy and defense platforms and weapons systems.					
ELECTRONICS PROCESSING AND FABRICATION Electronics Processing and Fabrication efforts develop and deploy affordable, robust manufacturing processes and capabilities for electronics critical to defense applications over their full life cycle. Efforts create new and improved manufacturing processes on the shop floor, as well as repair and maintain facilities such as depots and logistics centers, with a strong emphasis on process maturation. Emphasis in FY 2009 and outyears is on shipbuilding affordability for four major platforms: DDG-1000, CVN-21,	9.680	10.000	6.300	0.000	6.300

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
VCS, and LCS, with some funding geared towards toward electronics / electro-optics improvements for high priority air platforms. The reduction in FY 2011 reflects a decrease due to fewer shipbuilding affordability requirements in electrooptics than in other areas for the four shipbuilding platforms ManTech supports. The reduction of funding from FY10 to FY11 reflects programmatic realignments to other Navy priorities. *FY 2009 Accomplishments:* - Continued Electronics / Electro-Optics Thrust for VCS Affordability Initiative. Includes completion of Conformal Acoustic Velocity Sensor CAVES for VCS and initiation of improved affordable electronics / electrooptics efforts. - Continued Electronics / Electro-Optics Thrust for LCS Shipbuilding Affordability Initiative. Includes completion of LCS Reconfigurable Antenna. - Continued advanced electronics and electro-optics efforts / thrusts to address improvements / affordability for DDG-1000, CVN-21, VCS, LCS, F/A-18, EA-18G, and others. - Continued Electronics / Electro-Optics Thrust for Air Platforms. Includes continuation of Multispectral Mid-IR Lasers for Directional Infrared Counter Measures (DIRCM) and initiation of electronics / electro-optics efforts to improve affordability for Air Platforms. - Continued Electronics / Electro-Optics Thrust for DDG-1000 Shipbuilding Affordability Initiative. Includes radar / communications efforts to impact DDG 1000 affordability. Includes continuation of SiGE-Based Systemon-Chip for Low-Cost Weight Phased Array Antennas. Includes completion of DDG-1000 Remote Source Lighting and High-G Packaging and Miniaturization for Deeply Integrated Inertial Guidance Units. - Continued Electronics / Electro-Optic Thrust for CVN-21 Shipbuilding Affordability Initiative. Includes completion of High-Power Carbide PiN Diode Manufacturing.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: - Continue Electronics / Electro-Optics Thrust for VCS Affordability Initiative. Includes continuation of improved affordable electronics / electro-optics efforts. - Continue Electronics / Electro-Optics Thrust for LCS Shipbuilding Affordability Initiative. - Continue Electronics / Electro-Optics Thrust for Air Platforms. Includes completion of Multispectral Mid-IR Lasers for DIRCM and continuation of electronics / electro-optics efforts to improve affordability for Air Platforms. - Continue Electronics / Electro-Optics Thrust for DDG-1000 Shipbuilding Affordability Initiative. Includes radar/communications efforts to impact DDG 1000 affordability. Includes completion of SiGE-Based System-on-Chip for Low-Cost Weight Phased Array Antennas. - Continue Electronics / Electro-Optic Thrust for CVN-21 Shipbuilding Affordability Initiative. Includes initiation of electronics / electro-optics efforts to improve affordability for CVN-21. - Complete advanced electronics and electro-optics efforts / thrusts to address improvements / affordability for DDG-1000, CVN-21, VCS, LCS, F/A-18, EA-18G, and others. *FY 2011 Base Plans:* - Continue Electronics / Electro-Optics Thrust for VCS Affordability Initiative. Includes continuation of improved affordable electronics / electro-optics efforts. - Continue Electronics / Electro-Optics Thrust for LCS Shipbuilding Affordability Initiative. - Continue Electronics / Electro-Optics Thrust for Air Platforms. Includes continuation of electronics / electro-optics efforts to improve affordability for Air Platforms. - Continue Electronics / Electro-Optics Thrust for DDG-1000 Shipbuilding Affordability Initiative. Includes radar / communications efforts to impact DDG 1000 affordability. - Continue Electronics / Electro-Optic Thrust for CVN-21 Shipbuilding Affordability Initiative. Includes continuation of electronics / electro-optics efforts to improve affordability for CVN-21.					
METALS PROCESSING AND FABRICATION	17.280	18.000	18.000	0.000	18.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
The objective of the Metals Processing and Fabrication activity is to develop affordable, robust manufacturing processes and capabilities for metals and special materials critical to defense weapon system applications. Major areas that support this objective include: processing methods, special materials, joining, and inspection and compliance. These efforts directly impact the cost and performance of future aircraft, rotorcraft, land combat vehicles, surface and subsurface naval platforms, space systems, artillery and ammunition, and defense industry manufacturing equipment. Emphasis in FY 2009 and outyears is on shipbuilding affordability for four major platforms: DDG-1000, CVN-21, VCS, and LCS, with some funding geared toward metals processing and fabrication improvements for high priority air platforms. *FY 2009 Accomplishments:* - Continued Schedule Compression / Production Engineering Thrust for VCS Shipbuilding Affordability Initiative. Includes completion of VCS Material Management; and completion of Design for Production Process Improvement. - Continued Outfitting Thrust for VCS Shipbuilding Affordability Initiative. Includes continuation of Outfitting Process Improvement. - Continued rapid response and teaching factory activities. - Continued Metals Materials and Process Improvement Thrust for DDG-1000 Shipbuilding Affordability Initiative. Includes continuation of DDG-1000 Improved Tee Sections for High-Strength Steel Structures. Includes completion of DDG-1000 Advanced Bonding Methods for Steel Structures; completion of Low Cost Pallet Systems for DDG-1000 AGS; completion of DDG-1000 Improved Tee Sections for High-Strength Steel Structures; completion of Coating Application Improvement - formerly High Solids Coatings on DDG-1000; and completion of PVLS Hull Integration (formerly Large Marine Structure Hull Integration). Metallic materials and process efforts for DDG 1000 include material characterization for optimum processing and fabrication as well as process optimization (welding, bonding, machining, etc.) resulting in reduced cost of fabrication for DDG 1000 components. - Continued Metals Materials and Process Improvement Thrust for CVN-21 Shipbuilding Affordability Initiative. Includes continuation of Laser Welded Lightweight Panel Structure Fabrication - NMC and					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
continuation of Alloy 625 Formability for Future Carriers. Includes completion of CVN Preparation Methods for Coating Tanks; completion of Optimization of CVN-21 Power Unit Assembly Facility and Carrier Visual Build; completion of Ballistic 10% Ni Steel; and completion of Advanced Surface Ship Watertight Enclosures. Metallic materials and process efforts for CVN 21 include material characterization for optimum processing and fabrication as well as process optimization (welding, bonding, machining, etc.) resulting in reduced cost of fabrication for CVN 21 components. - Continued Metals Thrust for Littoral Combat Ship (LCS) Shipbuilding Affordability Initiative. Includes continuation of Improved Dimensional Accuracy for LCS; continuation of Low Cost FSW of Aluminum for LCS Applications; and completion of LCS Paint Facility Design. - Continued Metals Materials and Process Improvement Thrust for VCS Shipbuilding Affordability Initiative. Includes completion of SSN Alloy 625 Pipe Welding; completion of SSN-774 Damping Material Application; completion of SSN Alternative Pipe Joining and Fittings; and completion of Laser Cladding for Submarines. Metallic materials and process efforts for VCS include material characterization for optimum processing and fabrication as well as process optimization (welding, bonding, machining, coating / cladding, etc.) resulting in reduced cost of fabrication for VCS components. - Continued Metal Materials and Process Improvements Thrust for Other Ship / Naval Sea Systems Command (NAVSEA) Platforms. - Continued Metals Materials and Process Improvement Thrust for Air Platforms. Includes continuation of Erosion Resistant Coatings for Stage 1 Compressor Components; completion of N-UCAS Structural Design and Manufacturing Development; completion of Corrosion Resistant Coatings for Magnesium Transmission Gearboxes; and completion of Translational Friction Weld Repair of Blisks. - Continued Metal Materials and Process Improvements Thrust for Marine Corps Systems. Acquisition Workforce Fund: - Funded DoD Acquisition Workforce Fund.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: - Continue Schedule Compression / Production Engineering Thrust for VCS Shipbuilding Affordability Initiative. - Continue Outfitting Thrust for VCS Shipbuilding Affordability Initiative. - Continue rapid response and complete teaching factory activities. - Continue Metals Materials and Process Improvement Thrust for DDG-1000 Shipbuilding Affordability Initiative. Metallic materials and process efforts for DDG-1000 include material characterization for optimum processing and fabrication as well as process optimization (welding, bonding, machining, etc.) resulting in reduced cost of fabrication for DDG 1000 components. - Continue Metals Materials and Process Improvement Thrust for CVN-21 Shipbuilding Affordability Initiative. Includes completion of Laser Welded Lightweight Panel Structure Fabrication - NMC and completion of Alloy 625 Formability for Future Carriers. Metallic materials and process efforts for CVN 21 include material characterization for optimum processing and fabrication as well as process optimization (welding, bonding, machining, etc.) resulting in reduced cost of fabrication for CVN 21 components. - Continue Metals Thrust for Littoral Combat Ship (LCS) Shipbuilding Affordability Initiative. - Continue Metals Materials and Process Improvement Thrust for VCS Shipbuilding Affordability Initiative. Metallic materials and process efforts for VCS include material characterization for optimum processing and fabrication as well as process optimization (welding, bonding, machining, coating / cladding, etc.) resulting in reduced cost of fabrication for VCS components. - Continue Metal Materials and Process Improvements Thrust for Other Ship / NAVSEA Platforms. - Continue Metals Materials and Process Improvement Thrust for Air Platforms. - Continue Metal Materials and Process Improvements Thrust for Marine Corps Systems. *FY 2011 Base Plans:* - Continue Schedule Compression / Production Engineering Thrust for VCS Shipbuilding Affordability Initiative. - Continue Outfitting Thrust for VCS Shipbuilding Affordability Initiative.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Continue rapid response efforts. - Continue Metals Materials and Process Improvement Thrust for DDG-1000 Shipbuilding Affordability Initiative. Metallic materials and process efforts for DDG-1000 include material characterization for optimum processing and fabrication as well as process optimization (welding, bonding, machining, etc.) resulting in reduced cost of fabrication for DDG 1000 components. - Continue Metals Materials and Process Improvement Thrust for CVN-21 Shipbuilding Affordability Initiative. Metallic materials and process efforts for CVN 21 include material characterization for optimum processing and fabrication as well as process optimization (welding, bonding, machining, etc.) resulting in reduced cost of fabrication for CVN 21 components. - Continue Metals Thrust for Littoral Combat Ship (LCS) Shipbuilding Affordability Initiative. - Continue Metals Materials and Process Improvement Thrust for VCS Shipbuilding Affordability Initiative. Metallic materials and process efforts for VCS include material characterization for optimum processing and fabrication as well as process optimization (welding, bonding, machining, coating / cladding, etc.) resulting in reduced cost of fabrication for VCS components. - Continue Metal Materials and Process Improvements Thrust for Other Ship / NAVSEA Platforms. - Continue Metals Materials and Process Improvement Thrust for Air Platforms. - Continue Metal Materials and Process Improvements Thrust for Marine Corps Systems.					
OTHER (SHIPBUILDING, REPAIR TECH, ENERGETICS, AND TECHNICAL ENGINEERING SUPPORT) The "Other" activity includes shipbuilding technology, repair technology, energetics, and technical engineering support. Shipbuilding technology primarily addresses the development of manufacturing process improvements for shipyards and is geared towards affordability efforts for four ship platforms: DDG-1000, CVN-21, VIRGINIA Class Submarine (VCS), and Littoral Combat Ship (LCS). Repair technology addresses repair, overhaul, and sustainment functions that emphasize remanufacturing processes and advancing technology. Energetics efforts concentrate on developing energetics solutions to ensure the availability of safe, affordable, and quality energetics products largely in support of Program Executive Office (PEO) Integrated Warfare Systems (IWS).	9.537	10.210	10.210	0.000	10.210

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: - Continued Shipbuilding Affordability Thrust for CVN-21. - Continued Shipbuilding Affordability Thrust for VCS. - Continued Shipbuilding Affordability Thrust for LCS. - Continued Shipbuilding Affordability Thrust for DDG-1000. - Continued Shipbuilding Thrust for Other Ship / NAVSEA Platforms. - Continued Repair Technology Thrust for repair and sustainment of Navy weapons systems. Includes continuation of Repair Technology projects based on high priority depot needs. - Continued Energetics Thrust for PEO IWS and Other Acquisition Programs. Includes continuation of energetics efforts to support PEO IWS and other acquisition programs; and completion of Flexible Manufacturing of Nitrogen Based Gun Propellants. - Continued to provide technical engineering support for the ManTech Program.					
FY 2010 Plans: - Continue Shipbuilding Affordability Thrust for VCS. - Continue Shipbuilding Affordability Thrust for LCS. - Continue Shipbuilding Affordability Thrust for DDG-1000. - Continue Shipbuilding Thrust for Other Ship / NAVSEA Platforms. - Continue Repair Technology Thrust for repair and sustainment of Navy weapons systems. Includes continuation of Repair Technology projects based on high priority depot needs. - Continue Energetics Thrust for PEO IWS and Other Acquisition Programs. Includes continuation of energetics efforts to support PEO IWS and other acquisition programs. - Continue to provide technical engineering support for the ManTech Program.					
FY 2011 Base Plans: - Continue Shipbuilding Affordability Thrust for CVN-21. - Continue Shipbuilding Affordability Thrust for VCS. - Continue Shipbuilding Affordability Thrust for LCS.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Continue Shipbuilding Affordability Thrust for DDG-1000. - Continue Shipbuilding Thrust for Other Ship / NAVSEA Platforms. - Continue Repair Technology Thrust for repair and sustainment of Navy weapons systems. Includes continuation of Repair Technology projects based on high priority depot needs. - Continue Energetics Thrust for PEO IWS and Other Acquisition Programs. Includes continuation of energetics efforts to support PEO IWS and other acquisition programs. - Continue to provide technical engineering support for the ManTech Program.					
Accomplishments/Planned Programs Subtotals	54.790	56.456	46.173	0.000	46.173

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Efforts are focused on shipbuilding affordability reduction for the following the Integrated Systems Investment Strategy platforms: DDG 1000, CVN 21, Littoral Combat Ship (LCS), and the VIRGINIA Class Submarine (VCS) as well as more limited efforts for aircraft / other programs.

E. Performance Metrics

The ManTech program's overall goal is to transition production technology to reduce the cost of Navy weapons systems. Metrics are currently collected on the cost savings per hull and for the class for each of the 4 primary shipbuilding platforms, DDG-1000, CVN-21, LCS and VCS.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Mfg Development (B2P)	C/CPFF	American Competitiveness Institute (ACI) Philadelphia, PA (B2P)	2.300	2.000		2.000		0.000		2.000	0.000	6.300	Continuing
Mfg Development (CMTC)	C/CPAF	SCRA Anderson, SC	8.604	7.200		5.600		0.000		5.600	0.000	21.404	Continuing
Award Fee (CMTC)	C/CPAF	SCRA Anderson, SC	0.050	0.450		0.400		0.000		0.400	0.000	0.900	Continuing
Mfg Development (CNST)1	C/CPFF	Advanced Technology Institute (ATI) Charleston, SC	4.697	0.000		0.000		0.000		0.000	0.000	4.697	Continuing
Mfg Development (CNST)2	C/CPAF	Advanced Technology Institute (ATI) Charleston, SC	1.089	4.914		3.312		0.000		3.312	0.000	9.315	Continuing
Award Fee (CNST)	C/CPAF	Advanced Technology Institute (ATI) Charleston, SC	0.000	0.400		0.280		0.000		0.280	0.000	0.680	Continuing
Mfg Development (EMPF)	C/CPAF	American Competitiveness Institute (ACI) Philadelphia, PA	7.135	6.504		5.060		0.000		5.060	0.000	18.699	Continuing
Award Fee (EMPF)	C/CPAF		0.428	0.497		0.440		0.000		0.440	0.000	1.365	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		American Competitiveness Institute (ACI) Philadelphia, PA											
Mfg Development (EMTC)	WR	Naval Surface Warfare Center - Indian Head Indian Head, MD	2.000	2.000		2.000		0.000		2.000	0.000	6.000	Continuing
Mfg Development (EOC)	C/CPAF	Penn State University State College, PA (EOC)	4.351	4.300		0.850		0.000		0.850	0.000	9.501	Continuing
Award Fee (EOC)	C/CPAF	Penn State University State College, PA (EOC)	0.149	0.200		0.000		0.000		0.000	0.000	0.349	Continuing
Mfg Development (iMAST)	C/CPFF	Penn State University State College, PA (iMAST)	3.899	3.800		3.500		0.000		3.500	0.000	11.199	Continuing
Mfg Development (NJC)	C/CPAF	Edison Welding Institute Columbus, OH	2.825	3.550		2.800		0.000		2.800	0.000	9.175	Continuing
Award Fee (NJC)	C/CPAF	Edison Welding Institute Columbus, OH	0.175	0.200		0.200		0.000		0.200	0.000	0.575	Continuing
Mfg Development (NMC)	C/CPAF		11.500	11.400		11.400		0.000		11.400	0.000	34.300	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Concurrent Technologies Corp. Johnstown, PA											
Award Fee (NMC)	C/CPAF	Concurrent Technologies Corp. Johnstown, PA	0.500	0.600		0.600		0.000		0.600	0.000	1.700	Continuing
Mfg Development	WR	Naval Air Systems Command (NAVAIR) Patuxent River, MD	0.447	0.356		0.350		0.000		0.350	0.000	1.153	Continuing
Mfg Development	WR	Naval Research Laboratory (NRL) Washington, DC	0.160	0.120		0.120		0.000		0.120	0.000	0.400	Continuing
Mfg Development	WR	Naval Surface Warfare Center - Carderock Division (NSWC-CD) Carderock, MD	1.410	1.381		1.400		0.000		1.400	0.000	4.191	Continuing
Mfg Development	WR	Naval Undersea Warfare Center - Newport (NUWC-Newport) Newport, RI	0.050	0.330		0.000		0.000		0.000	0.000	0.380	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Mfg Development	WR	SPAWAR San Diego, CA	0.000	0.010		0.000		0.000		0.000	0.000	0.010	Continuing
		Subtotal	51.769	50.212		40.312		0.000		40.312	0.000	142.293	

Remarks

(1) Award Fee for SCRA (H-11) low in FY09 due to unused funds from prior years in award fee pool

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Support (GTEC)	C/CPFF	Not Specified Not Specified	1.955	1.807		1.800		0.000		1.800	0.000	5.562	Continuing
Contractor Support (GMST)	C/CPFF	Not Specified Not Specified	0.000	0.048		0.000		0.000		0.000	0.000	0.048	Continuing
ManTech Registrations (GMPC)	WR	Not Specified Not Specified	0.006	0.010		0.010		0.000		0.010	0.000	0.026	Continuing
ManTech Travel (GMTT)	WR	Not Specified Not Specified	0.075	0.080		0.080		0.000		0.080	0.000	0.235	Continuing
Contracting Support (GMST)	C/CPFF	Not Specified Not Specified	0.100	0.170		0.170		0.000		0.170	0.000	0.440	Continuing
Miscellaneous (IT Support Bills)	Various/ Various	Not Specified Not Specified	0.612	1.294		1.294		0.000		1.294	0.000	3.200	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 1050: *Manufacturing Tech*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Miscellaneous (Stat Reserve)	Various/ Various	Not Specified Not Specified	0.088	2.835		2.507		0.000		2.507	0.000	5.430	Continuing
		Subtotal	2.836	6.244		5.861		0.000		5.861	0.000	14.941	

Remarks

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce Fund	Various/ Various	Various Various	0.272	0.000		0.000		0.000		0.000	0.000	0.272	Continuing
		Subtotal	0.272	0.000		0.000		0.000		0.000	0.000	0.272	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	54.877	56.456		46.173		0.000		46.173	0.000	157.506	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708011N: *Industrial Preparedness*	**PROJECT** 1050: *Manufacturing Tech*

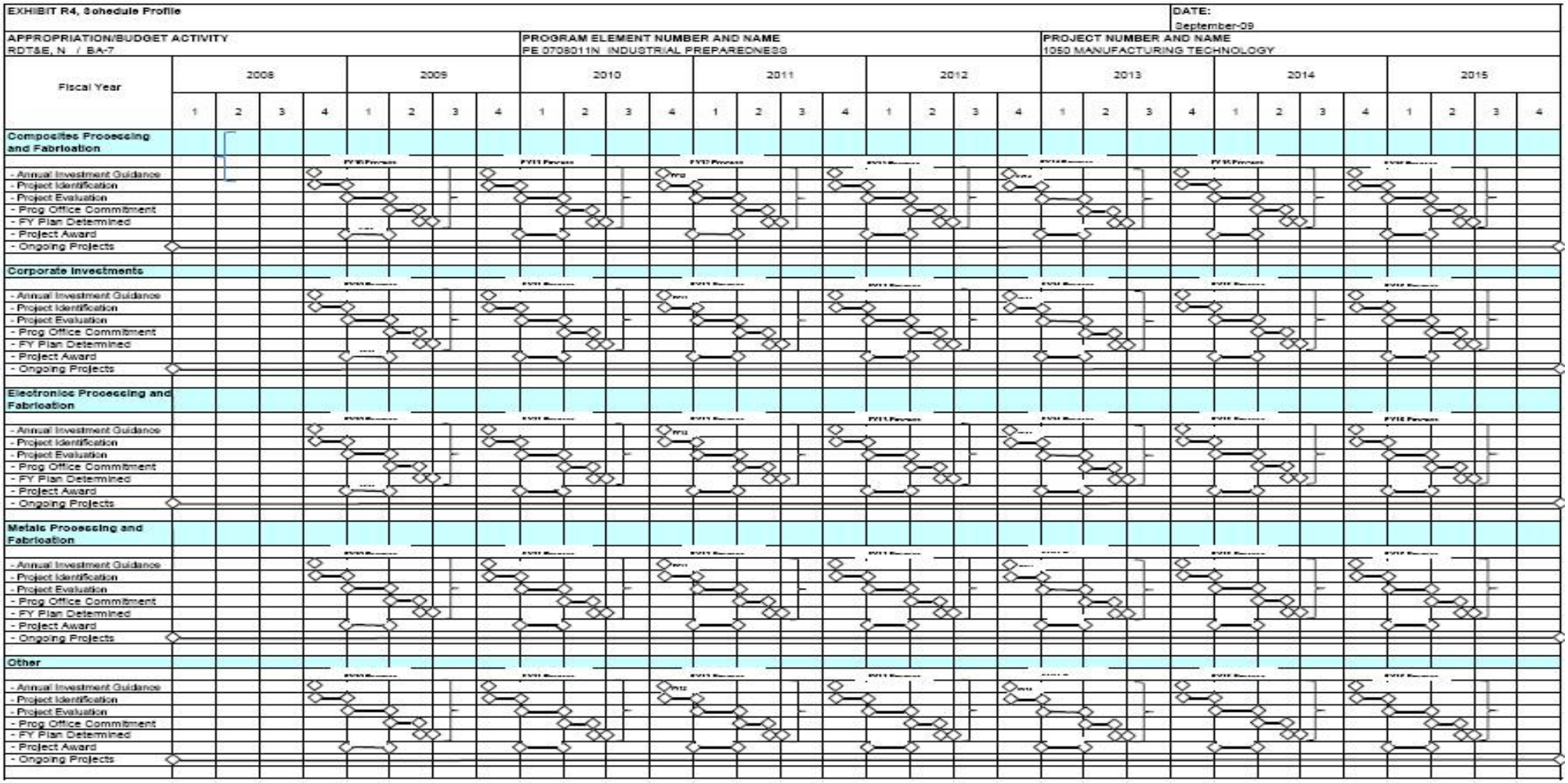

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	5.186	18.424	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.666
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional interest items not included in other projects.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Flight/Hangar Deck Cleaner *FY 2010 Plans:* This effort supports Flight/Hanger Deck Cleaner research.	0.000	1.394
Congressional Add: Laser Optimization Remote Lighting System *FY 2010 Plans:* This effort supports Laser Optimization Remote Lighting System research.	0.000	1.992
Congressional Add: Weps Sys Life Ext Program *FY 2010 Plans:* This effort supports the Weps Sys Life Ext Program research.	0.000	2.490
Congressional Add: Low Acoustic and Thermal Signature Battlefield Power Source	0.000	3.187

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2010 Plans: This effort supports Low Acoustic and Thermal Signature Battlefield Power Source research.		
Congressional Add: Manufacturing S&T for Next-Generation Energetics *FY 2010 Plans:* This effort supports Manufacturing S&T for Next-Generation Energetics research.	0.000	4.979
Congressional Add: E-Beam Free Form Repair Qualification *FY 2009 Accomplishments:* This effort supported the use of Electron Beam Free Form Fabrication (EBFFF) to build near-net shapes using engineered materials in a layer-by-layer fashion or for metal deposition repair of components. This EBFFF project applied this new technology directly to components of Navy weapon systems including, but not limited to, underwater and surface vehicles. Prototype components have been produced or repaired to demonstrate the cost and viability of EBFFF.	1.197	0.000
Congressional Add: Next Generation Scalable Lean Manufacturing Initia *FY 2009 Accomplishments:* This effort supported the development of manufacturing technology to make small Navy watercraft more affordable through out of autoclave processing of high performance prepreg materials. This technology supports the affordable manufacture of composite decks and major structural components of small high performance craft. Automated fabrication methods for ply cutting and placement are sought to reduce the cost of building small high performance watercraft.	2.393	2.390

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708011N: *Industrial Preparedness*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2010 Plans: Continues support of Next Generation Scalable Lean Manufacturing Initiative - Phase Two research.		
Congressional Add: Out of Autociave Composite Processing *FY 2009 Accomplishments:* This effort supported the development of new manufacturing technology to make future generation aircraft more affordable through the automated fiber placement of a new generation of composite materials that can be cured without the benefit of high pressure autoclaves. The development and demonstration of out of autoclave materials using automated fabrication methods reduce the cost of manufacturing Navy aircraft. *FY 2010 Plans:* Continues support of Out of Autociave composite Processing research.	1.596	1.992
Congressional Adds Subtotals	5.186	18.424

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional add

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708730N: *Maritime Tech (MARITECH)*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	4.083	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	40.785
9999: *Congressional Adds*	0.000	4.083	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	40.785

A. Mission Description and Budget Item Justification

The National Shipbuilding Research Program (NSRP) is an industry and enterprise wide research collaboration that seeks to reduce the Navy's shipbuilding and repair cost. The resulting technologies implemented in NSRP-ASE member shipyards, benefit both the shipyard and the US Navy.

Project 9999 - Congressional Adds: National Shipbuilding Research Program Advanced Shipbuilding Enterprise and Passive RFID Development.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	4.083	0.000	0.000	0.000
Total Adjustments	0.000	4.083	0.000	0.000	0.000
• Congressional General Reductions		-0.017			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		4.100			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *National Shipbuilding Research Program Advanced Shipbuilding Enterprise*	0.000	3.187
Congressional Add: *Passive RFID Development*	0.000	0.896
	0.000	4.083

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0708730N: *Maritime Tech (MARITECH)*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add Subtotals for Project: 9999		
Congressional Add Totals for all Projects	0.000	4.083

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708730N: *Maritime Tech (MARITECH)*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	4.083	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	40.785
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The National Shipbuilding Research Program (NSRP) is an industry and enterprise wide research collaboration that seeks to reduce the cost of NAVSEA and affiliated PEO shipbuilding and repair. The resulting technologies implemented in NSRP-ASE member shipyards, benefiting both the shipyard and the US Navy.

Project 9999 - Congressional Adds: National Shipbuilding Research Program Advanced Shipbuilding Enterprise and Passive RFID Development.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: National Shipbuilding Research Program Advanced Shipbuilding Enterprise *FY 2010 Plans:* To manage and focus national shipbuilding and repair research and development funding on technologies that will reduce the cost of ships to the US Navy by leveraging best commercial practices and improving the efficiency of the industry. VT Halter Marine in Pascagoula, MS is one of the industry performers.	0.000	3.187
Congressional Add: Passive RFID Development *FY 2010 Plans:* The Department of Defense and the U.S. Navy will develop a system to track their vast inventories of parts and supplies. This implementation of passive RFID technology will greatly improve visibility of parts as they flow through the DoD supply distribution system to our forward deployed forces afloat.	0.000	0.896

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0708730N: *Maritime Tech (MARITECH)*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
The U.S. Navy believes this effort, which will bring numerous high tech jobs to Northeast Ohio, will reduce logistics, operating and inventory costs, reduce manning needs on Navy ships, and increase military readiness. Industry performer is Main Sail, LLC in Cleveland, OH.		
Congressional Adds Subtotals	0.000	4.083

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Quarterly Program Reviews