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

JUSTIFICATION OF ESTIMATES
FEBRUARY 2010

RESEARCH, DEVELOPMENT, TEST & EVALUATION, NAVY
BUDGET ACTIVITY 5

THIS PAGE INTENTIONALLY LEFT BLANK

Table of Contents

Introduction and Explanation of Contents..... iii

Comptroller Exhibit R-1..... v

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

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

Exhibit R-2's..... 1

THIS PAGE INTENTIONALLY LEFT BLANK

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.

THIS PAGE INTENTIONALLY LEFT BLANK

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
System Development & Demonstration	8,311,870	8,205,037	3,899	8,208,936	6,852,468	300	6,852,768
Total Research, Development, Test & Eval, Navy	8,311,870	8,205,037	3,899	8,208,936	6,852,468	300	6,852,768
Summary Recap of FYDP Programs							
General Purpose Forces		569,669		569,669	549,241		549,241
Intelligence and Communications	18,229	19,833		19,833	19,752		19,752
Research and Development	8,293,641	7,615,535	3,899	7,619,434	6,283,475	300	6,283,775
Total Research, Development, Test & Eval, Navy	8,311,870	8,205,037	3,899	8,208,936	6,852,468	300	6,852,768

Exhibit R-1G: FY 2011 President's Budget (Published), as of January 19, 2010 at 15:25:37

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
81	0604212N	Other Helo Development	05	53,264	53,868		53,868	44,329		44,329	U
82	0604214N	AV-8B Aircraft - Eng Dev	05	33,654	20,799		20,799	22,867		22,867	U
83	0604215N	Standards Development	05	67,790	59,044		59,044	45,667		45,667	U
84	0604216N	Multi-Mission Helicopter Upgrade Development	05	67,891	75,284		75,284	55,792		55,792	U
85	0604218N	Air/Ocean Equipment Engineering	05	5,362	7,454		7,454	5,735		5,735	U
86	0604221N	P-3 Modernization Program	05	3,458	3,644		3,644	3,574		3,574	U
87	0604230N	Warfare Support System	05	12,300	6,280		6,280	3,733		3,733	U
88	0604231N	Tactical Command System	05	110,568	92,379		92,379	89,955		89,955	U
89	0604234N	Advanced Hawkeye	05	468,027	361,053		361,053	171,132		171,132	U
90	0604245N	H-1 Upgrades	05	4,044	32,694		32,694	60,498		60,498	U
91	0604261N	Acoustic Search Sensors	05	38,418	56,086		56,086	64,834		64,834	U
92	0604262N	V-22A	05	66,041	76,693	1,645	78,338	46,070		46,070	U
93	0604264N	Air Crew Systems Development	05	15,675	12,513		12,513	8,689		8,689	U
94	0604269N	EA-18	05	115,724	56,809	269	57,078	22,042		22,042	U
95	0604270N	Electronic Warfare Development	05	91,418	105,193		105,193	80,819		80,819	U
96	0604273N	VH-71A Executive Helo Development	05	756,595	129,404		129,404	159,785		159,785	U
97	0604274N	Next Generation Jammer (NGJ)	05		117,481		117,481	120,602		120,602	U
98	0604280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05	824,226	875,848		875,848	687,723		687,723	U

Exhibit R-1G: FY 2011 President's Budget (Published), as of January 19, 2010 at 15:25:37

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
99	0604300N	SC-21 Total Ship System Engineering	05	506,798	7,966		7,966				U
100	0604307N	Surface Combatant Combat System Engineering	05	196,993	183,275		183,275	193,933		193,933	U
101	0604311N	LPD-17 Class Systems Integration	05	950	5,282		5,282	1,373		1,373	U
102	0604329N	Small Diameter Bomb (SDB)	05	18,918	43,717		43,717	44,091		44,091	U
103	0604366N	Standard Missile Improvements	05	222,938	167,200		167,200	96,186		96,186	U
104	0604373N	Airborne MCM	05	40,731	50,899		50,899	45,885		45,885	U
105	0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05	12,079	11,678		11,678	21,517		21,517	U
106	0604501N	Advanced Above Water Sensors	05	124,926	251,251		251,251	274,371		274,371	U
107	0604503N	SSN-688 and Trident Modernization	05	131,196	120,779		120,779	118,897		118,897	U
108	0604504N	Air Control	05	7,967	6,506		6,506	5,665		5,665	U
109	0604512N	Shipboard Aviation Systems	05	50,356	78,496		78,496	70,117		70,117	U
110	0604518N	Combat Information Center Conversion	05	17,314	13,250		13,250	5,044		5,044	U
111	0604558N	New Design SSN	05	184,071	184,338		184,338	155,489		155,489	U
112	0604562N	Submarine Tactical Warfare System	05	64,526	67,024		67,024	50,537		50,537	U
113	0604567N	Ship Contract Design/ Live Fire T&E	05	84,639	91,587		91,587	153,686		153,686	U

Exhibit R-1G: FY 2011 President's Budget (Published), as of January 19, 2010 at 15:25:37

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
114	0604574N	Navy Tactical Computer Resources	05		4,601		4,601	4,443		4,443	U
115	0604601N	Mine Development	05	1,987	2,240		2,240	5,455		5,455	U
116	0604610N	Lightweight Torpedo Development	05	44,848	23,407		23,407	25,282		25,282	U
117	0604654N	Joint Service Explosive Ordnance Development	05	10,806	10,284		10,284	10,489		10,489	U
118	0604703N	Personnel, Training, Simulation, and Human Factors	05	5,097	6,646		6,646	10,759		10,759	U
119	0604727N	Joint Standoff Weapon Systems	05	21,821	9,980		9,980	12,567		12,567	U
120	0604755N	Ship Self Defense (Detect & Control)	05	43,772	44,374		44,374	45,930		45,930	U
121	0604756N	Ship Self Defense (Engage: Hard Kill)	05	55,323	46,044		46,044	5,860		5,860	U
122	0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05	57,184	88,526		88,526	84,525		84,525	U
123	0604761N	Intelligence Engineering	05	23,705	14,378		14,378	6,820		6,820	U
124	0604771N	Medical Development	05	39,457	56,692		56,692	12,337	300	12,637	U
125	0604777N	Navigation/ID System	05	46,053	62,886		62,886	66,636		66,636	U
126	0604800M	Joint Strike Fighter (JSF) - EMD	05					667,916		667,916	U
127	0604800N	Joint Strike Fighter (JSF)	05	1,704,592	1,948,244	1,985	1,950,229	707,791		707,791	U
128	0605013M	Information Technology Development	05	33,088	9,827		9,827	22,783		22,783	U

Exhibit R-1G: FY 2011 President's Budget (Published), as of January 19, 2010 at 15:25:37

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
129	0605013N	Information Technology Development	05	99,628	91,425		91,425	28,280		28,280	U
130	0605018N	Navy Integrated Military Human Resources System (N-IMHRS)	05					27,444		27,444	U
131	0605212N	CH-53K RDTE	05	543,859	522,268		522,268	577,435		577,435	U
132	0605430N	C/KC-130 Avionics Modernization Program (AMP)	05	18,922							U
133	0605450N	Joint Air-to-Ground Missile (JAGM)	05	54,972	77,412		77,412	100,846		100,846	U
134	0605500N	Multi-mission Maritime Aircraft (MMA)	05	1,089,670	1,170,527		1,170,527	929,240		929,240	U
135	0204201N	CG(X)	05		45,400		45,400				U
136	0204202N	DDG-1000	05		524,269		524,269	549,241		549,241	U
137	0304231N	Tactical Command System - MIP	05					1,318		1,318	U
138	0304503N	SSN-688 and Trident Modernization - MIP	05					1,415		1,415	U
139	0304785N	Tactical Cryptologic Systems	05	18,229	19,833		19,833	17,019		17,019	U
		System Development & Demonstration		8,311,870	8,205,037	3,899	8,208,936	6,852,468	300	6,852,768	
Total Research, Development, Test & Eval, Navy				8,311,870	8,205,037	3,899	8,208,936	6,852,468	300	6,852,768	

Exhibit R-1G: FY 2011 President's Budget (Published), as of January 19, 2010 at 15:25:37

THIS PAGE INTENTIONALLY LEFT BLANK

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

Budget Activity 05: Development & Demonstration (SDD)

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
81	05	0604212N	Other Helicopter Development	1
82	05	0604214N	AV-8B Aircraft - Engine Dev	33
83	05	0604215N	Standards Development	55
84	05	0604216N	Multi-Mssn Helicopter Upgrade Dev	109
85	05	0604218N	Air/Ocean Equipment Engineering	123
86	05	0604221N	P-3 Modernization Program	147
87	05	0604230N	Warfare Support System	163
88	05	0604231N	Tactical Command System	187
89	05	0604234N	Advanced Hawkeye	293
90	05	0604245N	H-1 Upgrades	309
91	05	0604261N	Acoustic Search Sensors	323
92	05	0604262N	V-22A	345
93	05	0604264N	Air Crew Systems Development	357
94	05	0604269N	EA-18 Squadrons	369
95	05	0604270N	Electronic Warfare (EW) Dev	383
96	05	0604273N	VH-71 Executive Helo Development	425

Budget Activity 05: Development & Demonstration (SDD)

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
97	05	0604274N	Next Generation Jammer (NGJ)	449
98	05	0604280N	JT Tact Radio Sys (JTRS)	457
99	05	0604300N	SC-21 Total Ship System Eng	515
100	05	0604307N	Surface Combatant Cmbt Sys Eng	531
101	05	0604311N	LPD-17 Class Systems Integration	551
102	05	0604329N	Small Diameter Bomb (SDB)	561
103	05	0604366N	Standard Missile Improvements	573
104	05	0604373N	Airborne Mine Countermeasures (AMCM)	597
105	05	0604378N	Nav Integrated Fire Control-Counter Air Sys Eng	661
106	05	0604501N	Advanced Above Water Sensors	677
107	05	0604503N	SSN-688 & Trident Modernization	721
108	05	0604504N	Air Control	771
109	05	0604512N	Shipboard Aviation Systems	787
110	05	0604518N	Combat Information Center Conv	821
111	05	0604558N	New Design SSN	835
112	05	0604562N	Submarine Tactical Warfare System	871
113	05	0604567N	Ship Contract Design/ Live Fire T&E	889
114	05	0604574N	Navy Tactical Computer Resources	945

Budget Activity 05: Development & Demonstration (SDD)

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
115	05	0604601N	Mine Development	955
116	05	0604610N	Lightweight Torpedo Development	967
117	05	0604654N	JT Service EOD	979
118	05	0604703N	Personnel, Trng, Sim, & Human Factors	985
119	05	0604727N	Joint Standoff Weapon Systems	999
120	05	0604755N	Ship Self Def (Detect & Cntrl)	1011
121	05	0604756N	Ship Self Def (Engage: Hard Kill)	1047
122	05	0604757N	Ship Self Def (Engage: Soft Kill/EW)	1069
123	05	0604761N	Intelligence Engineering	1099
124	05	0604771N	Medical Development	1103
125	05	0604777N	Navigation/Id System	1119
126	05	0604800M	(U)Joint Strike Fighter (JSF) - EMD	1169
127	05	0604800N	JT Strike Fighter (JSF) - EMD	1191
128	05	0605013M	Marine Corps IT Dev/Mod	1223
129	05	0605013N	Information Technology Development	1239
130	05	0605018N	Navy Integrated Mil Human Res Sys(N-IMHRS)	1315
131	05	0605212N	CH-53K	1323
132	05	0605430N	C/KC-130 Avionics Modernization Program (AMP)	1335

Budget Activity 05: Development & Demonstration (SDD)

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
133	05	0605450N	Joint Air-to-ground Missile (JAGM)	1343
134	05	0605500N	Multi-mssn Maritime Aircraft (MMA) (P-8A)	1355
135	05	0204201N	CG(X)	1387
136	05	0204202N	DDG-1000	1393
137	05	0304231N	Tactical Command System - MIP	1411
138	05	0304503N	SSN-688 and Trident Modernization-MIP	1421
139	05	0304785N	Tactical Cryptologic Systems	1429

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

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
(U)Joint Strike Fighter (JSF) - EMD	0604800M	126	05	1169
Acoustic Search Sensors	0604261N	91	05	323
Advanced Above Water Sensors	0604501N	106	05	677
Advanced Hawkeye	0604234N	89	05	293
Air/Ocean Equipment Engineering	0604218N	85	05	123
Airborne Mine Countermeasures (AMCM)	0604373N	104	05	597
Air Control	0604504N	108	05	771
Air Crew Systems Development	0604264N	93	05	357
AV-8B Aircraft - Engine Dev	0604214N	82	05	33
C/KC-130 Avionics Modernization Program (AMP)	0605430N	132	05	1335
CG(X)	0204201N	135	05	1387
CH-53K	0605212N	131	05	1323
Combat Information Center Conv	0604518N	110	05	821
DDG-1000	0204202N	136	05	1393
EA-18 Squadrons	0604269N	94	05	369
Electronic Warfare (EW) Dev	0604270N	95	05	383
H-1 Upgrades	0604245N	90	05	309

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Information Technology Development	0605013N	129	05	1239
Intelligence Engineering	0604761N	123	05	1099
Joint Air-to-ground Missile (JAGM)	0605450N	133	05	1343
Joint Standoff Weapon Systems	0604727N	119	05	999
JT Service EOD	0604654N	117	05	979
JT Strike Fighter (JSF) - EMD	0604800N	127	05	1191
JT Tact Radio Sys (JTRS)	0604280N	98	05	457
Lightweight Torpedo Development	0604610N	116	05	967
LPD-17 Class Systems Integration	0604311N	101	05	551
Marine Corps IT Dev/Mod	0605013M	128	05	1223
Medical Development	0604771N	124	05	1103
Mine Development	0604601N	115	05	955
Multi-Mssn Helicopter Upgrade Dev	0604216N	84	05	109
Multi-mssn Maritime Aircraft (MMA) (P-8A)	0605500N	134	05	1355
Navigation/Id System	0604777N	125	05	1119
Nav Integrated Fire Control-Counter Air Sys Eng	0604378N	105	05	661
Navy Integrated Mil Human Res Sys(N-IMHRS)	0605018N	130	05	1315
Navy Tactical Computer Resources	0604574N	114	05	945
New Design SSN	0604558N	111	05	835
Next Generation Jammer (NGJ)	0604274N	97	05	449

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Other Helicopter Development	0604212N	81	05	1
P-3 Modernization Program	0604221N	86	05	147
Personnel, Trng, Sim, & Human Factors	0604703N	118	05	985
SC-21 Total Ship System Eng	0604300N	99	05	515
Shipboard Aviation Systems	0604512N	109	05	787
Ship Contract Design/ Live Fire T&E	0604567N	113	05	889
Ship Self Def (Detect & Cntrl)	0604755N	120	05	1011
Ship Self Def (Engage: Hard Kill)	0604756N	121	05	1047
Ship Self Def (Engage: Soft Kill/EW)	0604757N	122	05	1069
Small Diameter Bomb (SDB)	0604329N	102	05	561
SSN-688 & Trident Modernization	0604503N	107	05	721
SSN-688 and Trident Modernization-MIP	0304503N	138	05	1421
Standard Missile Improvements	0604366N	103	05	573
Standards Development	0604215N	83	05	55
Submarine Tactical Warfare System	0604562N	112	05	871
Surface Combatant Cmbt Sys Eng	0604307N	100	05	531
Tactical Command System	0604231N	88	05	187
Tactical Command System - MIP	0304231N	137	05	1411
Tactical Cryptologic Systems	0304785N	139	05	1429
V-22A	0604262N	92	05	345

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
VH-71 Executive Helo Development	0604273N	96	05	425
Warfare Support System	0604230N	87	05	163

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter 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	53.264	53.868	44.329	0.000	44.329	31.136	20.050	10.205	5.268	Continuing	Continuing
1109: *CH/MH-53*	2.750	2.946	3.526	0.000	3.526	3.539	2.648	3.008	3.072	Continuing	Continuing
2415: *H-60 Development*	42.767	48.930	38.910	0.000	38.910	25.706	15.510	5.299	0.298	Continuing	Continuing
2460: *VH-3/VH-60*	7.747	1.992	1.893	0.000	1.893	1.891	1.892	1.898	1.898	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element includes funding for the development support for improvements to current systems for CH/MH-53, MH-60 development and VH-3/VH-60. The H-53 is the premier heavy lift helicopter for the Marine Corps and only operational airborne mine sweeping platform for the Navy. H-53 RDT&E efforts focus on trade studies and risk reduction measures to identify candidate survivability, safety, avionics, cargo handling, cockpit and other airframe specific improvements to extend the service life. The MH-60S Helicopter has three primary mission areas; Combat Support, Organic Airborne Mine Countermeasures (AMCM) and Armed Helo. The VH-3/VH-60 is required to provide safe and timely transportation for the President and Vice President of the United States, heads of state and others as directed by the White House Military Office (WHMO).

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	57.811	54.092	0.000	0.000	0.000
Current President's Budget	53.264	53.868	44.329	0.000	44.329
Total Adjustments	-4.547	-0.224	44.329	0.000	44.329
• Congressional General Reductions		-0.224			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-2.900	0.000			
• SBIR/STTR Transfer	-1.647	0.000			
• Program Adjustments	0.000	0.000	44.329	0.000	44.329

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*

Change Summary Explanation

Technical: Not applicable.

Schedule:
1109 CH/MH-53: Not Applicable

2415 AMCM: AMCM Blk 2A Developmental Testing (DT) has extended into 4Q FY10 due to engineering investigations associated with Carriage, Stream, Tow and Recovery System (CSTRS) winch and Tow Hook, delaying Operational Testing (OT) accordingly. Initial Operational Capability (IOC) and Interim Program Review (IPR) IV/Full Rate Production (FRP) have moved to 3Q and 4Q FY11 respectively. Airborne Mine Neutralization System (AMNS) Verification of Correction of Deficiencies/DT was delayed from 3Q FY09 until 2Q FY10 as a result of software integration issues which required AMNS computer hardware and helicopter common console software changes, also delaying OT. Technical issues with sensor performance resulted in the delay of Airborne Laser Mine Detection System (ALMDS) DT from 3Q FY09 until 2Q FY10, and OT from 1Q FY10 to 1Q FY11. Low Rate Initial Production (LRIP) contract award was removed due to reassessment of existing assets and ability to modify for testing and initial training.

2415 Forward Firing Weapon (FFW)- Design and integration of FFW extended from 3Q FY10 until 1Q FY11 as a result of further definition of contract scope and required engineering analysis of design. Air Worthiness Certification extended out through 4Q FY10 due to delays in test aircraft availability. Delays in aircraft instrumentation and required maintenance resulted in a delay in the commencement of Developmental Testing (DT) from 2Q to 3Q FY10. Subsequently, the commencement of Operational Testing (OT) has moved from 3Q to 4Q FY10.

2460 VH-3/VH-60: 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 1109: *CH/MH-53*	

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
1109: *CH/MH-53*	2.750	2.946	3.526	0.000	3.526	3.539	2.648	3.008	3.072	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The H-53 helicopter is the premier heavy lift helicopter for the Marine Corps and the only operational airborne mine sweeping platform for the Navy. Through FY2015, H-53 efforts will continue to develop and qualify components, prior to production and approval decisions, in order to replace obsolete system components. Emphasis will be placed on supportability improvement modifications that will sustain the H-53 aircraft until the transition of the H-53K is complete. These efforts combined, will significantly improve the readiness of the H-53 fleet while reducing long term operational and supportability costs. H-53 RDT&E efforts will focus on trade studies and risk reduction measures to identify candidate survivability, safety, avionics, cargo handling, cockpit and other airframe specific improvements to extend the service life. Modeling and simulation will be used to the maximum practical extent throughout this effort. MFS will be utilized to develop, install and test interim modifications to existing H-53 legacy avionics, while maintaining the original basic system footprint and functionality. As a part of this effort, a complete EMV assessment will be required for the affected and/or modified systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
H-53 Avionics	0.375	0.409	0.544	0.000	0.544
FY 2009 Accomplishments: Integrated software applique for cockpit and avionics improvements, to include the development of new sensors and the impact in flight control computers. Conducted Business Case Analyses to determine impact of high Operation and Support (O&S) cost drivers and addressed alternatives for obsolescence issues.					
FY 2010 Plans: Integrate software applique for cockpit and avionics improvements, to include the development of new sensors and the impact in flight control computers. Conduct Business Case Analyses to determine					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 1109: *CH/MH-53*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
impact of high Operation and Support (O&S) cost drivers and address alternatives for obsolescence issues. *FY 2011 Base Plans:* Integrate software applique for cockpit and avionics improvements, to include the development of new sensors and the impact in flight control computers. Conduct Business Case Analyses to determine impact of high Operation and Support (O&S) cost drivers and address alternatives for obsolescence issues.					
H-53 Survivability *FY 2009 Accomplishments:* Conducted trade studies, risk reduction, design, development, model, integration and test activities for H-53 survivability systems to include effectiveness of the ballistic vulnerability (armor) package. *FY 2010 Plans:* Perform trade studies, risk reduction, design, development, model, integration and test activities for H-53 survivability systems to include effectiveness of the ballistic vulnerability (armor) package. *FY 2011 Base Plans:* Perform trade studies, risk reduction, design, development, model, integration and test activities for H-53 survivability systems to include effectiveness of the ballistic vulnerability (armor) package.	0.198	0.208	0.406	0.000	0.406
H-53 Propulsion *FY 2009 Accomplishments:* Conducted trade studies, risk reduction, design, development, integration and test activities for H-53 T64 engine and related systems.	1.317	1.439	1.520	0.000	1.520

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 1109: *CH/MH-53*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Perform trade studies, risk reduction, design, development, integration and test activities for H-53 T64 engine and related systems. *FY 2011 Base Plans:* Perform trade studies, risk reduction, design, development, integration and test activities for H-53 T64 engine and related systems.					
Project Management Support *FY 2009 Accomplishments:* Provided in-house, field activity, and contractor support of Integrated Product Teams (IPTs) to allow for studies and analyses, preparation of acquisition documentation and examination of equipment and avionics for the H-53. Efforts include, but are not limited to, government development support, engineering support, product management support, system engineering and logistics support, and travel for the H-53 program. *FY 2010 Plans:* Provide in-house, field activity, and contractor support of Integrated Product Teams (IPTs) to allow for studies and analyses, preparation of acquisition documentation and examination of equipment and avionics for the H-53. Efforts include, but are not limited to, government development support, engineering support, product management support, system engineering and logistics support, and travel for the H-53 program. *FY 2011 Base Plans:* Provide in-house, field activity, and contractor support of Integrated Product Teams (IPTs) to allow for studies and analyses, preparation of acquisition documentation and examination of equipment and avionics for the H-53. Efforts include, but are not limited to, government development support,	0.642	0.663	0.732	0.000	0.732

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 1109: *CH/MH-53*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
engineering support, product management support, system engineering and logistics support, and travel for the H-53 program.					
H-53 Airframe	0.218	0.227	0.324	0.000	0.324
FY 2009 Accomplishments: Conducted trade studies, risk reduction, design, development, integration and test activities for the H-53 airframe to include, but not limited to, main rotorhead, cowlings, aircraft structure, drive train, and various dynamic components. *FY 2010 Plans:* Perform trade studies, risk reduction, design, development, integration and test activities for the H-53 airframe to include, but not limited to, main rotorhead, cowlings, aircraft structure, drive train, and various dynamic components. *FY 2011 Base Plans:* Perform trade studies, risk reduction, design, development, integration and test activities for the H-53 airframe to include, but not limited to, main rotorhead, cowlings, aircraft structure, drive train, and various dynamic components.					
Accomplishments/Planned Programs Subtotals	2.750	2.946	3.526	0.000	3.526

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/0528: *H-53 Series*	91.888	232.717	25.871	36.248	62.119	38.044	25.851	30.628	29.249	263.659	1,648.774

D. Acquisition Strategy

This is a non-ACAT program with no specific acquisition strategies.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604212N: *Other Helicopter Development*	**PROJECT** 1109: *CH/MH-53*

E. Performance Metrics

Successfully perform studies, analysis and develop software to address emergent H-53 issues. Successfully support developmental and operation test activities to qualify aircraft modifications/upgrades.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 1109: *CH/MH-53*

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	1.736	0.337	Mar 2010	0.420	Mar 2011	0.000		0.420	Continuing	Continuing	Continuing
Ancillary Hardware Development	Various/ Various	Various Various	1.437	0.133	Mar 2010	0.224	Mar 2011	0.000		0.224	Continuing	Continuing	Continuing
Aircraft Integration	TM	Northrop Grumman Chicago, IL	12.010	0.000		0.000		0.000		0.000	0.000	12.010	12.010
Aircraft Integration	TM	OADS Manassas, VA	2.493	0.000		0.000		0.000		0.000	0.000	2.493	2.493
Systems Engineering	WR	NAWC AD Patuxent River, MD	1.053	0.629	Nov 2009	0.702	Nov 2010	0.000		0.702	Continuing	Continuing	Continuing
		Subtotal	18.729	1.099		1.346		0.000		1.346			

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	1.506	0.239	Mar 2010	0.326	Mar 2011	0.000		0.326	Continuing	Continuing	Continuing
GFE		NAWC AD	0.884	0.436	Nov 2009	0.421	Nov 2010	0.000		0.421	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 1109: *CH/MH-53*

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	Patuxent River, MD											
		Subtotal	2.390	0.675		0.747		0.000		0.747			

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	3.393	0.827	Mar 2010	0.947	Mar 2011	0.000		0.947	Continuing	Continuing	Continuing
		Subtotal	3.393	0.827		0.947		0.000		0.947			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 1109: *CH/MH-53*

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	TM	Sikorsky Stratford, CT	2.925	0.000		0.000		0.000		0.000	0.000	2.925	2.925
Government Engineering Support	WR	NAWC AD Patuxent River, MD	4.589	0.201	Nov 2009	0.287	Nov 2010	0.000		0.287	Continuing	Continuing	Continuing
Program Management Support	Various/ Various	Various Various	1.765	0.000		0.000		0.000		0.000	0.000	1.765	Continuing
Travel	Various/ Various	Various Various	1.284	0.144	Oct 2009	0.199	Oct 2010	0.000		0.199	Continuing	Continuing	Continuing
		Subtotal	10.563	0.345		0.486		0.000		0.486			

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	35.075	2.946		3.526		0.000		3.526			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 1109: *CH/MH-53*

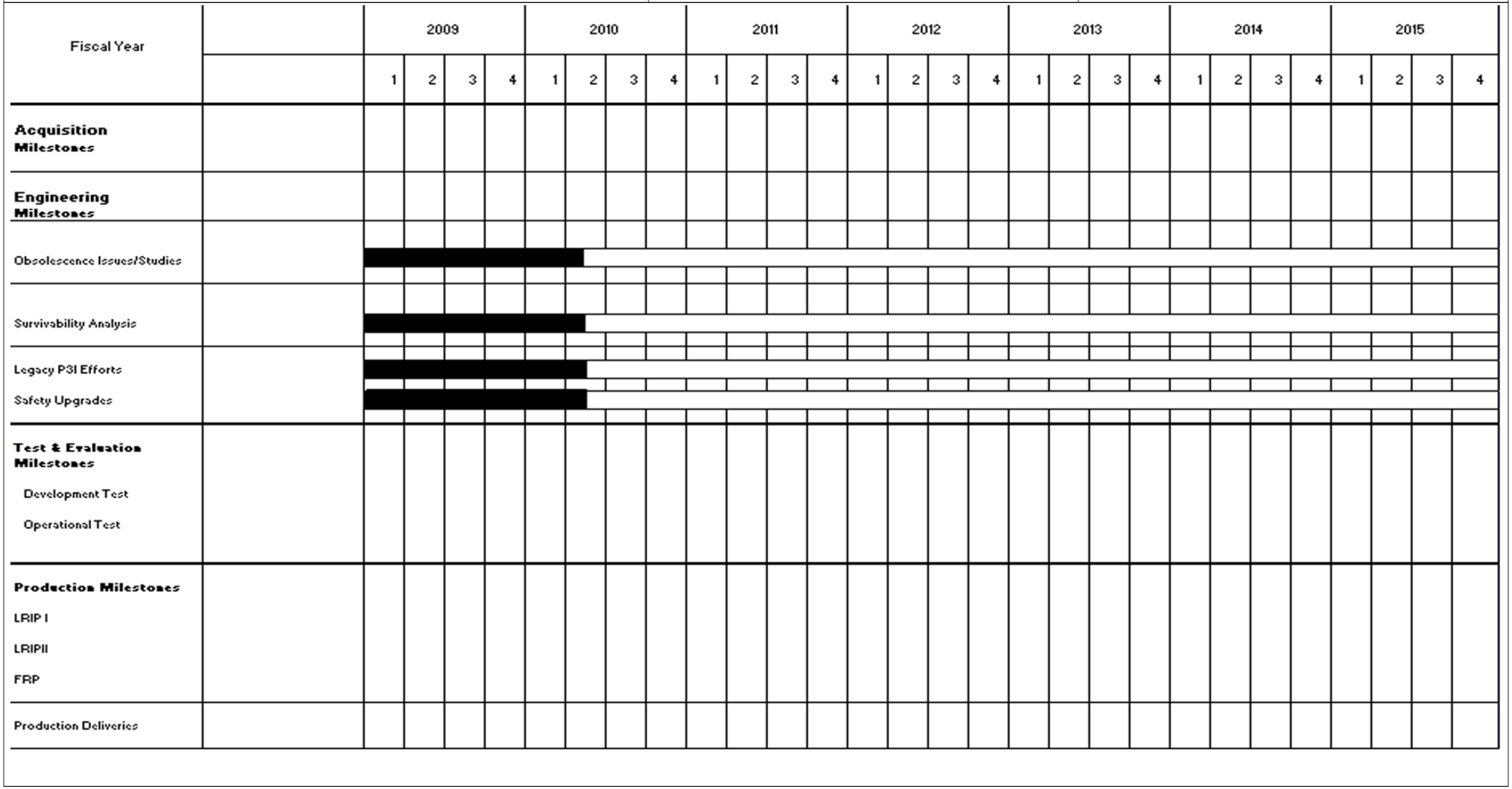


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 1109: *CH/MH-53*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
CH/MH-53	1	2009	4	2015
-- Obsolescence Issues/Studies	1	2009	4	2015
-- Survivability Analysis	1	2009	4	2015
-- Legacy P3I Efforts	1	2009	4	2015
-- Safety Upgrades	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2415: *H-60 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
2415: *H-60 Development*	42.767	48.930	38.910	0.000	38.910	25.706	15.510	5.299	0.298	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

2415 - The Helicopter Combat Support (HC) mission is to maintain forward deployed fleet sustainability through rapid airborne delivery of materials and personnel and to support amphibious operations through search and rescue coverage. The primary roles of the aircraft are to conduct vertical replenishment (VERTREP), day/night ship-to-ship, ship-to-shore, and shore-to-ship external transfer of cargo; internal transport of passengers, mail and cargo, vertical on board delivery (VOD); airhead operations, and day/night search and rescue (SAR), Airborne Mine Countermeasures (AMCM) and Armed Helo. The MH-60S Operational Requirements Document (ORD) was modified in May 2000 to add AMCM as a primary mission for the MH-60S. ORD Change II was validated and approved by the Joint Requirements Oversight Council (JROC) on 15 February 2008 updating key performance parameters (KPP). The AMCM mission will provide Carrier Strike Groups (CSGs) and Expeditionary Strike Groups (ESGs) with an AMCM capability. The Armed Helo will provide Combat Search and Rescue (CSAR), Surface Warfare (SUW) and Maritime Interdiction Operations (MIO) to include Link 16 and Forward Firing Weapons (FFW), which includes Rockets and Anti-swarm weapons. The aircraft secondary roles include torpedo and drone recovery, noncombatant evacuation operations (NEO), Sea Air Land (SEAL) and Explosive Ordnance Disposal (EOD) support.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MH-60S Airframe Development and Integration	16.090	16.265	9.805	0.000	9.805
The effort includes design, development, integration, and support of the AMCM unique items into the MH-60S airframe. T&E on AMCM Mission Kits as each sensor/weapon system is introduced to the MH-60S. AMCM training development to include situational analysis and Instructional System Development (ISD) documentation. RTOC weight reduction initiative. Conduct trade studies and analysis, develop and qualify components in order to replace obsolete system components on the MH-60S. Analyze, design, integrate, test, and support FFW.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2415: *H-60 Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Completed design, development, test and integration of Link 16; Blk 3B IOC/IPR3 completed; Resumed AMCM Blk 2A flight testing; completed ALMDS Contractor Test (CT) and RAMICS Captive Carriage/Jettison test efforts. Continued design/integration of FFW. Completed efforts in support of the interoperability of Automatic Flight Control System (AFCS). *FY 2010 Plans:* Complete LINK 16 OT reporting; Continue AMCM Blk 2A testing; Support RAMICS ground test conducted by PMS-495; Commence Verification of Correction of Deficiencies (VCD)/Developmental Testing (DT) for AMNS and ALMDS DT and CT for Organic Airborne and Surface Influence Sweep (OASIS). Continue design/integration and testing of FFW. *FY 2011 Base Plans:* IPR IV/FRP decision for AMCM; Continue AMNS/ALMDS OT; Resume OASIS CT and subsequent DT efforts. Continue FFW testing efforts.					
MH-60S Avionics Development and Integration Developmental efforts on the avionics architecture and systems of the MH-60S helicopter. Development of the operator consoles, as well as software modifications, to support AMCM systems. AMCM training development to include situational analysis, and Instructional System Development (ISD) documentation for various sensors. Link 16 software development/upgrades and test for AMCM messages. *FY 2009 Accomplishments:* Completed design, development, test and integration of Link 16 on the MH-60S; Completed Blk 3B IOC/IPR3 as well as efforts in support of the interoperability of AMCM AFCS coupler and Joint Mission Planning System (JMPS) .	10.933	13.455	13.626	0.000	13.626

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2415: *H-60 Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue AMCM Blk 2A testing; Conduct AMCM Blk 2B sensor/weapon system testing and FFW integration efforts. *FY 2011 Base Plans:* Continue AMCM Blk 2B sensor/weapon system testing.					
MH-60S Test, Engineering, Logistics, Mgt Support Navy field activity systems engineering, logistics support, management and travel for the AMCM MH-60S Weapons System Integration Team (WSIT) for airframe and avionics, and FFW integration. Support/conduct MH-60S aircraft integration testing for AMCM sensor/weapon systems and FFW. *FY 2009 Accomplishments:* Conducted engineering, test and integration effort to incorporate AMCM requirements into the ship C4I structure continued. Link 16 development and test completed. *FY 2010 Plans:* Support, plan and conduct AMCM 2A/2B sensor/weapon system and FFW testing and evaluation. *FY 2011 Base Plans:* Continue support of test and integration of AMCM 2B sensor/weapon system and complete FFW integration.	15.744	19.210	15.479	0.000	15.479
Accomplishments/Planned Programs Subtotals	42.767	48.930	38.910	0.000	38.910

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
• APN1/017900: *MH-60S*	594.074	471.518	548.671	0.000	548.671	487.304	459.788	468.758	283.693	30.300	7,084.469

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2415: *H-60 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
• APN6/060510: *MH-60S SPARES*	0.000	1.576	1.204	0.000	1.204	0.918	0.599	0.000	0.000	0.000	167.219
• APN5/053000: *H-60 MODS*	26.075	36.724	34.876	0.000	34.876	30.555	19.952	21.802	28.369	128.156	363.356

D. Acquisition Strategy

AMCM and Armed Helo are elements of the existing MH-60S ACAT IC Program. MH-60S will employ an evolutionary acquisition approach via the MH-60S Block Upgrades. This allows for future modification for systems still in early development. The block upgrades will maximize commonality across all MH-60S missions and all AMCM/Armed Helo weapon systems, including logistics, training and maintenance. The MH-60S block upgrades are as follows.

-Block 1 - Combat Support Helicopter
-Block 2 - Organic Airborne Mine Countermeasures
-Block 3 - Armed Helo

E. Performance Metrics

Successfully achieve Initial Operational Capability for AMCM. Successfully conduct Interim Program Review IV for AMCM to achieve AMCM ancillary kit full rate production decision. Successfully complete Developmental Test/Operational Test for Block IIA AMCM sensor integration. Successfully complete FFW Developmental/ Operational Testing (DT/OT).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2415: *H-60 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
Primary Hdw Dev - Airframe*	SS/CPIF	Sikorsky Stratford, CT	159.182	2.296	Mar 2010	5.305	Dec 2010	0.000		5.305	9.925	176.708	176.708
Primary Hdw Dev - Airframe FFW	SS/CPFF	Sikorsky Stratford, CT	5.748	2.469	Jan 2010	1.000	Dec 2010	0.000		1.000	0.000	9.217	9.217
Primary Hdw Dev - Avionics*	SS/CPIF	Lockheed Martin Owego, NY	183.641	12.455	Nov 2009	13.626	Dec 2010	0.000		13.626	19.224	228.946	228.946
Primary Hdw Dev - Avionics FFW	SS/CPIF	Lockheed Martin Owego, NY	0.900	1.000	Feb 2010	0.000		0.000		0.000	0.000	1.900	1.900
Primary Hdw Dev - CSTRS	WR	NSWC Panama City	15.330	4.000	Dec 2009	2.500	Dec 2010	0.000		2.500	2.150	23.980	Continuing
Primary Hdw Dev - CSTRS	MIPR	CECOM FT Monmouth, NJ	9.479	1.500	Jan 2010	1.000	Dec 2010	0.000		1.000	0.950	12.929	Continuing
All Product Dev Cost from FY97-FY09	Various/ Various	Various Various	50.654	0.000		0.000		0.000		0.000	0.000	50.654	Continuing
		Subtotal	424.934	23.720		23.431		0.000		23.431	32.249	504.334	416.771

Remarks

Remarks: * PY SS/CPAF - $2.88
FY05-FY11 SS/CPIF

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2415: *H-60 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
ILS - MSS (Non FFRDC)	Various/ Various	Various Various	1.760	0.260	Dec 2009	0.439	Dec 2010	0.000		0.439	0.500	2.959	Continuing
Integrated Logistics Support1	WR	Various Various	4.599	0.371	Nov 2009	0.411	Nov 2010	0.000		0.411	0.632	6.013	Continuing
Integrated Logistics Support2	Various/ Various	Various Various	4.417	1.000	Jan 2010	0.000		0.000		0.000	0.000	5.417	Continuing
All Support cost from FY98-FY09	Various/ Various	Various Various	4.172	0.000		0.000		0.000		0.000	0.000	4.172	Continuing
		Subtotal	14.948	1.631		0.850		0.000		0.850	1.132	18.561	

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 & Evaluation	WR	NAWCAD Patuxent River, MD	24.115	9.792	Nov 2009	5.915	Nov 2010	0.000		5.915	8.145	47.967	Continuing
Dev Test & Evaluation	WR	Various Various	14.980	3.581	Nov 2009	0.650	Nov 2010	0.000		0.650	0.600	19.811	Continuing
Operational Test & Evaluation	WR	OPTEVFOR Norfolk, VA	1.085	2.155	Jan 2010	3.150	Nov 2010	0.000		3.150	1.100	7.490	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2415: *H-60 Development*

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
All Test & Eval Costs from FY97-FY09	Various/ Various	Various Various	6.159	0.000		0.000		0.000		0.000	0.000	6.159	Continuing
		Subtotal	46.339	15.528		9.715		0.000		9.715	9.845	81.427	

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)	Various/ Various	Various Various	11.893	0.667	Jan 2010	1.328	Jan 2011	0.000		1.328	0.400	14.288	Continuing
Government Engineering Support	WR	NAWCAD Patuxent River, MD	8.016	2.408	Nov 2009	1.286	Nov 2010	0.000		1.286	0.649	12.359	Continuing
Government Engineering Support	WR	NSWC Panama City, FL	26.223	2.323	Nov 2009	0.800	Nov 2010	0.000		0.800	1.350	30.696	Continuing
Government Engineering Support	WR	Various Various	23.902	1.519	Dec 2009	0.500	Dec 2010	0.000		0.500	0.000	25.921	Continuing
Program Mgmt Support CSS	WR	Various Various	4.799	0.500	Jan 2010	0.412	Jan 2011	0.000		0.412	0.380	6.091	Continuing
Program Mgmt Support	WR	Various Various	12.586	0.434	Dec 2009	0.388	Dec 2010	0.000		0.388	0.563	13.971	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2415: *H-60 Development*

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	Various Various	2.526	0.200	Nov 2009	0.200	Nov 2010	0.000		0.200	0.245	3.171	Continuing
All Mgmt Costs from FY97-FY09	Various/ Various	Various Various	0.984	0.000		0.000		0.000		0.000	0.000	0.984	Continuing
		Subtotal	90.929	8.051		4.914		0.000		4.914	3.587	107.481	

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	577.150	48.930		38.910		0.000		38.910	46.813	711.803	416.771

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2415: *H-60 Development*

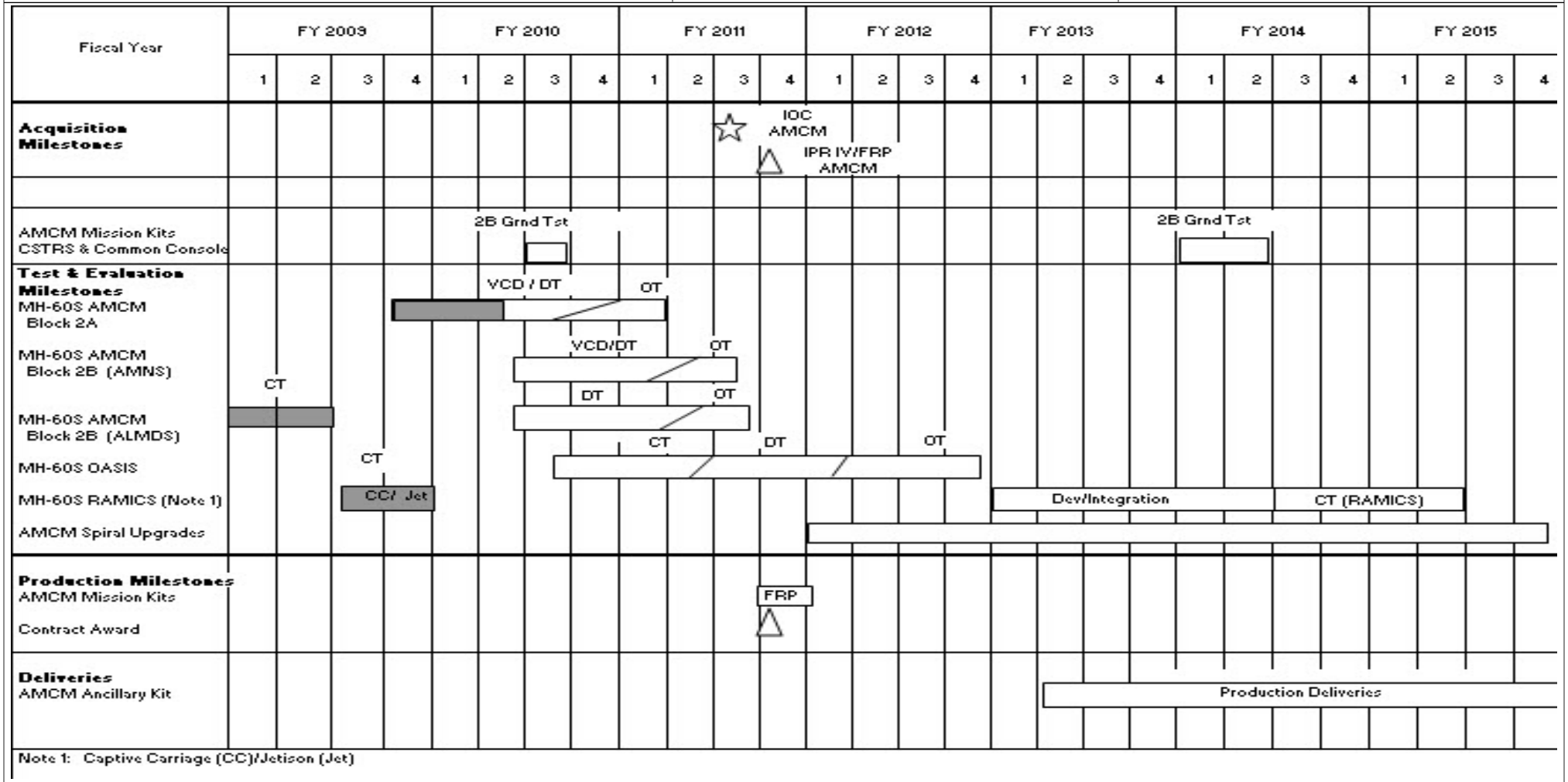


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604212N: *Other Helicopter Development*	**PROJECT** 2415: *H-60 Development*

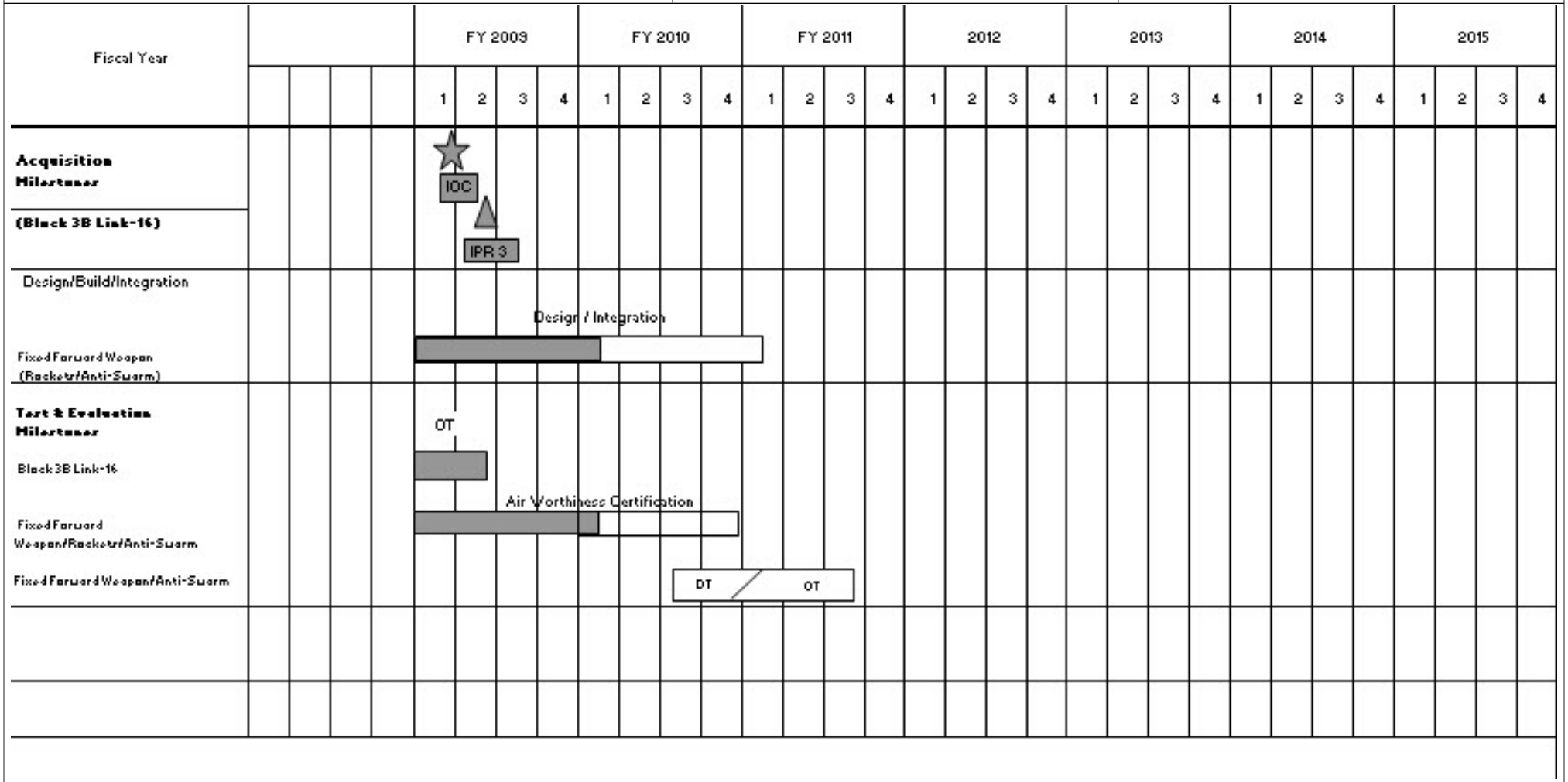


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2415: *H-60 Development*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Airborne Mine Countermeasures	1	2009	4	2015
-- Verification of Correction of Deficiencies (VCD) / Development Testing (DT) (Q-20)	4	2009	4	2010
-- Operational Testing (OT)	3	2010	1	2011
-- Initial Operational Capability-AMCM	3	2011	3	2011
-- IPR IV/FRP AMCM	4	2011	4	2011
-- AMCM 2B Ground Testing (RAMICS PMS 495 Gun Demo)	3	2010	3	2010
-- AMCM 2B Ground Testing (RAMICS)	1	2014	2	2014
-- Verification of Correction of Deficiencies (VCD) /Developmental Testing (DT) (AMNS)	2	2010	2	2011
-- Operational Testing (OT) (AMNS)	1	2011	3	2011
-- Contractor Test (ALMDS)	1	2009	2	2009
-- Developmental Testing (DT) (ALMDS)	2	2010	2	2011
-- Operational Testing (OT) (ALMDS)	1	2011	3	2011
-- Contractor Test (RAMICS) (Captive Carriage/ Jettison)	3	2009	4	2009
-- Dev/ Integration (RAMICS)	1	2013	2	2014
-- Contractor Test (RAMICS)	3	2014	2	2015
-- Contractor Test (OASIS)	3	2010	2	2011
-- Development Testing (DT) (OASIS)	2	2011	1	2012
-- Operation Testing (OT) (OASIS)	1	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2415: *H-60 Development*

	Start		End	
Event	Quarter	Year	Quarter	Year
-- AMCM Spiral Upgrades	1	2012	4	2015
-- Contract Award - Production (AMCM Ancillary Kit)	4	2011	4	2011
-- Full Rate Production Delivery (AMCM Ancillary Kit)	2	2013	4	2015
Link 16	1	2009	2	2009
-- Block 3B -Link 16 Operational Testing (OT)	1	2009	2	2009
-- Block 3B - Link 16 IOC	1	2009	1	2009
-- Block 3B - Link 16 IPR3	2	2009	2	2009
Forward Firing Weapon	1	2009	3	2011
-- Air Worthiness Certification (FFW)	1	2009	4	2010
-- System Design, Build and Integration (FFW)	1	2009	1	2011
-- Developmental Testing (DT) (FFW)	3	2010	1	2011
-- Operational Testing (OT) (FFW)	4	2010	3	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2460: *VH-3/VH-60*	

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
2460: *VH-3/VH-60*	7.747	1.992	1.893	0.000	1.893	1.891	1.892	1.898	1.898	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

2460 - Marine Helicopter Squadron One (HMX-1) is required to provide safe and timely transportation for the President and Vice President of the United States, heads of state and others as directed by the White House Military Office (WHMO). Currently two Type, Model, Series (TMS) aircraft are used by HMX-1 for the Presidential support mission - the VH-3D and the VH-60N. This project will fund a Service Life Assessment Program and Aircraft Life Management Plan for both the VH-3D and the VH-60N and will also upgrade the safety of the fuel system on the VH-3D.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
VH-3D Fuel Systems Upgrade	2.500	0.150	0.150	0.000	0.150
VH-3D Fuel Systems Upgrade provides design and development efforts to upgrade the safety of the fuel system on the VH-3D. *FY 2009 Accomplishments:* Completed trade studies, design, and development related to the VH-3D Fuel Systems Upgrade. *FY 2010 Plans:* Perform integration and test activities related to the VH-3D Fuel Systems Upgrade. *FY 2011 Base Plans:* Perform integration and test activities related to the VH-3D Fuel Systems Upgrade.					
VH-3D & VH-60N SLAP	5.247	1.842	0.251	0.000	0.251

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604212N: *Other Helicopter Development*	**PROJECT** 2460: *VH-3/VH-60*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
VH-3D & VH-60N SLAP: This project funds a Service Life Assessment Program (SLAP) for both the VH-3D and VH-60N. *FY 2009 Accomplishments:* FY09: Included government support and contract award for all efforts related to the successful completion of a SLAP on each VH aircraft. *FY 2010 Plans:* FY10: Includes government support and contract award for all efforts related to the successful completion of a SLAP on each VH aircraft. *FY 2011 Base Plans:* FY11 Base: Includes government support for efforts related to the successful completion of a SLAP on each VH aircraft.					
VH-3D & VH-60N Aircraft Life Management Plan VH-3D & VH-60N Aircraft Life Management Program: Provides for management and improvement of all Executive Helicopter systems readiness including safety, operational weight, mission availability, structural integrity, component reliability, maintainability, and obsolescence issues as they arise. *FY 2011 Base Plans:* Provide government support and contract award for efforts associated with the Aircraft Life Management Program for the VH-3D and VH-60N.	0.000	0.000	1.492	0.000	1.492
Accomplishments/Planned Programs Subtotals	7.747	1.992	1.893	0.000	1.893

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2460: *VH-3/VH-60*

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/056600: *Executive Helicopters Series*	51.666	42.325	43.443	0.000	43.443	56.969	49.898	50.082	50.238	191.782	536.403

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Completion of the VH-3D Fuel System Upgrade efforts. Completion of VH-3D and VH-60N Service Life Assessment Program (SLAP) efforts. Completion of VH-3D and VH-60N Aircraft Life Management Program (ALMP) 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2460: *VH-3/VH-60*

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	SS/CPFF	Sikorsky Stratford, CT	13.033	1.592	Mar 2010	1.567	Dec 2010	0.000		1.567	7.579	23.771	23.771
		Subtotal	13.033	1.592		1.567		0.000		1.567	7.579	23.771	23.771

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
Configuration Management	WR	NAWCAD Patuxent River, MD	0.000	0.100	Mar 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	0.100		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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2460: *VH-3/VH-60*

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	0.843	0.200	Mar 2010	0.251	Nov 2010	0.000		0.251	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCAD Patuxent River, MD	0.000	0.075	Mar 2010	0.050	Nov 2010	0.000		0.050	Continuing	Continuing	Continuing
Travel	Various/ Various	Various Various	0.060	0.025	Oct 2009	0.025	Oct 2010	0.000		0.025	Continuing	Continuing	Continuing
		Subtotal	0.903	0.300		0.326		0.000		0.326			

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	13.936	1.992		1.893		0.000		1.893			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604212N: *Other Helicopter Development*	PROJECT 2460: *VH-3/VH-60*

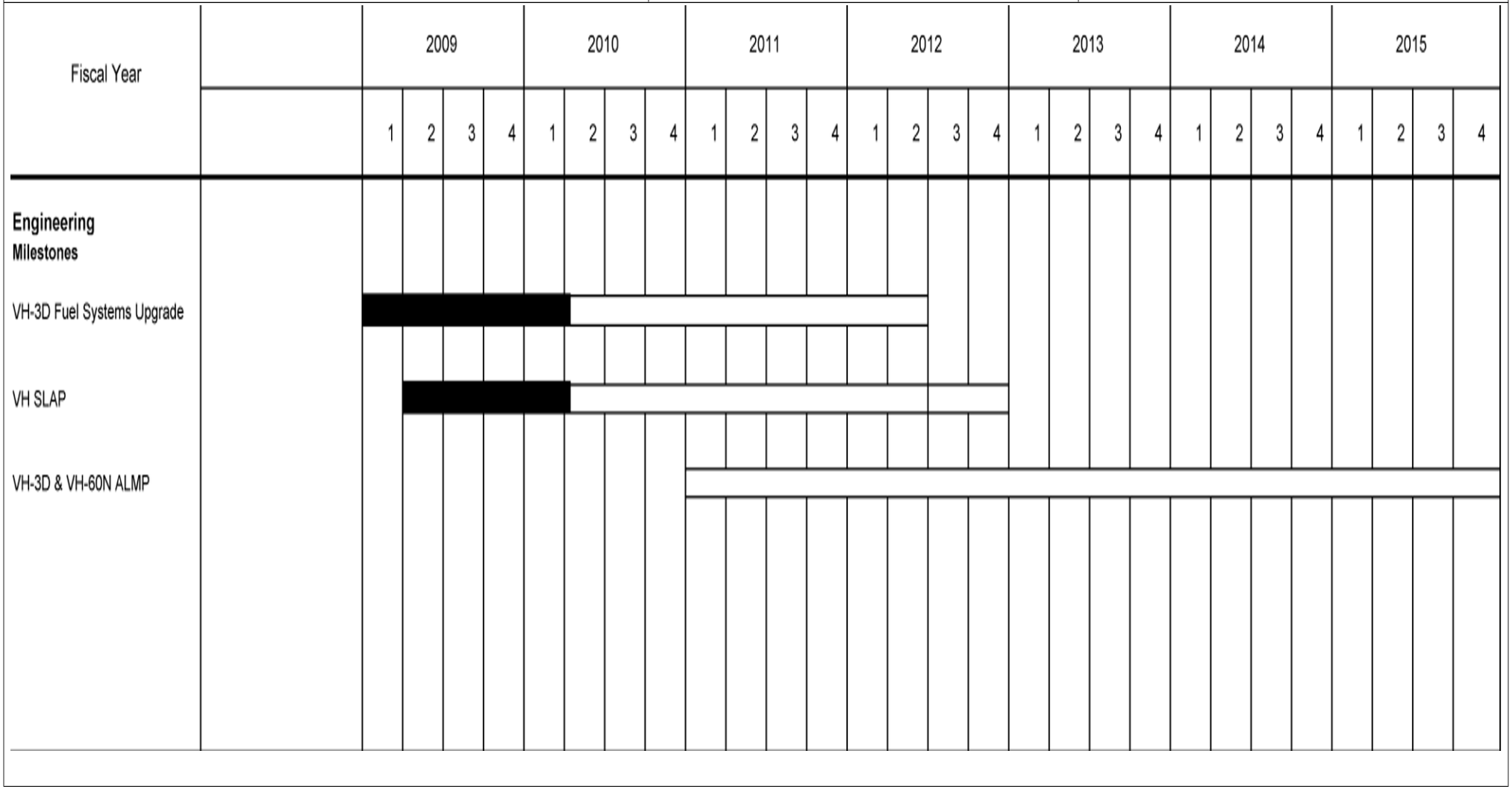


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604212N: *Other Helicopter Development*	**PROJECT** 2460: *VH-3/VH-60*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
VH-3D Fuel Systems Upgrade	1	2009	2	2012
VH SLAP	2	2009	4	2012
VH-3D & VH60H Aircraft Life Management Plan	1	2011	4	2015

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine 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	33.654	20.799	22.867	0.000	22.867	21.446	14.486	13.434	13.779	Continuing	Continuing
0652: *AV-8B*	29.677	17.287	22.867	0.000	22.867	21.446	14.486	13.434	13.779	Continuing	Continuing
2634: *OPEN SYSTEMS CORE AVIONICS REQUIREMENT*	3.977	3.512	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	105.374

A. Mission Description and Budget Item Justification

The program provides AV-8B Design, Development, Integration and Test of various platform improvements such as: Engine Life Management Program (ELMP), Escape Systems, Joint Mission Planning System (JMPS), and Block upgrades to various mission systems communications system, navigation equipment, weapons carriage and countermeasures, and Aircraft Handling/Readiness Management Plan (RMP). The JMPS is required as part of the DON directed migration to a common Navy and Marine Corps mission planning system. A/C Handling and performance represents all engineering activities for development and design to support aircraft safety flight clearance and concept exploration to support POM objectives. The program's Evolutionary Acquisition Strategy includes Design, Development, Integration and Test activities under the consolidated effort of Block Developments: H5.0, H6.0, H7.0 and follow-on block upgrades. H5.0 provides weapons carriage capability of the Litening pod on centerline/station 4 and also delivers Dual Mode Laser Guided Bomb capability. H6.0 block upgrade will provide weapons carriage expansion through the Digital ITER program and will also deliver critical improvements to aircraft survivability equipment. H7.0 Block upgrade will integrate GPS Navigation and approach capabilities as well as providing improvements to the navigation and interrogation suite. The ELMP is a comprehensive plan to increase safety of flight and operational readiness of the AV-8B F402-RR-408 Engine and accessories. PMA-257 will accomplish this mission by conducting Engineering Project Description (EPD) investigations and performing a series of planned Accelerated Simulated Mission Endurance Test (ASMET) to derive engineering improvements to the engine. The Escape System qualifies an improved ejection seat to reduce the risk of injury to aircrew. The RMP is required to ensure the AV-8B air vehicle's sustained mission availability, and safe and reliable operational readiness until end of service. Air vehicle sustainment requires component and system analyses, technical planning, identification and diagnosis of problems and the development, testing and flight clearance of engineering solutions in the areas of flight and crew safety, structural integrity, obsolescence, systems reliability and maintainability, inventory preservation, alternative mission development, or other emergent material or equipment conditions affecting AV-8B systems readiness. Activities include research/analysis for system safety deficiency corrections, fuel system safety improvements, structural analyses, monitoring and integrity analysis, component obsolescence analyses including development of display computer and air data computer replacement, alternatives explorations for aging equipment, reliability improvement analyses and design developments.

FY2009 and FY2010 funding was realigned from P.E. 0205633N, PU 3189, for Digital Improved Triple Ejector Rack (D-ITER).

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604214N: *AV-8B Aircraft - Engine Dev*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	29.703	20.886	0.000	0.000	0.000
Current President's Budget	33.654	20.799	22.867	0.000	22.867
Total Adjustments	3.951	-0.087	22.867	0.000	22.867
• Congressional General Reductions		-0.087			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	4.545	0.000			
• SBIR/STTR Transfer	-0.594	0.000			
• Program Adjustments	0.000	0.000	22.867	0.000	22.867
• Rate/Misc Adjustments	0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 0652: *AV-8B*	

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
0652: *AV-8B*	29.677	17.287	22.867	0.000	22.867	21.446	14.486	13.434	13.779	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 provides AV-8B Design, Development, Integration and Test of the following improvements: The Engine Life Management Program (ELMP), Escape System and Aircraft Handling/Readiness Management Plan (RMP). The ELMP is a comprehensive plan to increase safety of flight and operational readiness of the AV-8B F402-RR-408 Engine and Gas Turbine Starter (GTS). The Program Office will accomplish this mission through the Component Improvement Program, by conducting Engineering Project Description investigations and performing a series of planned Accelerated Simulated Mission Endurance Tests (ASMET) to derive engineering improvements to the engine. The Escape System qualifies an improved ejection seat to reduce the risk of injury to aircrew. The Joint Mission Planning System (JMPS) is required as part of the DON directed migration to a common Navy and Marine Corps mission planning system. H5.0 Block Upgrade provides Dual Mode Laser Guided Bombs (DMLGB) and Litening Pod carriage on STA4 (Centerline). H6.0 includes weapons carriage expansion efforts and provides the first step toward Battle Space Networking interoperability within the Netcentric OP-area. The program is working closely with the Common Avionics program and the Allies (Spain, Italy and the United Kingdom) on these efforts. A/C Handling and performance represents all engineering activities for development and design to support aircraft safety flight clearance and concept exploration for resolution of emergent service life and readiness issues.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Development of RMP ECPs	12.234	3.852	8.580	0.000	8.580
FY 2009 Accomplishments: Accomplishments included the Program Initiation Review, System Requirements Review, and Preliminary Design Review for the Radar Display Computer project, which will replace the currently obsolete Display Processor Generator (DPG). Also conducted system analyses, identification and diagnoses of problems and the development and testing of engineering solutions in the areas of flight and crew safety, structural integrity, obsolesecence, systems reliability, and other material					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 0652: *AV-8B*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
and equipment conditions affecting AV-8B systems readiness. Addressed studies concerning improvements and correction of deficiencies and issues including obsolescence and structural fatigue. *FY 2010 Plans:* Continuing to conduct system analyses, identification, and diagnoses of problems and the development and testing of engineering solutions in the areas of flight and crew safety, structural integrity, obsolescence, and systems reliability, and other material and equipment conditions affecting AV-8B systems readiness. Conducting studies concerning improvements and correction of deficiencies and issues including obsolescence and structural fatigue. Conducting component obsolescence analyses including alternatives explorations and development for obsolete aging equipment, to include flight control computer, crew ejection system, and other safety deficiency corrections. Continuing development and Critical Design Review of Radar Display Computer. *FY 2011 Base Plans:* Plan to continue to conduct system analyses, identification, and diagnosis of problems and the development and testing of engineering solutions in the areas of flight and crew safety, structural integrity, obsolescence, and systems reliability, and other material and equipment conditions affecting AV-8B systems readiness. Conduct studies concerning improvements and correction of deficiencies and issues including obsolescence and structural fatigue. Conduct component obsolescence analyses including alternatives explorations and development for obsolete aging equipment, to include flight control computer, crew ejection system, and other safety deficiency corrections. Begin engineering development of aft structure improvements, including improvements to bushings in Frame 43 of the aircraft, as well as designing the incorporation of a tailplane guide to reduce loads on Frame 43, to prevent fatigue cracks in this area of the aircraft. Plan to continue development and testing of Radar Display Computer, with first flight readiness review and test readiness review scheduled for FY11.					
Completion of ASMET IV Testing	9.197	12.102	6.931	0.000	6.931

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 0652: *AV-8B*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Provided testing, analysis and integration to improve safety of flight and operational readinees of the F402-RR-408 engine. Researched, analyzed, and developed design changes and improvements for engine accessories. Addressed Digital Control Unit (DCU) obsolescence and reliability issues. Conducted flight tests in response to the Low Pressure Compressor (LPC1) blade failures to mitigate blade stress. Addressed performance, obsolescence, and reliability of F402 Engine components. *FY 2010 Plans:* Incorporating engineering changes and addressing obsolescence issues in the Enhanced Variable Inlet Guide Vane Control System (EVICS), Fuel Metering Unit (FMU), and DCU for the F402-RR-408 engine. Researching, analyzing, and developing design changes and improvements for engine accessories. Addressing obsolescence issues with the Generator Control and Test Set (GCUTS) and Air Turbine Starter Set, both of which are critical for testing of the F402-RR-408 engine. Continuing to address F402 EMS performance, obsolescence, and reliability. Performing ASMET IV testing to ensure engine capabilities and performance. *FY 2011 Base Plans:* Funds will provide for research, analysis, and development of design changes and improvements for the engine and engine accessories. Continue ASMET IV testing to ensure engine capabilities and performance.					
Completion of Litening POD Dev and Integ *FY 2009 Accomplishments:* Efforts included H5.0 Block Upgrade (Dual Mode Laser Guided Bomb), carriage of Litening Pod on Centerline/Station 4 and Early Variable Message Format (Strikelink) Communication Development. Funds provided also continued integration of evolving Litening Pod capabilities including upgrade to plug and play capability, which is a prerequisite for video downlink. Fleet release of H5.0 OFP block upgrade was accomplished.	8.246	1.333	7.356	0.000	7.356

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 0652: *AV-8B*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Efforts include developmental and integration testing in support of H6.0 block upgrade (D-ITER) weapons carriage expansion. Continuing StrikeLink A development and Litening Pod software updates. *FY 2011 Base Plans:* Funds will provide for block upgrade/Litening Pod software updates through the H7.0 block upgrade.					
Accomplishments/Planned Programs Subtotals	29.677	17.287	22.867	0.000	22.867

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/0514: *AV-8B Series Modification*	87.924	51.166	19.386	72.100	91.486	18.417	24.317	21.424	11.012	81.249	1,122.537

D. Acquisition Strategy

All efforts under Aircraft Handling/RMP provide investigations and analysis of testing and flight clearance authorization necessary to assess overall system capability and integration of projects. Funding for the Engine Life Management Program (ELMP) will be placed on a cost-type contract to Rolls Royce to address safety of flight issues, top readiness degraders, engine removal and mission failure drivers in order to improve Fleet readiness and reduce cost of ownership. It is also developed to assess life management program issues and design fixes for any service revealed deficiencies. The program's Evolutionary Acquisition Strategy includes Design, Development, Integration and Test activity under the consolidated effort of Block Developments: H2.0, H4.0, H5.0, H6.0, H7.0, H8.0 and following systems. The development and integration of Joint Mission Planning System (JMPS) occured concurrently with H2.0. Additional improvements are included in H.40 TAMMAC was incorporated into Block H4.0. H5.0 Block Upgrade provides Dual Mode Laser Guided Bombs (DMLGB), Litening Centerline/Station 4 (improvement of current weapons carriage capability). The program is working closely with the Allies (Spain, Italy, United Kingdom) and the Common Avionics program on these efforts for H6.0, H7.0 and H8.0. H6.0 provides weapons carriage expansion efforts and the first step toward Battle Space Networking interoperability within the Netcentric OP-area. H7.0 provides the follow-on step toward an integrated air picture within the Battle Space Network via MIDS/RS-Link-16 particiption within the Global Information Grid (GIG).

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604214N: *AV-8B Aircraft - Engine Dev*	**PROJECT** 0652: *AV-8B*

E. Performance Metrics

Achieve ELMP contract award in 1Q FY2011, deliver H6.0 software in 2Q 2011, complete H6.0 OTRR in 1Q 2011, complete H6.0 ICC in 2Q 2011, complete H7.0 CDR in 3Q 2011. Continue systems development for the Radar Display Computer (RDC), as well as H7.0 RNP/RNAV and APX-123 Improvements. Continue Display Computer Developmental Test and initiate H7.0 Development Test in 2Q 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 0652: *AV-8B*	

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	Mgmt Sciences Albuquerque, NM	0.464	0.000		0.000		0.000		0.000	0.000	0.464	0.464
Primary Hardware Development	C/CPFF	Rolls-Royce PLC Bristol, GB	17.097	6.795	Dec 2009	1.916	Dec 2010	0.000		1.916	11.108	36.916	36.916
Primary Hardware Development	C/CPFF	McDonnell Douglas St. Louis, MO	1.465	0.000		0.000		0.000		0.000	0.000	1.465	1.465
Primary Hardware Development	C/FFP	Goodrich PS Pitstone, GB	4.450	0.000		0.000		0.000		0.000	0.000	4.450	4.450
Primary Hardware Development	WR	NAWCWD China Lake, CA	38.762	0.364	Dec 2009	0.658	Dec 2010	0.000		0.658	Continuing	Continuing	Continuing
Primary Hardware Development	C/Various	Various Various	9.671	0.000		0.000		0.000		0.000	0.000	9.671	9.671
Primary Hardware Development	C/CPFF	GE Aviation DS Grand Rapids, IL	11.312	0.609	Feb 2010	2.089	Feb 2011	0.000		2.089	3.371	17.381	17.381
Primary Hardware Development	C/CPFF	Stauder MI	3.000	0.000		2.484	Jan 2011	0.000		2.484	7.580	13.064	13.064
Systems Engineering	C/Various	McDonnell Douglas St. Louis, MO	6.963	0.550	Dec 2009	1.123	Dec 2010	0.000		1.123	0.177	8.813	8.813
Systems Engineering	C/Various	Various Various	0.520	0.000		0.000		0.000		0.000	0.000	0.520	0.520
Systems Engineering	WR	NAWCWD China Lake, CA	1.073	0.000		0.800	Dec 2010	0.000		0.800	Continuing	Continuing	Continuing
Systems Engineering	MIPR	Wright Patterson AFB	0.278	0.000		0.000		0.000		0.000	0.000	0.278	0.278

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 0652: *AV-8B*

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
		Dayton, OH											
		Subtotal	95.055	8.318		9.070		0.000		9.070			

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
Configuration Management	C/Various	Various Various	0.397	0.000		0.200	Feb 2011	0.000		0.200	Continuing	Continuing	Continuing
Engineering Technical Services (CSS)	C/CPFF	EDO Professional Services, Inc. Arlington, VA	1.737	0.093	Feb 2010	0.000		0.000		0.000	0.000	1.830	1.830
Integrated Logistics Support	WR	NAWCAD Patuxent River, MD	1.436	0.000		0.000		0.000		0.000	0.000	1.436	1.436
Software Development	C/Various	DCMA Boeing St. Louis, MO	1.148	0.000		0.000		0.000		0.000	0.000	1.148	1.148
Software Development	WR	NAWCWD China Lake, CA	7.712	0.000		0.450	Jan 2011	0.000		0.450	Continuing	Continuing	Continuing
Software Development	C/Various	Various Various	19.967	0.000		0.000		0.000		0.000	0.000	19.967	19.967

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 0652: *AV-8B*

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/CPFF	Northrup Grumman IL	2.000	0.000		0.000		0.000		0.000	0.000	2.000	2.000
Studies and Analysis	C/Various	Various Various	2.159	0.400	Jun 2010	0.336	Jun 2011	0.000		0.336	Continuing	Continuing	Continuing
Support	C/Various	DCMA Boeing St. Louis, MO	5.490	0.000		0.000		0.000		0.000	0.000	5.490	5.490
Technical Data	C/CPFF	Various Various	1.786	0.000		0.200	Nov 2010	0.000		0.200	0.320	2.306	2.306
		Subtotal	43.832	0.493		1.186		0.000		1.186			

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/CPFF	McDonnell Douglas St. Louis, MO	0.000	0.000		0.000		0.000		0.000	5.689	5.689	5.689
Developmental Test & Evaluation	WR	NAWCWD China Lake, CA	37.820	0.000		2.069	Jan 2011	0.000		2.069	Continuing	Continuing	Continuing
	WR		22.521	0.000		0.000		0.000		0.000	0.000	22.521	22.251

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 0652: *AV-8B*

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		OPER T&E for CD 30 Norfolk, VA											
Operational Test & Evaluation	WR	NAWCWD China Lake, CA	2.824	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	GE Aviation DS Grand Rapids, MI	0.000	1.335	Feb 2010	2.366	Feb 2011	0.000		2.366	0.000	3.701	3.701
Test Assets	C/CPFF	GE Aviation DS Grand Rapids, MI	0.972	0.000		0.000		0.000		0.000	0.000	0.972	0.972
		Subtotal	64.137	1.335		4.435		0.000		4.435			

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 & Tec SRVC (Non-FFRDC)	C/CPFF	Various Various	1.874	1.493	Jan 2010	1.350	Jan 2011	0.000		1.350	7.432	12.149	12.149
Government Engineering Support	WR	Various Various	5.537	2.534	Nov 2009	1.715	Nov 2010	0.000		1.715	Continuing	Continuing	Continuing
MGT & PROF SUPPT SRVC (NON-FFRDC)	C/CPFF	Various Various	4.511	0.814	Nov 2009	2.690	Nov 2010	0.000		2.690	12.542	20.557	20.557

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 0652: *AV-8B*

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	WR	Various Various	3.716	2.150	Nov 2009	2.266	Nov 2010	0.000		2.266	Continuing	Continuing	Continuing
Travel	WR	Various Various	0.682	0.150	Jun 2010	0.155	Jun 2011	0.000		0.155	Continuing	Continuing	Continuing
		Subtotal	16.320	7.141		8.176		0.000		8.176			

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	219.344	17.287		22.867		0.000		22.867			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 0652: *AV-8B*

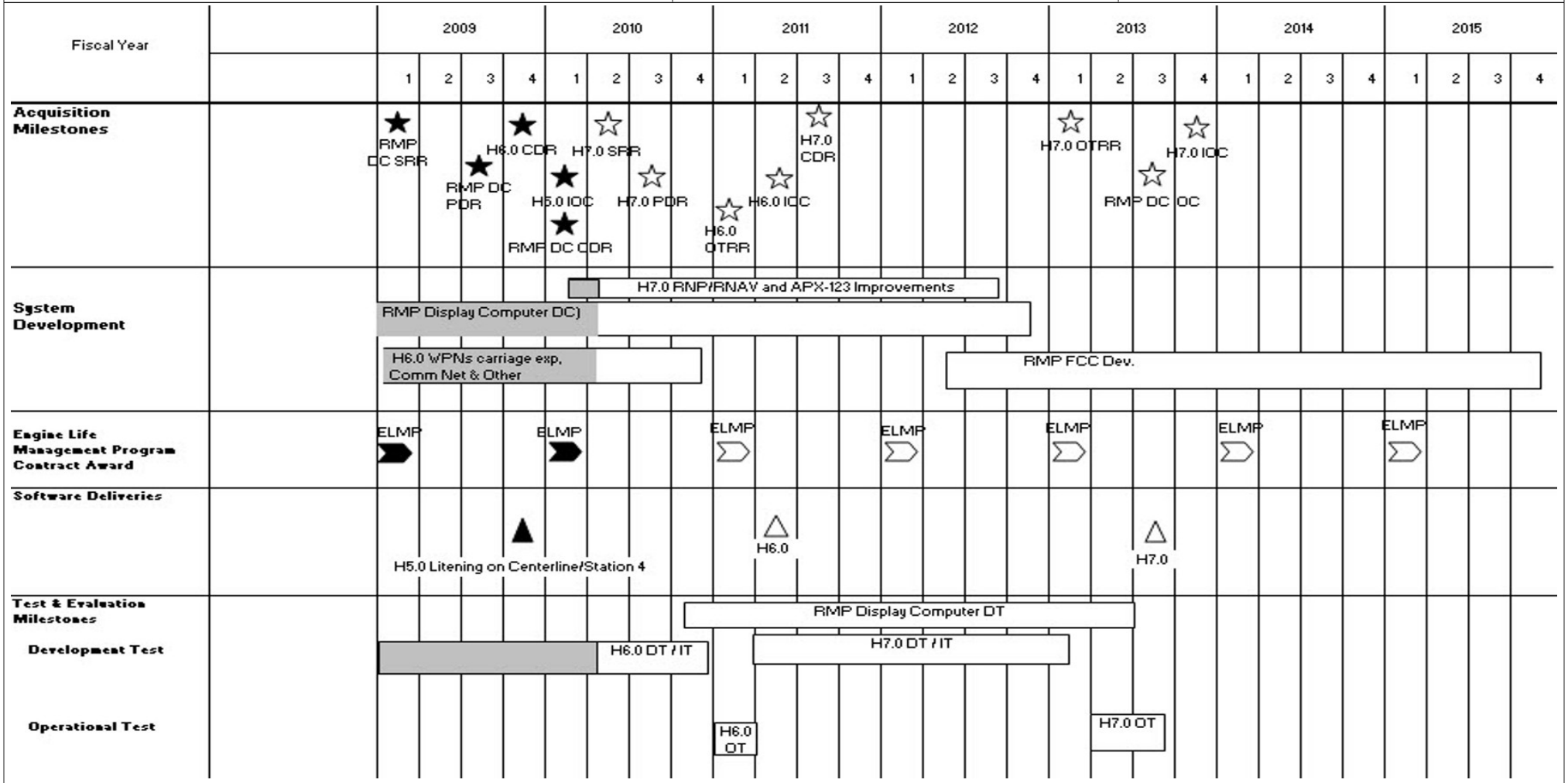


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 0652: *AV-8B*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
ELMP Contract Award FY09	1	2009	1	2009
ELMP Contract Award FY10	1	2010	1	2010
ELMP Contract Award FY11	1	2011	1	2011
ELMP Contract Award FY12	1	2012	1	2012
ELMP Contract Award FY13	1	2013	1	2013
ELMP Contract Award FY14	1	2014	1	2014
ELMP Contract Award FY15	1	2015	1	2015
H5.0 S/W Delivery	4	2009	4	2009
H5.0 IOC	1	2010	1	2010
H6.0 WPNS Carriage Exp COMM Network Sys Dev	1	2009	4	2010
H6.0 CDR	4	2009	4	2009
H6.0 DT/IT	1	2009	4	2010
H6.0 OTRR	1	2011	1	2011
H6.0 OT	1	2011	1	2011
H6.0 S/W Delivery	2	2011	2	2011
H6.0 IOC	2	2011	2	2011
H7.0 RNP/RNAV and APX-123 Improvements	1	2010	3	2012
H7.0 SRR	2	2010	2	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604214N: *AV-8B Aircraft - Engine Dev*	**PROJECT** 0652: *AV-8B*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
H7.0 PDR	3	2010	3	2010
H7.0 CDR	3	2011	3	2011
H7.0 DT/IT	2	2011	1	2013
H7.0 OTRR	1	2013	1	2013
H7.0 OT	2	2013	3	2013
H7.0 IOC	4	2013	4	2013
H7.0 S/W Delivery	3	2013	3	2013
RMP Display Computer System Development	1	2009	4	2012
RMP Display Computer SRR	1	2009	1	2009
RMP Display Computer PDR	3	2009	3	2009
RMP Display Computer CDR	1	2010	1	2010
RMP Display Computer DT	4	2010	2	2013
RMP Display Computer IOC	3	2013	3	2013
RMP Flight Control Computer System Development	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 2634: *OPEN SYSTEMS CORE AVIONICS REQUIREMENT*	

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
2634: *OPEN SYSTEMS CORE AVIONICS REQUIREMENT*	3.977	3.512	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	105.374
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Open Systems Core Avionics Requirements (OSCAR) initiative is replacing the Mission Computer and Store Management System with commercial components and continued development of the common integrated Night Attack/Radar software to include integration of the 1000lb Joint Direct Attack Munitions (JDAM) weapon. The Digital Improved Triple Ejector Rack (I-TER) provides for the increased capability to the existing BRU-42 I-TER for the AV-8B platform. This provides for multiple carriage capability for smart weapons such as the JDAM.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
OPEN SYSTEMS CORE AVIONICS REQUIREMENT	3.977	3.512	0.000	0.000	0.000
FY 2009 Accomplishments: Initiated D- ITER development/integration testing on the AV-8B platform.					
FY 2010 Plans: Continuing D-ITER development/integration/operational testing with H6.0 OFP block upgrade and fleet introduction of capabilities.					
Accomplishments/Planned Programs Subtotals	3.977	3.512	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 2634: *OPEN SYSTEMS CORE AVIONICS REQUIREMENT*

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/ 0205633N: *Aviation Improvements*	95.112	134.612	133.611	0.000	133.611	135.621	112.325	115.038	114.051	Continuing	Continuing

D. Acquisition Strategy

PEO(A) ADM Ser DPEO(A)-ACQ2/015-97 dated 6 March 1997 approved the MSII acquisition strategy for OSCAR as an ACAT IVT program. OSCAR avionics CDR was held in January 1998 and completed first flight 29 May 1998. Using the NAWC-WD CPAF contract, funds will be used for basic design definition, drawing development, and OFP development and test. Twelve Mission System Computers and fourteen Warfare Management Computer engineering models have been procured for laboratory and flight test. The NAWC-WD/Boeing follow-on CPAF Contract was awarded on 16 December 1998. The period of performance will be for five years based on the need to complete Open System Core Avionics Requirement (OSCAR) and begin follow-on software block upgrade H2.0. As directed during 4 September 1998 program restructuring, an ACAT redesignation letter was approved changing the OSCAR program from an ACAT IVT program to an ACAT II program. Acquisition documentation will be updated accordingly to include the funding in FY2009 and FY2010 for the incorporation of Dig I-TER within OSCAR.

E. Performance Metrics

Complete H6.0 Digital ITER OTRR in 1Q 2011. Accept delivery of H6.0 Digital ITER software in 2Q 2011. Complete Digital ITER Operational Test in 1Q 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 2634: *OPEN SYSTEMS CORE AVIONICS REQUIREMENT*

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	NAWCWD China Lake, Ca	0.000	0.200	Nov 2009	0.000		0.000		0.000	0.000	0.200	Continuing
		Subtotal	0.000	0.200		0.000		0.000		0.000	0.000	0.200	

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
Software Development	C/Various	Various Various	0.883	1.000	Jun 2010	0.000		0.000		0.000	0.000	1.883	1.883
Software Development	WR	NAWCWD China Lake	1.275	0.000		0.000		0.000		0.000	0.000	1.275	Continuing
Integrated Logistics Support	C/Various	Various Various	0.673	0.000		0.000		0.000		0.000	0.000	0.673	0.673
		Subtotal	2.831	1.000		0.000		0.000		0.000	0.000	3.831	2.556

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 2634: *OPEN SYSTEMS CORE AVIONICS REQUIREMENT*

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	OPER Test & Eval Norfolk, VA	0.000	0.480	Jan 2010	0.000		0.000		0.000	0.000	0.480	Continuing
Developmental Test & Evaluation	WR	NAWCWD China Lake, CA	0.000	1.400	Jan 2010	0.000		0.000		0.000	0.000	1.400	Continuing
		Subtotal	0.000	1.880		0.000		0.000		0.000	0.000	1.880	

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	Various Various	1.146	0.000		0.000		0.000		0.000	0.000	1.146	Continuing
Program Management Support	C/Various	Various Various	0.000	0.432	Jun 2010	0.000		0.000		0.000	0.000	0.432	0.432
		Subtotal	1.146	0.432		0.000		0.000		0.000	0.000	1.578	0.432

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 2634: *OPEN SYSTEMS CORE AVIONICS REQUIREMENT*	

	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	3.977	3.512		0.000		0.000		0.000	0.000	7.489	2.988

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604214N: *AV-8B Aircraft - Engine Dev*	PROJECT 2634: *OPEN SYSTEMS CORE AVIONICS REQUIREMENT*

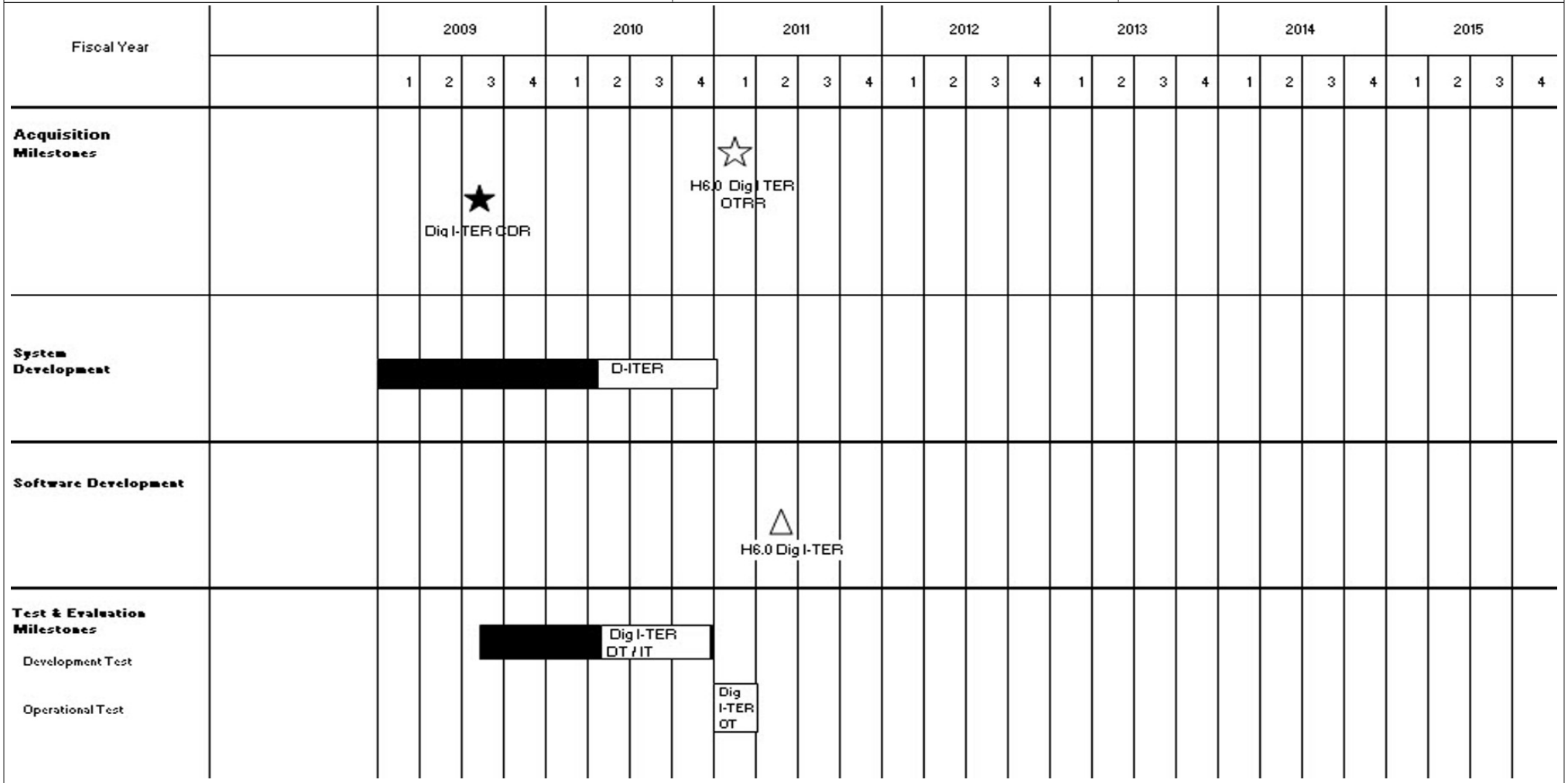


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604214N: *AV-8B Aircraft - Engine Dev*	**PROJECT** 2634: *OPEN SYSTEMS CORE AVIONICS REQUIREMENT*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Dig I-TER WPNS Carriage EXP COMM Network SYS DEV	1	2009	4	2010
Dig I-TER CDR	3	2009	3	2009
Dig I-TER DT / IT	3	2009	4	2010
H6.0 Dig I-TER OTRR	1	2011	1	2011
Dig I-TER OT	1	2011	1	2011
H6.0 Dig I-TER S/W Delivery	2	2011	2	2011

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604215N: *Standards 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	67.789	59.044	45.667	0.000	45.667	57.832	74.094	71.794	71.468	Continuing	Continuing
0572: *JT Service/NV Std Avionics CP/SB*	51.435	37.914	30.961	0.000	30.961	42.503	57.690	55.140	54.486	Continuing	Continuing
1857: *Calibration Standards*	1.511	2.023	1.401	0.000	1.401	1.457	1.952	1.997	2.038	Continuing	Continuing
2311: *Stores Planning and Weaponeering Module*	11.119	12.365	12.377	0.000	12.377	12.926	13.489	13.672	13.939	Continuing	Continuing
2312: *Common Helicopters*	0.931	0.966	0.928	0.000	0.928	0.946	0.963	0.985	1.005	Continuing	Continuing
9999: *Congressional Adds*	2.793	5.776	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.501

Note

PU 0572 FY11 NEW START - Collision Avoidance Safety Program.

A. Mission Description and Budget Item Justification

This project provides for the identification, study, design, development, demonstration, test, evaluation, and qualification of standard avionics capabilities for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Such air combat electronics developments include communications and airborne networking, navigation and sensors, flight avionics, safety systems, and flight mission information systems for both forward fit and retrofit aircraft. These efforts continue to maintain federated systems while encouraging transition of procurements to support a modular system for enhanced performance and affordability. Consideration is given up front to reduce acquisition costs through larger procurement quantities that satisfy multi-aircraft customer requirements and that reduce life cycle costs in the areas of reliability, maintainability, and training. This project also provides a Navy-wide program to develop required calibration standards (hardware) in all major measurement technology areas in support of Navy Hull, Mechanical and Electrical (HM&E) systems as well as Navy Weapons systems, ground and air, throughout the Fleet. It funds Navy lead-service responsibilities in the DOD and Joint Services Metrology Research and Development program. This project supports the military requirement to verify the performance of all test systems used to validate the operation of Navy Hull, Mechanical and Electrical (HM&E) as well as Navy Weapon Systems with calibration standards traceable to the National Institute of Standards and Technology.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	66.517	53.540	0.000	0.000	0.000
Current President's Budget	67.789	59.044	45.667	0.000	45.667
Total Adjustments	1.272	5.504	45.667	0.000	45.667
• Congressional General Reductions		-0.245			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.051			
• Congressional Adds		5.800			
• Congressional Directed Transfers		0.000			
• Reprogrammings	3.153	0.000			
• SBIR/STTR Transfer	-1.881	0.000			
• Program Adjustments	0.000	0.000	45.667	0.000	45.667

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Measurement Standards Research and Development*	0.000	5.776
Congressional Add: *U.S. Navy Metrology and Calibration (METCAL)*	2.793	0.000
Congressional Add Subtotals for Project: 9999	2.793	5.776
Congressional Add Totals for all Projects	2.793	5.776

Change Summary Explanation

Technical: Not applicable.

Schedule:

0572: AMCD-Upon completion of the V-22 Mission System Upgrade (MSU) Risk Reduction activity, follow-on MSU development effort cancelled. Remaining activity includes the conduct of Trade Studies for the Fiber Channel Network Switch (FCNS), Network Processor and OSP3e upgrades to meet future Naval Aviation 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*

TACCOM-Moved NSA Certification for Gen5 Design Reviews/Certifications from 4th Qtr FY09 to 2nd Qtr FY10 and Production Starts from 3rd Qtr FY10 to 4th Qtr FY10 to reflect fact of life schedule delays brought on by changing NSA security requirements to maintain radio CCI classification.
GPWS-MV-22 GPWS efforts were delayed. Moved from 1st Qtr FY09-4th Qtr FY10 to 3rd Qtr FY11-4th Qtr FY13.
MFOQA-Milestone C moved from 4Q09 to 4Q11 and IOC moved from 1Q10 to 2Q12 due to fleet requirements changes to address security, access control, expanding data trending/analysis capability, and speed of application across all squadron and enterprise users. F/A-18 Lead Platform Schedule change resulted from a change in MFOQA Program Baseline Requirements. MH-60/R/S/CH-53 Platform Schedule change resulted from a change in MFOQA Program Baseline Requirements. T-45 Platform Schedule change resulted from a change in MFOQA Program Baseline Requirements. All follow-on program efforts were delayed due to this change in the Baseline Platform Schedule.
COLLABORATIVE WARFARE - Collaborative Warfare efforts were delayed due to FY10 new start and operating under a CRA. Warfighting Gap Analysis moved from 1st Qtr FY10 to 2nd Qtr FY10. Candidate Solution ID moved from 2nd Qtr FY10 to 3rd Qtr FY10. Candidate Evaluation (M&S) moved from 2nd Qtr FY10 to 3rd Qtr FY10.

1857: Not Applicable.

2311: Acquisition Milestone Changes:

	FROM	TO	REASON
a.	WASP 1.2.3 IOC	2Q FY10	3Q FY10	Program rebaselining
b.	WASP AV-8B	4Q FY10	Deleted	FY09-FY10 funding shortfall
c.	WASP 1.2.4 IOC	3Q FY10	Deleted	Capabilities merged into WASP 3.0

1. 1.2.3 TRR is now grey (completed) as the TRR was held in Dec 09.
2. 3.0 TRR/TIRB/FQT were deleted as now 3.0 has been split into two phases: Phase I will conclude at CDR in March of 2010, Phase II will start in 2011. This project had to be split because of contract issues.
3. 1.2.4 was added to be a interim release while a new contract is processed for the 3.0 Phase II effort. All milestones were added.
4. 3.1 & 3.2 projects had to slide due to contract constraints (new contract to be awarded in 2011).
5. 3.3 & 3.4 projects were deleted because they no longer occur during FY10-FY15. We anticipate that they will reoccur after this time frame.

2312: Not Applicable.

9999: 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*	

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
0572: *JT Service/NV Std Avionics CP/SB*	51.435	37.914	30.961	0.000	30.961	42.503	57.690	55.140	54.486	Continuing	Continuing
Quantity of RDT&E Articles	2	0	0	0	0	0	0	0	0		

Note

New Start FY11: Collision Avoidance Safety Program.

A. Mission Description and Budget Item Justification

Joint Services/Navy Standard Avionics Components and Subsystems: This project provides for the identification, study, design, development, demonstration, test, evaluation, and qualification of standard avionics capabilities for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Standard avionics capabilities under development include the Communication Navigation Surveillance Air Traffic Management (CNS/ATM), Aircraft Computers, Processors, & Displays, Wireless Internal Communications, Tactical Communications (TAC COM), Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/ TAWS), Military Flight Operational Quality Assurance (MFOQA), Collaborative Warfare and the Collision Avoidance Safety Program. Participation in Human Factors Quality Management Board (HFQMB) ensures Navy safety upgrades and mandatory safety improvements for naval aircraft.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Mission Computer/Mission Systems Upgrade	2.966	4.820	0.500	0.000	0.500
AMCD - This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to ensure viable aircraft computers, processors, and displays are developed and available to support naval aviation requirements. Perform platform integration studies and activities to expand the user base of common hardware and core system software capabilities.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Conducted risk reduction activities to facilitate management of critical obsolescence issues for a mission systems upgrade, provide for implementation of Capability Development Document (CDD) requirements for avionics systems, and address net-centric warfare capability Key Performance Parameters (KPPs) via modernization of existing hardware and core system software for V-22 platforms. Objectives met, Risk Reduction efforts producing tangible upgrade path for V-22 platform avionics. *FY 2010 Plans:* Efforts for OSP upgrade activity will focus on requirements analysis of the F/A-18E/F/G platforms in support of the Super Hornet Flight Plan increments III and IV. Conduct Trade Studies for the Fiber Channel Network Switch (FCNS) and Network Processor. *FY 2011 Base Plans:* Complete Trade Study activities for Type-4 Advanced Mission Computer upgrade to support the F/A-18E/F/G Super Hornet Flight Plan with Increment III and Increment IV capabilities.					
Development of AWICS Encrypted Module AWICS - Safety: Complete development and testing of the Joint, Cooperative Encrypted Wireless Internal Communication System (ICS) system in cooperation with the U.S. Army led program. To replace the long cord ICS with a wireless system. *FY 2009 Accomplishments:* High altitude testing conducted on encrypted AWICS.	0.197	0.000	0.000	0.000	0.000
Integration/Certification of Developmental Aircraft CNS/ATM -This program will conduct and support CNS/ATM research, studies, development, integration, demonstration, test and evaluation efforts for Naval Aviation platforms in development.	0.050	0.150	0.150	0.000	0.150

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Platform integration of Mode S, 8.33kHz, Reduced Vertical Separation Minimums (RVSM) and Required Navigation Performance (RNP RNAV) functional integration and certification efforts into naval aircraft. Perform platform functional integration for F/A-18E/F, MH-60S, MH-60R, AH-1Z, UH-1Y and other developmental platforms in the areas of communications, navigation, surveillance, processing and displays. Assist with insertion of communication, navigation, surveillance, and supporting technologies and conduct capability certification on developmental platforms such as E-2D, P-8A, VH-71A, JSF, CH-53K, and Unmanned Air Systems. Capabilities include Mode S, 8.33kHz, RVSM and RNP/RNAV, and other civil and military capabilities. *FY 2009 Accomplishments:* Initated E-2D Integration/Certification for MODE S & 8.33 kHz. *FY 2010 Plans:* Complete E-2D Integration/Certification of MODE S & 8.33kHz; Complete RNP/RNAV integration and certification efforts into the E-2D; Start P-8 Integration/Certification for RVSM & RNP RNAV. *FY 2011 Base Plans:* Completie P-8 Integration/Certification of RVSM & RNP RNAV capability.					
Provide Support to Tri-Service/Joint Programs *FY 2009 Accomplishments:* JSRC - Provided leadership in support of the Navy's interest to the JSRC tri-service committee promoting commonality and joint programs with focus on interoperability, communications, CNS/ATM, Joint Services avionics obsolescence management and the update of the Core Avionics Master Plan (CAMP). Supported and participated in Naval Aviation Requirements (NARG) panels, Operational Advisory Groups (OAG), and HFQMB.	0.768	1.117	1.060	0.000	1.060

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: JSRC - Provide leadership in support of the Navy's interest to the JSRC tri-service committee promoting commonality and joint programs with focus on interoperability, communications, CNS/ ATM, Joint Services avionics obsolescence management and the update of the Core Avionics Master Plan (CAMP). Support and participate in Naval Aviation Requirements (NARG) panels, Operational Advisory Groups (OAG), and HFQMB. *FY 2011 Base Plans:* JSRC - Provide leadership in support of the Navy's interest to the JSRC tri-service committee promoting commonality and joint programs with focus on interoperability, communications, CNS/ ATM, Joint Services avionics obsolescence management and the update of the Core Avionics Master Plan (CAMP). Support and participate in Naval Aviation Requirements (NARG) panels, Operational Advisory Groups (OAG), and HFQMB.					
Develop Evolutionary Communication Systems Tactical Communications - This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to ensure tactical communication systems and capabilites are developed and available to support naval aviation requirements. Perform tactical communication platform integration studies and activities to determine technical and cost effective solutions across Naval Aviation. Develop tactical communications (voice/data) requirements, concepts and systems which have application across Naval Aviation. Support all necessary tasks to ensure evolution of legacy communications systems incorporating programmable Communication Security/Information Assurance (COMSEC), Variable Message Format (VMF), Over the Horizon Communications (MUOS, SATCOM, HF), civil interoperability, and Joint Precision and Landing System (JPALS) data link into the ARC-210 system. Support for networking requirements development and prototyping, Integrated Waveform (IW), Intelligence Broadcast System (IBS), JTRS, Tactical Networks, Datalinks and Link 16. Awarded integration study contracts for Tactical Communication systems within E-2 AHE (Advanced Hawkeye),	25.599	9.916	3.681	0.000	3.681

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
H-1, H-53, V22, and AV-8B and other aircraft along with Link-16 and Mobile Users Objective System (MUOS). *FY 2009 Accomplishments:* Continued development of the RT-1939 (Gen5) and Gen5 ancillary equipment. *FY 2010 Plans:* Receive Final Gen5 certificaton from NSA (May2010). Provide Test Assets to Platform Program Offices for SIL and regression testing (Mar-Jun 2010). Receive approval for FRP (Jul 2010). Continue to develop ancillary equipment in support of Gen5 integration. *FY 2011 Base Plans:* Continue development of the Tactical Secure Voice (TSV), Mobile User Objective System (MUOS) and Joint Precision Approach Landing System (JPALS) for inclusion in a Gen5 RT.					
Develop Ground Terrain Warning Capability GPWS/TAWS - This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to meet Naval Aviation GPWS/TAWS requirements. Perform GPWS/ TAWS platform integration studies and activities to determine technical and cost effective solutions across Naval Aviation. Develop GPWS/TAWS Collision Avoidance System (CAS) algorithm tailored to platform performance and missions. Develop simulation models for use at manned flight simulator (MFS) as required for platform tailoring, including procurement of test article hardware for MFS. Evaluate aircraft simulation models for suitability in GPWS/TAWS CAS development effort. Develop GPWS/TAWS CAS algorithms utilizing MFS as real-time hardware and pilot in the loop tool. Develop and evaluate algorithm interfaces necessary for integration of the algorithm within platform host computer.	8.123	5.951	5.419	0.000	5.419

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Completed the platform level Preliminary Design Review (PDR) and Critical Design Review (CDR) for H-1. Started alpha software testing in the Man Flight Simulator (MFS) for H-1. Worked the software development and correction of deficiencies for the H-60 platform. *FY 2010 Plans:* Deliver the engineering software build to the Prime contractor, and sign off on the Interface Design Document (IDD) and System Specification (SS) for the H-1 platform. Complete the requirements definition for the MV-22 platform. *FY 2011 Base Plans:* Deliver GPWS software load to the fleet for the H-1 and H-60 platforms. Commence the study with Boeing, and sign off on the IDD and Sys Spec for the MV-22 platform.					
Develop MFOQA Capability MFOQA -This program will develop an MFOQA baseline software integration framework using Government procured software modules to perform functions such as flight data analysis, post mission aircrew debrief, aircraft maintenance and system troubleshooting, and mishap investigation to meet Naval Aviation requirements. Additional efforts will include software development and integration for fleet wide shore based and shipboard MFOQA implementation. Develop and evaluate aircraft recorder systems and requirements to meet current and future MFOQA requirements. Prepare and conduct MFOQA acquisition events for each aircraft TMS such as SRR, PDR, CDR, DT, Milestone C and follow-on Decision Reviews. *FY 2009 Accomplishments:* Phase 1 (F/A-18 C/D/E/F, EA-18G) MFOQA completed the Systems Integration and the associated Test Readiness Review (TRR) and began DT-B1 (contractor testing). Phase 2 (MH-60R/S and CH-53E), intiated requirements development.	13.732	10.977	12.600	0.000	12.600

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Phase I conduct delta requirements review, delta design review, and develop software for test. *FY 2011 Base Plans:* Phase I conduct DT-B2 and DT-B3. Achieve Milestone C and initiate fielding to F/A-18C/D/E/F and EA-18G.					
Collaborative Warfare Collaborative Warfare- This program will establish and execute a process to ensure Naval Aviation warfighter needs drive coherent network investments. The process will use prioritized scenarios, missions, and threats to align Naval Aviation Enterprise (NAE) operational, science and technology (S&T), and acquisition communities to ensure network investments deliver warfighting capability. Execute a mission-focused collaborative warfare process to identify warfighting capability gaps and define Measures of Effectiveness (MOEs) to formulate solutions sets. Employ modeling, simulations, and analysis and focused, scalable technology demonstrations and prototyping to validate solutions and establish standards. Develop POM/PR investment strategies leveraging existing programs and ensuring common systems and Open Architecture (OA) approaches contribute to solutions. *FY 2010 Plans:* Conduct Warfighting Gap Analysis for two missions, Initiate Solutions ID and Candidate Eval (Modeling and Simulation). Prototype 1 network based solution to improve target classification and ID. *FY 2011 Base Plans:* Initiate Solutions ID and Candidate Eval (Modeling and Simulation) for 2 Mission areas. Conduct Warfighting Gap Analysis for two mission areas, Complete Solutions ID and Candidate Eval (Modeling and Simulation) started in FY10.	0.000	4.983	4.051	0.000	4.051
Develop Collision Avoidance Safety Program	0.000	0.000	3.500	0.000	3.500

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Collision Avoidance Safety Program (CASP)- This is an defense directed safety program to develop integrated common avionics enabling hardware and software necessary for predictive collision awareness and avoidance warning for man-made and natural obstacles in the air and on the ground. This program will conduct research, studies, development, integration, test and evaluation, and demonstration efforts to meet collision avoidance requirements. The program includes development of crash survival recording capability for post collision analysis, simulation models and procurement of test article hardware. *FY 2011 Base Plans:* Initiate documentation development and NSA certification for capability enabling hardware and software components.					
Accomplishments/Planned Programs Subtotals	51.435	37.914	30.961	0.000	30.961

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/05770: *Common Avionics*	147.362	142.372	101.120	14.100	115.220	144.034	80.584	122.301	134.126	1,349.967	3,939.309

D. Acquisition Strategy

Advanced Mission Computer & Displays (AMC&D) sole-source cost contract to Bell Boeing Joint Program Office for EMD study activities in support of the V-22 Mission Systems Upgrade (MSU). Aircrew Wireless Internal Communication System (AWICS) acquisition strategy is aligned with the Army Wireless ICS developmental program resulting in a common system for use aboard multiple assault, logistics, Rotary Wing and Fixed Wing aircraft. Communication, Navigation, Surveillance/ Air Traffic Management (CNS/ATM) program is a system of systems. The program will encompass the integration of various systems that are currently post-MS III. Systems will be procured utilizing existing contracts for integration on forward-fit and retrofit platforms to provide CNS/ATM functionality. Tactical Communications is utilizing a firm fixed price contract to Rockwell Collins for research and development of the ARC-210 Gen 5 and other Navy contract vehicles for integration studies. The Navy will integrate systems and components to satisfy platform requirements to achieve tactical communication capability as determined by analyses. GPWS/ TAWS software modules will be developed by the existing PMA209 government software product team. The software modules will be integrated into the platform

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

host computer by the platform's prime integrator. MFOQA Government activities include integrating a combination of existing aircraft hardware, ground support equipment, commercial off the shelf/government off the shelf hardware and software products. MFOQA program interfaces will be created to share data captured by the automated maintenance systems (e.g., AME, HUMS) and existing databases. The Navy conducted a full and open competition for both the MFOQA S/W development, integration and support contract as well as the commercial off the shelf S/W data analysis product. The Collision Avoidance Safety Program is a system of systems and will design, develop and test hardware and software that provides awareness and avoidance warning for man-made and natural obstacles in the air and on the ground. The Navy will award a contract(s) to develop hardware and software needed to support these capabilities in a military operating environment including data loaders and recorders for obstacles databasess, and related functionality. GPWS/TAWS software modules will be developed by the existing Government software product team and implemented by the sole-source cost contract to DCS Corporation The software modules will be integrated into the platform host computer by the platform's prime integrator using platform contract vehicles.

E. Performance Metrics

AMCD - Successful product redesign of 3 CCAs of the AMC to sustain AMC production capability through current Program of Record requirements of the Navy's F/A-18E/F and EA-18G aircraft delivery schedules. Specific M/S include: Successful Production Readiness Review with no Priority 1 or 2 problem reports, Function Configuration Audit, and Production Decision.
JSRC - Provide leadership in support of the Navy's interest to the JSRC tri-service committee promoting commonality and joint programs with focus on interoperability, communications, CNS/ATM, Joint Services avionics obsolescence management and the update of the Core Avionics Master Plan (CAMP). Support and participate in Naval Aviation Requirements (NARG) panels, Operational Advisory Groups (OAG), and HFQMB.
CNS/ATM - Successfully complete Development Test/Operational Test and achieve platform certification.
TACCOM - Successfully pass Test Readiness Review and First Article Software Verification Test.
GPWS/TAWS - Successfully complete flight test and deliver product on schedule.
MFOQA - The MFOQA program will successfully complete a Design Review capturing revised requirements. The MFOQA program will successfully complete Milestone C.
Collaborative Warfare - Each iteration of the Collaborative Warfare Process (CWP) will assess 1 mission area.
For each iteration, the output of the Capabilities Working Group (CWG) is a Capabilities Case Assessment (CCA)identifying at least 3 capability gap(s) and at least 1 high level solution proposal serving as the primary input to the Solutions Working Group (SWG). The output of the SWG is a Solutions Analysis which is to serve as the primary input to the Investment Working Group (IWG). The output of the IWG, the primary output of the CWP, is a coordinated investment strategy for use in the POM process by the appropriate parties.
Collision Avoidance Safety Program (CASP) - The CASP will initiate release of RFP, requirements development and NSA Information Assurance.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

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/CPIF	Bell Boeing Amarillo, TX	0.000	0.627	May 2010	0.000		0.000		0.000	0.000	0.627	0.627
Primary Hardware Development	C/CPFF	Mantech Fairfax, VA	12.097	5.429	Nov 2009	6.725	Nov 2010	0.000		6.725	14.110	38.361	38.361
Primary Hardware Development	C/FFP	BGI Dallas, TX	0.919	0.283	Jan 2010	0.491	Jan 2011	0.000		0.491	12.414	14.107	14.107
Primary Hardware Development	TM	DCS Corporation Alexandria, VA	5.081	1.386	Nov 2009	1.185	Nov 2010	0.000		1.185	0.000	7.652	7.652
Primary Hardware Development	Various/ Various	Various Various	52.990	1.477		1.373		0.000		1.373	Continuing	Continuing	Continuing
Aircraft Integration	SS/FFP	Rockwell Collins Cedar Rapids, IA	54.360	3.106	Jan 2010	0.170	Nov 2010	0.000		0.170	0.000	57.636	57.636
Aircraft Integration	SS/CPFF	Bell Helicopter Hurst, TX	8.666	0.650	Jan 2010	0.000		0.000		0.000	0.000	9.316	9.316
Aircraft Integration	WR	NAWC WD China Lake, CA	6.736	0.300	Nov 2009	0.387	Nov 2010	0.000		0.387	Continuing	Continuing	Continuing
Aircraft Integration	Various/ Various	Various Various	39.065	1.106		1.006		0.000		1.006	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWC AD Patuxent River, MD	18.829	2.575		1.113		0.000		1.113	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	Various Various	24.498	3.347		3.278		0.000		3.278	Continuing	Continuing	Continuing
From FY94-02	Various/ Various	Various Various	277.703	0.000		0.000		0.000		0.000	0.000	277.703	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

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
		Subtotal	500.944	20.286		15.728		0.000		15.728			

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	1.617	0.337		0.307		0.000		0.307	Continuing	Continuing	Continuing
Software Development	Various/ Various	Various Various	1.975	0.000		0.000		0.000		0.000	0.000	1.975	Continuing
Integrated Logistics Support	Various/ Various	Vartious Various	10.507	2.034		1.239		0.000		1.239	Continuing	Continuing	Continuing
Technical Data	Various/ Various	Various Various	0.735	0.000		0.000		0.000		0.000	0.000	0.735	Continuing
Studies and Analysis	Various/ Various	Various Various	11.060	5.096		4.116		0.000		4.116	Continuing	Continuing	Continuing
From FY94-02	Various/ Various	Various Various	24.636	0.000		0.000		0.000		0.000	0.000	24.636	Continuing
		Subtotal	50.530	7.467		5.662		0.000		5.662			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

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 and Evaluation	WR	NAWC AD Patuxent River, MD	6.527	0.238		1.066		0.000		1.066	Continuing	Continuing	Continuing
Developmental Test and Evaluation	WR	NAWC WD China Lake, CA	3.025	0.999		0.000		0.000		0.000	0.000	4.024	Continuing
Developmental Test and Evaluation	Various/ Various	Various Various	6.975	0.000		0.000		0.000		0.000	0.000	6.975	Continuing
Operational Test and Evaluation	Various/ Various	Various Various	1.973	0.000		0.000		0.000		0.000	0.000	1.973	Continuing
Test Assets	Various/ Various	Various Various	1.776	0.000		0.000		0.000		0.000	0.000	1.776	Continuing
From FY94-02	Various/ Various	Various Various	24.363	0.000		0.000		0.000		0.000	0.000	24.363	Continuing
		Subtotal	44.639	1.237		1.066		0.000		1.066			

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	43.819	4.728		2.983		0.000		2.983	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

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	Various/ Various	Various Various	11.662	0.946		0.000		0.000		0.000	0.000	12.608	Continuing
Government Engineering Support	WR	NAWC AD Patuxent River, MD	10.460	0.639		2.716		0.000		2.716	0.000	13.815	Continuing
Program Management Support	Various/ Various	Various Various	8.694	0.136		0.302		0.000		0.302	0.000	9.132	Continuing
Program Management Support	WR	NAWC AD Patuxent River, MD	10.664	2.370		2.394		0.000		2.394	Continuing	Continuing	Continuing
Travel	WR	NAVAIR Patuxent River, MD	0.799	0.105		0.110		0.000		0.110	Continuing	Continuing	Continuing
		Subtotal	86.098	8.924		8.505		0.000		8.505			

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	682.211	37.914		30.961		0.000		30.961			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*	**PROJECT** 0572: *JT Service/NV Std Avionics CP/SB*

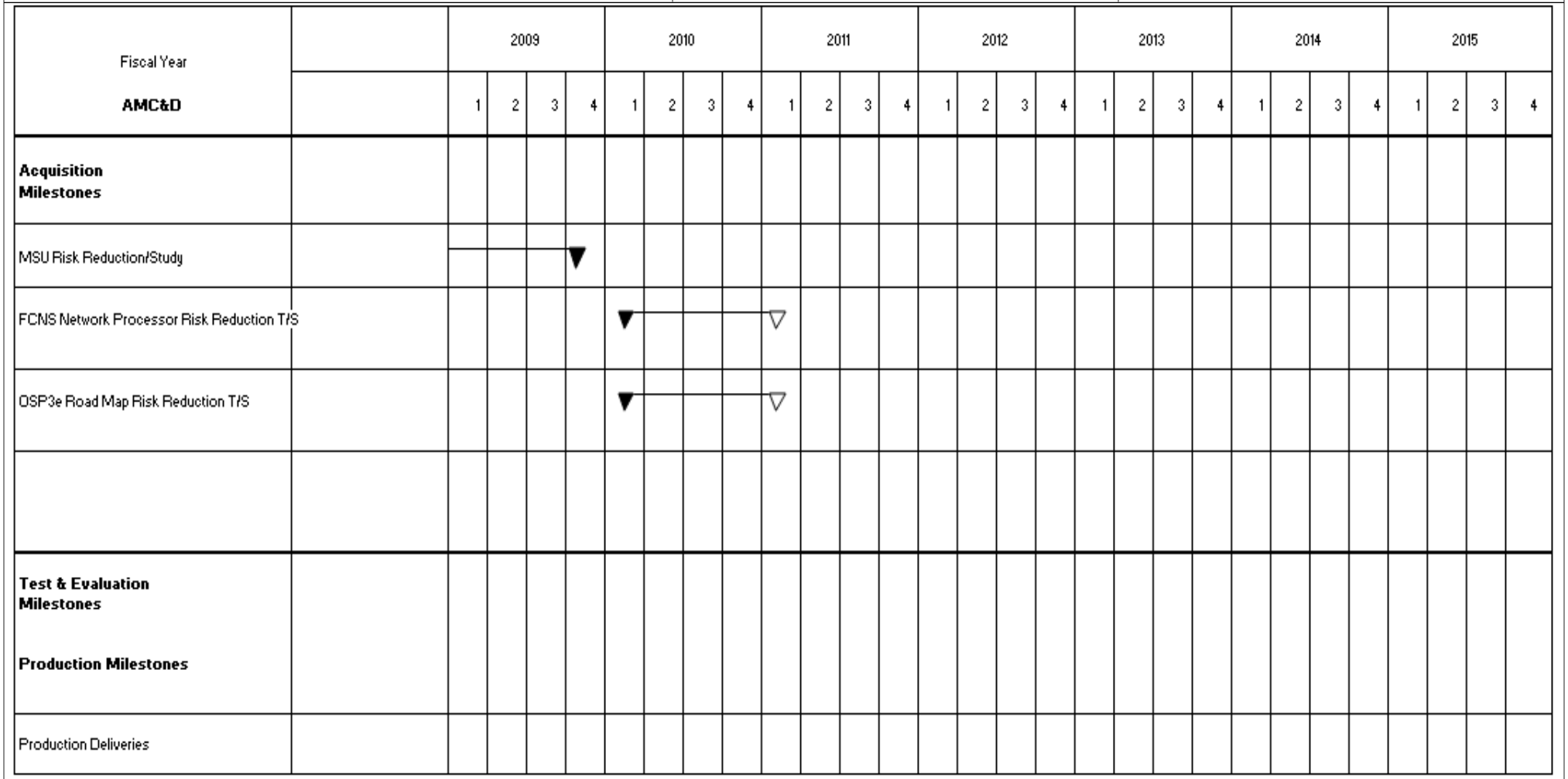


Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*	**PROJECT** 0572: *JT Service/NV Std Avionics CP/SB*

Fiscal Year		2009				2010				2011				2012				2013				2014				2015			
AVICS		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																													
Product Development		■																											
Test & Evaluation Milestones																													
Production Milestones																													
Production Deliveries																													

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*	**PROJECT** 0572: *JT Service/NV Std Avionics CP/SB*

Fiscal Year		2009				2010				2011				2012				2013				2014				2015			
CNS/ATM		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																													
P-8 Integration/Certification RVSM & RNP RNAV												DT/OT																	
E-2D Integration/Certification MODE S & 8.33 KhZ							DT/OT																						
E-2D Integration/Certification RNP RNAV										DT/OT																			
Test & Evaluation Milestones																													
Production Milestones Platform Procurements (S/W upgrades ONLY)																													
Production Deliveries																													

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*	**PROJECT** 0572: *JT Service/NV Std Avionics CP/SB*

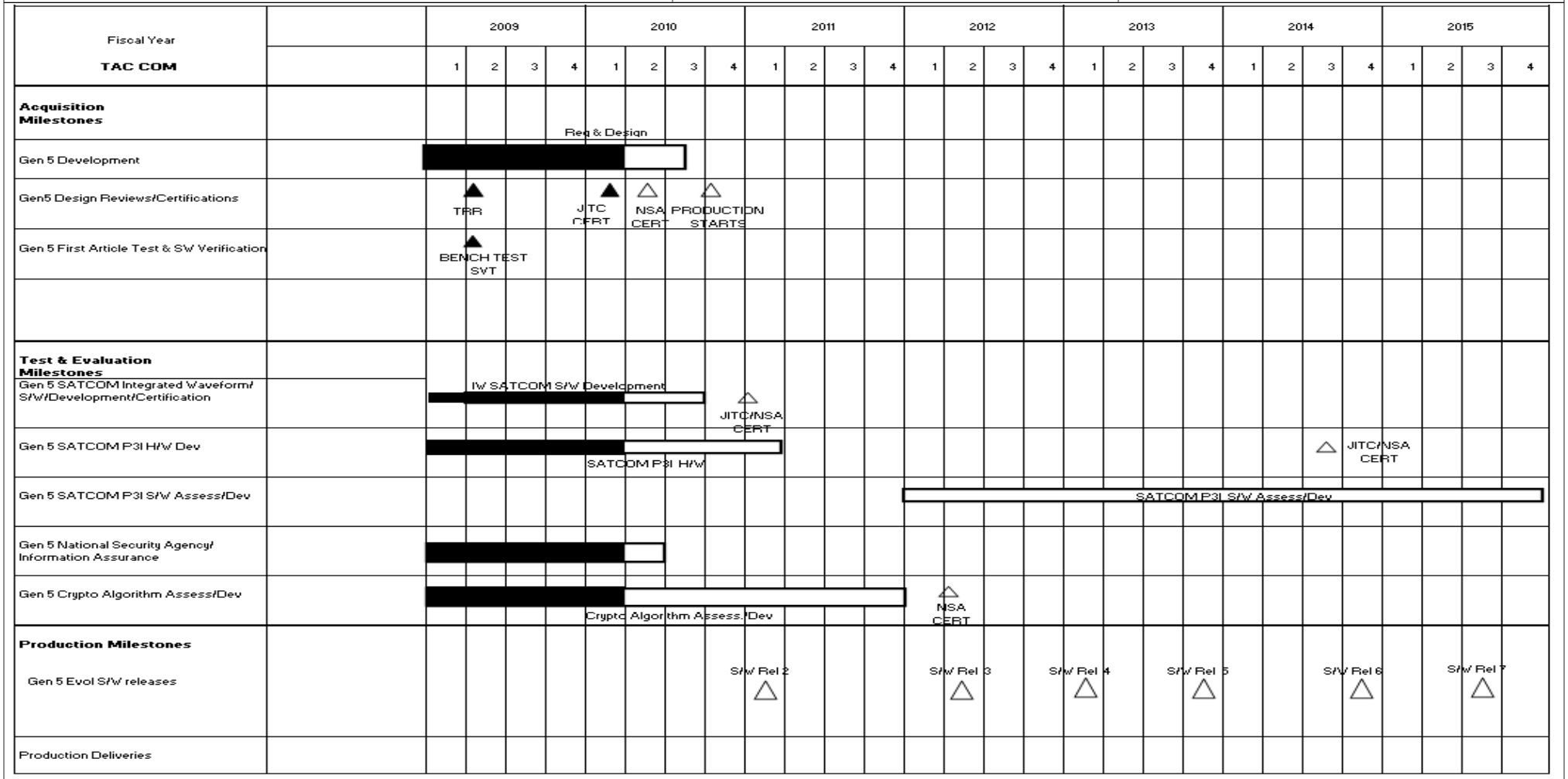


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

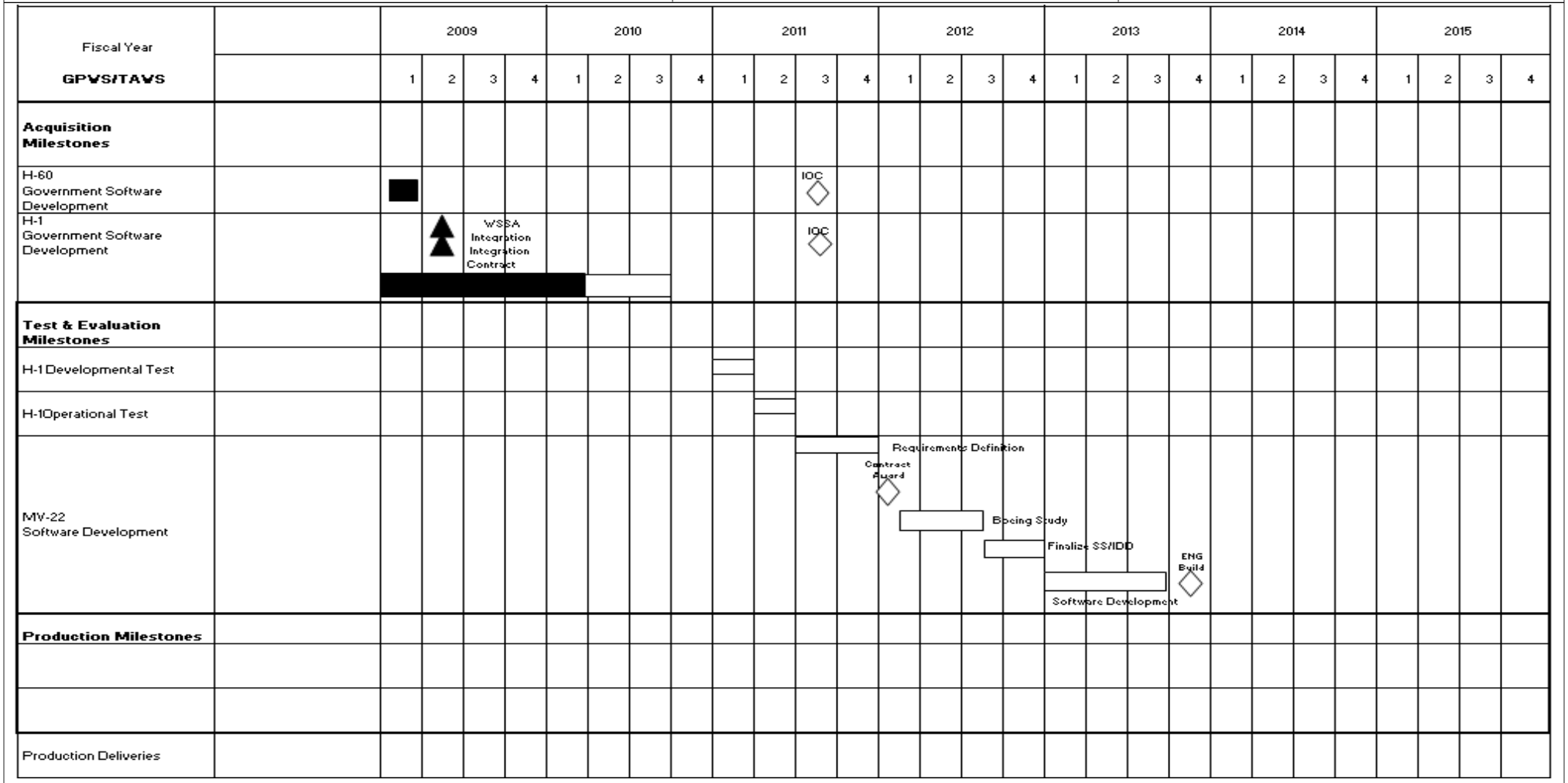


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*	**PROJECT** 0572: *JT Service/NV Std Avionics CP/SB*

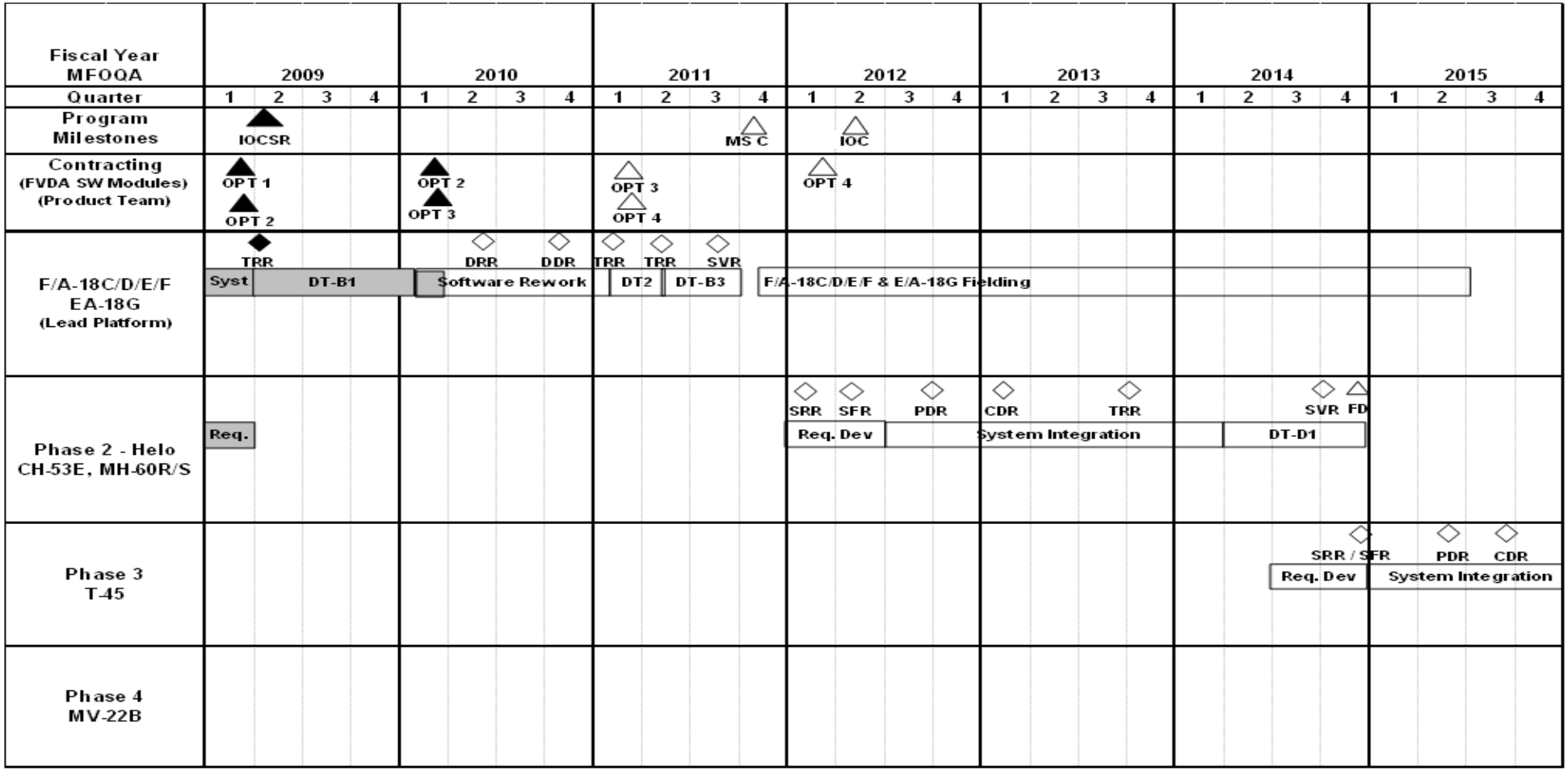


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

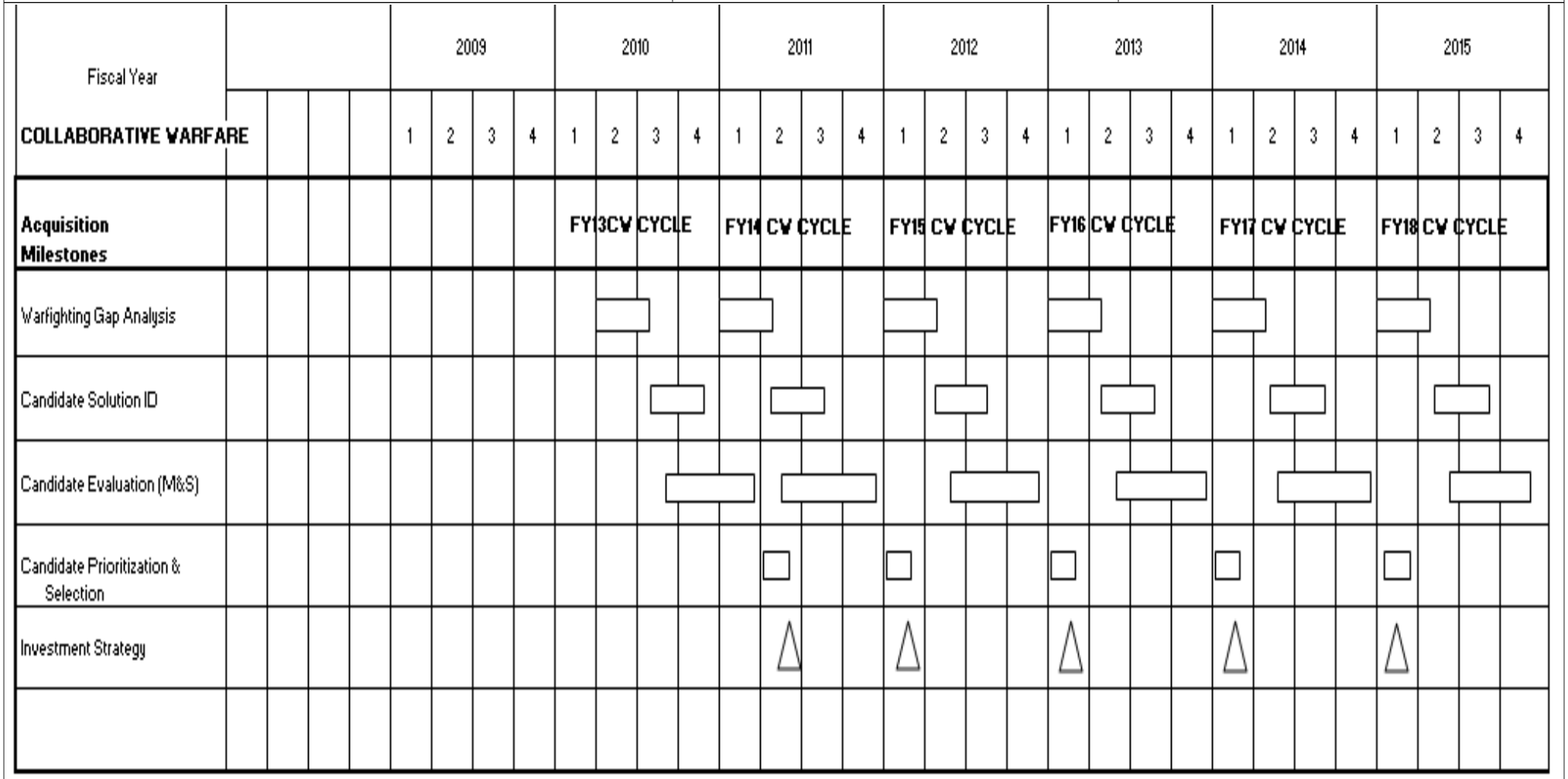


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*	**PROJECT** 0572: *JT Service/NV Std Avionics CP/SB*

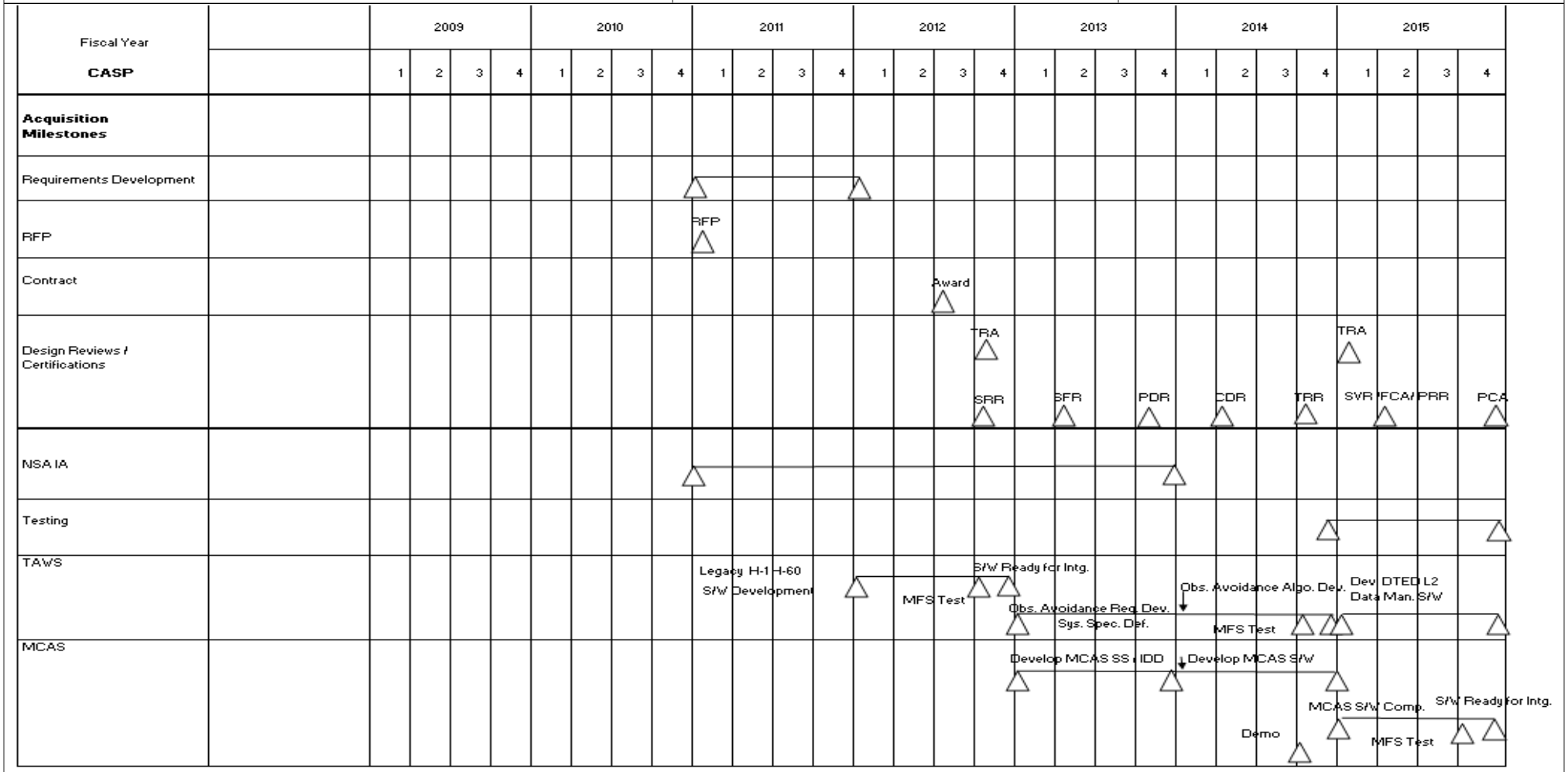


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*	**PROJECT** 0572: *JT Service/NV Std Avionics CP/SB*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
AMCD	1	2009	1	2011
-MSU Risk Reduction/Study	1	2009	4	2009
-FCNS Network Processor Risk Reduction T/S	1	2010	1	2011
-OSP3e Road Map Risk Reduction T/S	1	2010	1	2011
AWICS	1	2009	1	2009
-Product Development	1	2009	1	2009
CNS/ATM	4	2009	2	2011
-P-8 Integration/Certification RVSM, RNP RNAV	3	2010	2	2011
-E-2D Integration/Certification MODE S , 8.33 KHZ	4	2009	2	2010
-E-2D Integration/Certification RNP RNAV	3	2010	4	2010
TACCOM	1	2009	4	2015
-GEN 5 Development	1	2009	3	2010
-GEN 5 Test Readiness Review (TRR)	2	2009	2	2009
-GEN 5 Joint Interoperability Test Command Certification	1	2010	1	2010
-GEN 5 Joint Interoperability Test Command Certification1	4	2010	1	2011
-GEN 5 National Security Agency Certification	2	2010	2	2010
-GEN 5 Joint Interoperability Test Command Certification2	3	2014	3	2014
-GEN 5 Production Starts	4	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

	Start		End	
Event	Quarter	Year	Quarter	Year
-GEN 5 First Article Test & SW Verification	2	2009	2	2009
-GEN 5 IW SATCOM S/W Development	1	2009	3	2010
-GEN 5 H/W Development for SATCOM P3I	1	2009	1	2011
-GEN 5 SATCOM P3I S/W Assess/Dev	1	2012	4	2015
-GEN 5 National Security Agency Certification1	2	2012	2	2012
-GEN 5 National Security Agency/Information Assurance	1	2009	2	2010
-GEN 5 Crypto Algorithm Assess/Dev	1	2009	4	2011
-GEN 5 Evol S/W Releases 2	1	2011	1	2011
-GEN 5 Evol S/W Releases 3	2	2012	2	2012
-GEN 5 Evol S/W Releases 4	1	2013	1	2013
-GEN 5 Evol S/W Releases 5	4	2013	4	2013
-GEN 5 Evol S/W Releases 6	4	2014	4	2014
-GEN 5 Evol S/W Releases 7	3	2015	3	2015
GPWS/TAWS	1	2009	4	2013
-H-60 Government Software Development/Integration	1	2009	1	2009
-H-60 Initial Operational Capability (IOC)	3	2011	3	2011
-H-1 Harris Integration Contract	2	2009	2	2009
-H-1 Government Software Development/Integration	1	2009	3	2010
-H-1 WSSA Integration Contract	2	2009	2	2009
-H-1 Developmental Testing	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

	Start		End	
Event	Quarter	Year	Quarter	Year
-H-1 Operational Testing	2	2011	2	2011
-H-1 Initial Operational Capability (IOC)	3	2011	3	2011
-MV-22 Requirements Definition	3	2011	4	2011
-MV-22 Contract Award	1	2012	1	2012
-MV-22 Boeing Study	1	2012	3	2012
-MV-22 Finalize SS/IDD	3	2012	4	2012
-MV-22 Software Development	1	2013	3	2013
-MV-22 Engineering Build Delivery	4	2013	4	2013
MFOQA	1	2009	4	2015
-IOC SR	2	2009	4	2009
-MS C	4	2011	4	2011
-Initial Operational Capability (IOC)	2	2012	2	2012
-FVDA SW Modules OPT1	1	2009	1	2009
-FVDA SW Modules OPT2	1	2010	1	2010
-FVDA SW Modules OPT3	1	2011	1	2011
-FVDA SW Modules OPT4	1	2012	1	2012
-Product Team OPT2	1	2009	1	2009
-Product Team OPT3	1	2010	1	2010
-Product Team OPT4	1	2011	1	2011
-F/A-18 Systems Integration	1	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

	Start		End	
Event	Quarter	Year	Quarter	Year
-F/A-18 Test Readiness Review (TRR)	2	2009	2	2009
-F/A-18 Test Readiness Review (TRR)1	1	2011	1	2011
-F/A-18 Test Readiness Review (TRR)2	2	2011	2	2011
-F/A-18 Test Readiness Review (TRR)3	3	2011	4	2011
-F/A-18 DT-B1	2	2009	1	2010
-F/A-18 Software Rework	2	2010	1	2011
-F/A-18 DRR	2	2010	2	2010
-F/A-18 DRR2	4	2010	4	2010
-F/A-18 DT-B2	1	2011	2	2011
-F/A-18 DT-B3	2	2011	3	2011
-F/A-18 SVR	3	2011	3	2011
-F/A-18 Fielding Decision	4	2011	2	2015
-MH-60R/S & CH-53E Requirements Development	1	2009	1	2009
-MH-60R/S & CH-53E System Readiness Review (SRR)	1	2012	1	2012
-MH-60R/S & CH-53E System Readiness Review (SFR)	2	2012	2	2012
-MH-60R/S & CH-53E Requirements Development1	1	2012	2	2012
-MH-60R/S & CH-53E Systems Integration	3	2012	1	2014
-MH-60R/S & CH-53E Preliminary Design Review (PDR)	3	2012	4	2012
-MH-60R/S & CH-53E Critical Design Review (CDR)	1	2013	1	2013
-MH-60R/S & CH-53E Test Readiness Review (TRR)	3	2013	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

	Start		End	
Event	Quarter	Year	Quarter	Year
-MH-60R/S & CH-53E DT-D1	2	2014	4	2014
-MH-60R/S & CH-53E SVR	3	2013	4	2014
-MH-60R/S & CH-53E Fielding Decision	4	2014	4	2014
-T-45 Requirements Development	3	2014	4	2014
-T-45 System Readiness Review (SRR/SFR)	4	2014	4	2014
-T-45 System Integration	1	2015	4	2015
-T-45 Preliminary Design Review (PDR)	2	2015	2	2015
-T-45 Critical Design Review (CDR)	3	2015	3	2015
COLLABORATIVE WARFARE	1	2009	4	2015
-Warfighting Gap Analysis	2	2010	2	2010
-Warfighting Gap Analysis1	1	2011	2	2011
-Warfighting Gap Analysis2	1	2012	2	2012
-Warfighting Gap Analysis3	1	2013	2	2013
-Warfighting Gap Analysis4	1	2014	2	2014
-Warfighting Gap Analysis5	1	2015	2	2015
-Candidate Solution Identification	3	2010	4	2010
-Candidate Solution Identification1	2	2011	3	2011
-Candidate Solution Identification2	2	2012	3	2012
-Candidate Solution Identification3	2	2013	3	2013
-Candidate Solution Identification4	2	2014	3	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

	Start		End	
Event	Quarter	Year	Quarter	Year
-Candidate Solution Identification5	2	2015	3	2015
-Candidate Evaluation (Modeling & Sim)	3	2010	1	2011
-Candidate Evaluation (Modeling & Sim)1	2	2011	4	2011
-Candidate Evaluation (Modeling & Sim)2	2	2012	4	2012
-Candidate Evaluation (Modeling & Sim)3	2	2013	4	2013
-Candidate Evaluation (Modeling & Sim)4	2	2014	4	2014
-Candidate Evaluation (Modeling & Sim)5	2	2015	4	2015
-Candidate Prioritization & Selection	2	2011	2	2011
-Candidate Prioritization & Selection1	1	2012	1	2012
-Candidate Prioritization & Selection2	1	2013	1	2013
-Candidate Prioritization & Selection3	1	2014	1	2014
-Candidate Prioritization & Selection4	1	2015	1	2015
-Investment Strategy	2	2011	2	2011
-Investment Strategy1	1	2012	1	2012
-Investment Strategy2	1	2013	1	2013
-Investment Strategy3	1	2014	1	2014
-Investment Strategy4	1	2015	1	2015
COLLISION AVOIDANCE SAFETY PROGRAM	1	2009	4	2015
-Requirements Development	1	2011	1	2012
-RFP	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

	Start		End	
Event	Quarter	Year	Quarter	Year
-Contract Award	3	2012	3	2012
-Design Reviews/Certifications TRA	4	2012	4	2012
-Design Reviews/Certifications SRR	4	2012	4	2012
-Design Reviews/Certifications SFR	2	2013	2	2013
-Design Reviews/Certifications PDR	4	2013	4	2013
-Design Reviews/Certifications CDR	2	2014	2	2014
-Design Reviews/Certifications TRR	4	2014	4	2014
-Design Reviews/Certifications TRA1	1	2015	1	2015
-Design Reviews/Certifications SVR/FCA/PRR	2	2015	2	2015
-Design Reviews/Certifications PCA	4	2015	4	2015
-NSA Information Assurance	1	2011	4	2013
-Testing	4	2014	4	2015
-TAWS Legacy H-1/H-60 S/W Integration	1	2012	4	2012
-TAWS Legacy H-1/H-60 MFS Test	4	2012	4	2012
-TAWS Legacy H-1/H-60 Obs Avoidance Req Dev	1	2013	4	2014
-TAWS Legacy H-1/H-60 MFS Test1	4	2014	4	2014
-TAWS MFS Test	4	2014	4	2014
-TAWS Legacy H-1/H-60 Dev DTED L2 Data Man S/W	1	2015	4	2015
-MCAS Dev MCAS SS/IDD	1	2013	1	2015
-MCAS Dev MCAS SW	4	2013	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 0572: *JT Service/NV Std Avionics CP/SB*

	Start		End	
Event	Quarter	Year	Quarter	Year
-MCAS Demo	4	2014	4	2014
-MCAS S/W Comp. S/W Ready for Integ.	4	2014	4	2015
-MCAS Test	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 1857: *Calibration Standards*	

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
1857: *Calibration Standards*	1.511	2.023	1.401	0.000	1.401	1.457	1.952	1.997	2.038	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project 1857, Calibration Standards: This project is a Navy-wide program to develop required calibration standards (hardware) in all major measurement technology areas in support of Navy Hull, Mechanical and Electrical (HM&E) systems as well as Navy Weapons systems, ground and air, throughout the Fleet. It funds Navy lead-service responsibilities in the DOD and Joint Services Meteorology Research and Development program. This project supports the military requirement to verify the performance of all test systems used to validate the operation of Navy Hull, Mechanical and Electrical (HM&E) as well as Navy Weapon Systems with calibration standards traceable to the National Institute of Standards and Technology.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Calibration Standards	1.504	2.023	1.401	0.000	1.401
FY 2009 Accomplishments: ($1.204) Complete 1 calibration standard (hardware) in support of chemical biological detection systems, reduce crew size initiatives,and shipboard communication systems and continue to development of 1 additional standard. ($.300) Continue development of standards for wireless micro electrical mechanical systems (MEMS) sensors and analytical metrology. *FY 2010 Plans:* ($1.295) Continue development of 3 new calibration standards in support of chemical biological detection systems.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 1857: *Calibration Standards*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
($.300) Begin development of standards in support for wireless micro electrical mechanical sensors (MEMS) in support of the next generation DD(X) ships and Smart Carriers. ($.428) Complete (1) calibration standard hardware in support of chemical and biological systems and (1) high power laser attenuator in support of optical tests. *FY 2011 Base Plans:* Plan ($.940) Complete (2) calibration standards (hardware) in support of chemical and biological detection systems. ($.252) Continue development of portable calibration standards in support of Fleet for in-situ wireless closed loop calibrations on board naval ships. ($.209) Continue development of standards in support for wireless micro electrical sensors in support of next generation DD(X) ships and Smart Carriers.					
Acquisition Workforce *FY 2009 Accomplishments:* DAWDF Realignment	0.007	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	1.511	2.023	1.401	0.000	1.401

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 1857: *Calibration Standards*

E. Performance Metrics

The US Navy Metrology RDT&E program will transition 4 current projects within the next 12 months in the technology areas of, Physical/Mechanical, Nuclear, Biological and Chemical (NBC) consisting new hardware calibration standards and capabilities. Within the next 12 months, develop and transition 3 current and 2 new Electro Optics measurement standards (Hardware). Will initiate the research and development of 7 new and 5 continuing projects in the technology areas of Physical/ Mechanical, Microwave/Millimeter-Wave, Electro-Optics, and Nuclear, Biological and Chemical (NBC) for the purpose of ensuring measurement accuracy in combat systems of new advance technology and current weapon systems and associated test equipment. Efforts will provide for more cost effective and efficient system measurements for performing maintenance and calibration and reduce wrong test decisions that will result in lower maintenance costs and higher system performance reliability. Success measures will be articulated through program goals and a Balance Scorecard Strategy System.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 1857: *Calibration Standards*	

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	NSWC Corona Corona, CA	1.941	1.389	Jan 2010	0.851	Oct 2010	0.000		0.851	0.000	4.181	Continuing
		Subtotal	1.941	1.389		0.851		0.000		0.851	0.000	4.181	

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	WR	NSWC Corona Corona, CA	0.760	0.307	Jan 2010	0.209	Oct 2010	0.000		0.209	0.000	1.276	Continuing
Government Engineering Support	WR	NSWC Corona Corona, CA	1.542	0.307	Jan 2010	0.321	Oct 2010	0.000		0.321	0.000	2.170	Continuing
Defense Acquisition Workforce	Various/ Various	Various Various	0.007	0.000		0.000		0.000		0.000	0.000	0.007	Continuing
Travel	WR	NSWC Corona Corona, CA	0.038	0.020	Jan 2010	0.020	Oct 2010	0.000		0.020	0.000	0.078	Continuing
		Subtotal	2.347	0.634		0.550		0.000		0.550	0.000	3.531	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 1857: *Calibration Standards*	

	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	4.288	2.023		1.401		0.000		1.401	0.000	7.712	

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 2311: *Stores Planning and Weaponeering Module*	

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
2311: *Stores Planning and Weaponeering Module*	11.119	12.365	12.377	0.000	12.377	12.926	13.489	13.672	13.939	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project 2311, Stores Planning and Weaponeering Module: The Naval Aircraft Weaponeering Components (NAWC) project, now referred to as the Weaponeering and Stores Planning (WASP) components, are integrated software products that allow aircrew to determine the best combinations of weapons and delivery conditions to achieve the desired level of target damage, eliminate weapon delivery solutions that violate aircraft T/M/S specific safety-of-flight envelopes, and perform detailed weapons employment planning. WASP is approved by N88 as a flight clearance implementation system for the F/A-18 A, A+, B, C, D, D (RC), E and F. WASP components will alert pilots if their planned weapon release conditions meet flight clearance limits, will result in bomb-to-bomb collisions, bomb-to-aircraft collisions, aircraft overstress, or excessive risk of aircraft loss/damage in the event of fuze early bursts. Weapon employment planning is fundamental to the Joint Capability Area (JCA) of Force Application and joint mission areas of Strike and Amphibious Warfare. WASP provides the Navy and Marine Corp with weaponeering capabilities that are critical requirements for Interdiction, Armed RECCE and Close Air Support mission planning. Therefore WASP product availability is critical to successful employment of the Joint Mission Planning System (JMPS) for the F/A-18 A-F. The WASP product encompasses a multitude of Government-Off-The-Shelf (GOTS) and Commercial-Off-The-Shelf (COTS) software components and tools (aircraft target maneuver simulations, weapon flyout models, target probability of damage calculators). WASP products will require updates as emergent requirements for new aircraft T/M/S, stores and weapons are approved by N88, and new flight clearances and flight restrictions are issued by NAVAIRSYSCOM.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Product Development	6.379	6.301	7.456	0.000	7.456
Includes associated system engineering design, development, installation, integration and software development for WASP components V1.2, V1.2.2, V1.2.3, V1.2.4, V3.0, V3.1 to support F/A-18 A-F. NAWCWD, JSSA (Joint Software Support Activity) will develop and maintain the Weapons and Release Planning (WARP) tool using WASP funding of $1.3M in FY10 and $.7M in FY11. Define					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 2311: *Stores Planning and Weaponeering Module*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
requirements to integrate WASP components into the Joint Mission Planning System (JMPS). Provide domain engineering support for weapons separation, aircraft loads, flutter, fuzing, safe escape for application to WASP. Provide government Joint Munitions Effectiveness Manual (JMEM) engineering support (JMEM Subject Matter Experts) for integration of new JMEM capabilites into WASP. Provide analysis of new requirements, allocation of requirements, design oversight, and life cycle management of the WASP program. Develop new aircraft configuration, aircraft loading, weapon optimization, store release and delivery planning components for F/A-18 A-F new flight clearances and flight restrictions issued by NAVAIRSYSCOM. Provide configuration management, system administration, quality assurance, documentation, metrics and software risk management for WASP. Acquire, integrate and modify numerous GOTS/COTS software components and tools (aircraft target maneuver simulations, weapon flyout models, target probability of damage calculators, etc.) that are used as GFI for the WASP software development. Integrate WASP with JSOW/JDAM/SLAM-ER and other weapons mission planning systems as required. *FY 2009 Accomplishments:* Completed and released WASP Version 1.2.2 to fleet. *FY 2010 Plans:* Complete and release WASP V 1.2.3 to fleet. $1.3M WASP funding provided to NAWCWD, JSSA for WARP product development. *FY 2011 Base Plans:* Complete WASP V1.2.4 for FY12 release to fleet and analyze requirements for WASP V3.0. $.7M WASP funding provided to NAWCWD, JSSA for WARP product development.					
Test and Evaluation (T&E) Provide test and evaluation for unit and system level testing; functional qualification testing; safety of flight certification testing; integration and standards compliance testing for WASP versions (WASP	3.414	4.314	2.128	0.000	2.128

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 2311: *Stores Planning and Weaponeering Module*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
V1.2, V1.2.2, V1.2.3 WASP V3.0, and V3.1). Provide T&E support for guided weapons and Joint Munitions Effectiveness Manual (JMEM) accreditation. Provide JMPS Mission Planning Environment (MPE) Integration test support. Provide testing and test support to ensure all (to include internally developed software, externally developed GOTS components and COTS products) complies with DoN and DoD software mandates and directives. These include ISNS (IT-21), DIACAP NMCI, DITPR-DON and FAM. All Fleet released software must comply with DoN and DoD software directives or will not be allowed to run on ship LANs or NMCI. *FY 2009 Accomplishments:* Completed test and evaluation of WASP V 1.2.2 in order to release to the fleet. *FY 2010 Plans:* Continue test and evaluation of WASP V 1.2.3 in order to release to the fleet. *FY 2011 Base Plans:* Continue test and evaluation of WASP V 1.2.4 in order to release to fleet and analyze test requirements for WASP V3.0.					
Program Management Provide program management, which includes WASP acquisition documentation development and support, cost, schedule and performance management, contracting support (providing contract administration, preparing contract packages for award), compliance with external directives and providing financial support (accept, obligate, commit, and track funding). Provide travel for WASP Government personnel. Continue performing project management support for this program throughout the FYDP.	1.326	1.750	2.793	0.000	2.793

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 2311: *Stores Planning and Weaponeering Module*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Provided program management support to the WASP team in order to successfully release WASP V 1.2.3 to the fleet. *FY 2010 Plans:* Continue project management support to the WASP for future releases of WASP to the fleet. *FY 2011 Base Plans:* Continue project management support to the WASP for future releases of WASP to the fleet.					
Accomplishments/Planned Programs Subtotals	11.119	12.365	12.377	0.000	12.377

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
• RDTE/3858: *Air Force Mission Planning*	97.296	91.995	99.261	0.000	99.261	101.224	101.635	0.000	0.000	0.000	491.411

D. Acquisition Strategy

Weaponeering and Stores Planning (WASP) products, delivered annually, were developed in-house by NAVAIR (NAWCAD and NAWCWD) engineers and support contractors. The team has now migrated to a smaller government team that provides functional expertise in aircraft safety-of-flight (air-vehicle stores compatibility, weapons separation, aircraft aerodynamic flutter, ground/flight loads, authorized fuze arm times, aircraft safe escape), guided weapons employment and weapons effects against targets, with the majority of the software development conducted by the various contractors. WASP utilizes the Mission Planning Enterprise Contract (MPEC). The various government, engineering, test, and support teams (test facilities, functional qualification testing and certification/accreditation test) are supplemental with contract labor procured predominately through BPA contracts.

E. Performance Metrics

Average time to plan a flight: Threshold value is < 1 hour average time to plan a flight that includes full aircraft loadout and weapons delivery safe escape planning. End product is a pilot's z-diagram knee board card.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*	**PROJECT** 2311: *Stores Planning and Weaponeering Module*

Objective value is < 15 miutes average time to plan a flight that includes full aircraft loadout and weapons delivery safe escape planning. End product is a pilot's z-diagram knee board card.

Interoperability: Threshold value is 100% stand alone value.
Objective value is 100% stand alone value.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 2311: *Stores Planning and Weaponeering Module*

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 Development	WR	NAWCAD Patuxent River, MD	16.820	0.171	Nov 2009	0.010	Nov 2010	0.000		0.010	Continuing	Continuing	Continuing
Product Development	WR	NAWCWD China Lake, CA	0.448	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Product Development	WR	NAWCWD Pt. Mugu, CA	0.000	0.160	Nov 2009	0.000	Nov 2010	0.000		0.000	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	MPEC Hanscom AFB, MA	12.404	5.059	Nov 2009	0.000	Nov 2010	0.000		0.000	Continuing	Continuing	Continuing
Product Development	Various/ CPFF	Various Various	29.314	0.911	Nov 2009	0.203	Nov 2010	0.000		0.203	Continuing	Continuing	Continuing
Product Development	WR	Not Specified Eglin AFB, FL	0.000	0.000		0.074	Nov 2010	0.000		0.074	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	Not Specified LMSS/TBD	0.000	0.000		6.469	Nov 2010	0.000		6.469	Continuing	Continuing	Continuing
Product Development	WR	NWCWD JSSA	0.000	0.000		0.700	Nov 2010	0.000		0.700	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD Patuxent River, MD	8.182	0.239	Nov 2009	0.000		0.000		0.000	0.000	8.421	Continuing
		Subtotal	67.168	6.540		7.456		0.000		7.456			

Remarks

*Mission Planning Enterprise Contract (MPEC), **LMSS Contract to be awarded 3/09 is FFP, Follow-on contract will be CPFF and is TBD.
Dollars may not add due to rounding.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 2311: *Stores Planning and Weaponeering Module*

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	NAWCAD Patuxent River, MD	16.585	0.813	Nov 2009	0.793	Nov 2010	0.000		0.793	Continuing	Continuing	Continuing
Test & Evaluation	WR	NAWCWD China Lake, CA	0.352	0.025	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Test & Evaluation	WR	NAWCWD Pt. Mugu, CA	0.100	0.000		0.165	Nov 2010	0.000		0.165	Continuing	Continuing	Continuing
Test & Evaluation	C/CPFF	Various Various	2.524	3.476	Nov 2009	1.170	Nov 2010	0.000		1.170	Continuing	Continuing	Continuing
		Subtotal	19.561	4.314		2.128		0.000		2.128			

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	NAWCWD Patuxent River, MD	7.512	0.576	Nov 2009	0.520	Nov 2010	0.000		0.520	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCWD Pt. Mugu, CA	0.965	0.000	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
	WR	NAWCAD	3.952	0.875	Nov 2009	0.853	Nov 2010	0.000		0.853	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 2311: *Stores Planning and Weaponeering Module*

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		Patuxent River, MD											
Program Management Support	Various/ CPFF	Various Various	0.000	0.000		0.659	Nov 2010	0.000		0.659	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWCWD China Lake, CA	1.098	0.000		0.017	Nov 2010	0.000		0.017	Continuing	Continuing	Continuing
Travel	WR	NAWCAD Patuxent River, MD	1.201	0.060	Nov 2009	0.060	Nov 2010	0.000		0.060	Continuing	Continuing	Continuing
Government Engineering Support	Various/ CPFF	Various Various	0.000	0.000		0.684	Nov 2010	0.000		0.684	Continuing	Continuing	Continuing
		Subtotal	14.728	1.511		2.793		0.000		2.793			

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	101.457	12.365		12.377		0.000		12.377			

Remarks

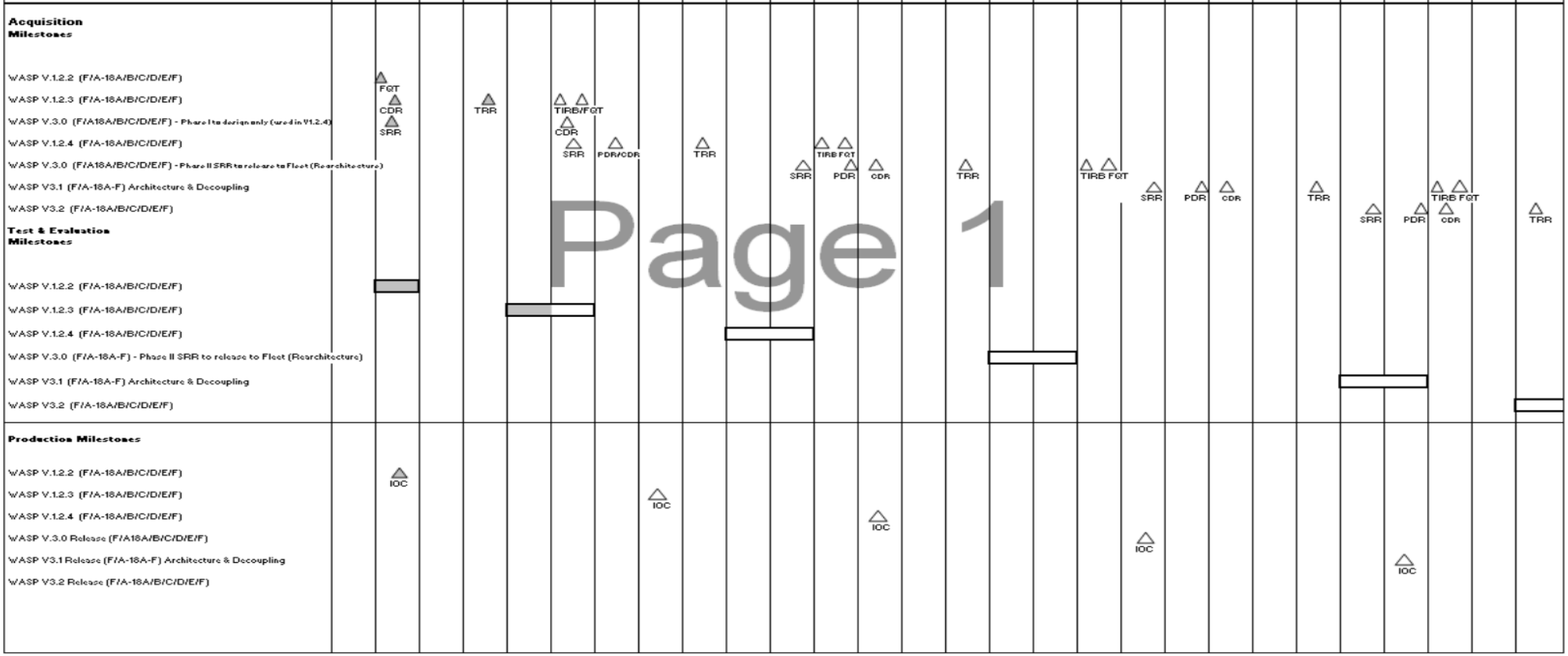
Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*	**PROJECT** 2311: *Stores Planning and Weaponeering Module*

EXHIBIT R4, Schedule Profile — DATE: December 2009

APPROPRIATION/BUDGET ACTIVITY: RDT&E, N / BA-5 System Development & Demonstration

PROGRAM ELEMENT NUMBER AND NAME: 0604215N Standards Development

PROJECT NUMBER AND NAME: 2311 Navy Stores Planning and Weaponeering Module



Page 1

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*	**PROJECT** 2311: *Stores Planning and Weaponeering Module*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
WASP V.1.2.2 (F/A-18A/B/C/D/E/F) FQT	2	2009	2	2009
WASP V.1.2.3 (F/A-18A/B/C/D/E/F) CDR	2	2009	2	2009
WASP V.1.2.3 (F/A-18A/B/C/D/E/F) TRR	4	2009	4	2009
WASP V.1.2.3 (F/A-18A/B/C/D/E/F) TIRB	2	2010	2	2010
WASP V.1.2.3 (F/A-18A/B/C/D/E/F) FQT	2	2010	2	2010
WASP V.1.2.4 (F/A-18A/B/C/D/E/F) SRR	2	2010	2	2010
WASP V.1.2.4 (F/A-18A/B/C/D/E/F) CDR	3	2010	3	2010
WASP V.1.2.4 (F/A-18A/B/C/D/E/F) TRR	1	2011	1	2011
WASP V.1.2.4 (F/A-18A/B/C/D/E/F) TIRB	4	2011	4	2011
WASP V.1.2.4 (F/A-18A/B/C/D/E/F) FQT	4	2011	4	2011
WASP V3.0 Phase I (F/A-18A/B/C/D/E/F) SRR	2	2009	2	2009
WASP V3.0 Phase I (F/A-18A/B/C/D/E/F) CDR	2	2010	2	2010
WASP V3.0 Phase II (F/A-18A/B/C/D/E/F) SRR	3	2011	3	2011
WASP V3.0 Phase II (F/A-18A/B/C/D/E/F) CDR	1	2012	1	2012
WASP V3.0 Phase II (F/A-18A/B/C/D/E/F)TRR	3	2012	3	2012
WASP V3.0 Phase II (F/A-18A/B/C/D/E/F) TIRB	2	2013	2	2013
WASP V3.0 Phase II (F/A-18A/B/C/D/E/F) FQT	2	2013	2	2013
WASP V3.1 (F/A-18A/B/C/D/E/F) Architecture & Decoupling SRR	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 2311: *Stores Planning and Weaponeering Module*

	Start		End	
Event	Quarter	Year	Quarter	Year
WASP V3.1 (F/A-18A/B/C/D/E/F) Architecutre & Decoupling CDR	1	2014	1	2014
WASP V3.1 (F/A-18A/B/C/D/E/F) Architecture & Decoupling TRR	3	2014	3	2014
WASP V3.1 (F/A-18A/B/C/D/E/F) Architecture & Decoupling TIRB	2	2015	2	2015
WASP V3.1 (F/A-18A/B/C/D/E/F) Architecture & Decoupling FQT	2	2015	2	2015
WASP V3.2 (F/A-18A/B/C/D/E/F) SRR	4	2014	4	2014
WASP V3.2 (F/A-18A/B/C/D/E/F) CDR	2	2015	2	2015
WASP V3.2 (F/A-18A/B/C/D/E/F) TRR	4	2015	4	2015
WASP V.1.2.2 (F/A-18A/B/C/D/E/F)	2	2009	2	2009
WASP V.1.2.3 (F/A-18A/B/C/D/E/F)	1	2010	2	2010
WASP V.1.2.4 (F/A-18A/B/C/D/E/F)	2	2011	3	2011
WASP V3.0 Phase II (F/A-18A/B/C/D/E/F)	4	2012	1	2013
WASP V3.1 (F/A-18A/B/C/D/E/F) Architecture & Decoupling	4	2014	1	2015
WASP V3.2 (F/A-18A/B/C/D/E/F)	4	2015	4	2015
WASP V.1.2.2 (F/A-18A/B/C/D/E/F) IOC	2	2009	2	2009
WASP V.1.2.3 (F/A-18A/B/C/D/E/F) IOC	4	2010	4	2010
WASP V.1.2.4 (F/A-18A/B/C/D/E/F) IOC	1	2012	1	2012
WASP V3.0 Phase II (F/A-18A/B/C/D/E/F) IOC	3	2013	3	2013
WASP V3.1 (F/A-18A/B/C/D/E/F) Architecture & Decoupling IOC	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 2312: *Common Helicopters*	

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
2312: *Common Helicopters*	0.931	0.966	0.928	0.000	0.928	0.946	0.963	0.985	1.005	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Automated mission planning systems to date have focused on developing planning capabilities for fixed-wing aircraft, while the unique planning requirements for helicopters have not been fully addressed. The unique and enhanced automated mission planning requirements that must be developed and implemented for helicopters include: data loading, an enhanced route editor (serpentine routing, hover), manipulation of higher fidelity (smaller scale) maps and imagery, enhanced performance tools (performance in and out of ground effect, performance degradation due to atmospheric conditions & elevation), and enhanced fidelity of landing zone, target zone, and threat analyses. The following type/model/series aircraft are supported by this PE: AH-1W/Z, UH-1N/Y, H-46/E, H-53D/E, H-60B/F/H/R/S, V-22. Common helicopter functionality will be developed for implementation in Joint Mission Planning System (JMPS).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Common Helicopters	0.931	0.966	0.928	0.000	0.928
Continue development of Common Helicopter functionality and integration with JMPS Version 1.2.4 and 1.4., and Portable Flight Planning Station (PFPS) Version 3.31. *FY 2009 Accomplishments:* Completed Common Mission Data Loader (CMDL) Unique Planning Component (UPC) build 2.01.21. *FY 2010 Plans:* Perform Common Mission Data Loader (CMDL) .NET UPC Preliminary Design Review (PDR) and Critical Design Review (CDR), develop and deliver two builds of legacy CMDL UPC to Developmental Test (DT), develop and deliver VH-3D and VH-60N Weight & Power Calculator (WPC) module to DT, and develop and deliver two additional helicopter WPC modules to DT.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	PROJECT 2312: *Common Helicopters*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Develop and deliver two builds of legacy CMDL UPC DT, develop and deliver CMDL .NET UPC to DT, and develop and deliver three helicopter WPC modules to DT.					
Accomplishments/Planned Programs Subtotals	0.931	0.966	0.928	0.000	0.928

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/3858: *Air Force Mission Planning Systems*	97.296	91.995	99.261	0.000	99.261	0.000	0.000	0.000	0.000	0.000	288.552

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Export Mission Data to Data Transfer Device (DTD): Threshold value is < 12 minutes to transfer navigation, communication, weapon system initialization settings and data; mission and intelligence data.

Interoperability: Threshold value is 100% of top level Information Exchange Requirements (IERs) designated critical will be satisfied. Objective value is 100% of top level IERs will be satisfied.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604215N: *Standards Development*	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*	2.793	5.776	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.501
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: Measurement Standards Research and Development *FY 2010 Plans:* FY 2010 RDT&E Congressional Plus-up Funds for the U.S. Navy Metrology R&D Program efforts at the Naval Surface Warfare Center, Corona, Ca, will be issued for the research and development (R&D) of National, Primary, and Depot Maintenance calibration standards (hardware) in the technology areas of Physical-mechanical, Microwave/Millimeter-Wave, Electro-optics, and Nuclear, Biological and Chemical (NBC) for the purpose of ensuring measurement accuracy in combat systems of new advance technology and current weapon systems and associated test equipment. This will provide for the development of metrology standards in support of test measurements of air launched missiles, automated calibration of shipboard smart sensors, shipboard and aircraft test systems. This will also continue the development of the new generation automated calibration system and NBC standards for hand-held Ion Mobility Spectrometry (IMS) detectors and quantifiable UV data accuracy in support of portable biological detector systems.	0.000	5.776
Congressional Add: U.S. Navy Metrology and Calibration (METCAL)	2.793	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604215N: *Standards Development*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: FY 2009 RDT&E Congressional Plus-up Funds for the U.S. Navy METCAL R&D Program efforts at the Naval Surface Warfare Center, Corona, CA, issued for the research and development (R&D) of National, Primary and Depot Maintenance calibration standards (hardware) in the technology areas of Nuclear, Biological and Chemical (NBC), Electro-optics, and physical- mechanical for the purpose of ensuring measurement accuracy in support/maintenance and combat readiness of new advance technology weapon systems, current weapon systems and associated support equipment. This will continue the development of NBC simulant testing in support of Chemical and Biological detection devices and systems, and portable calibration standards to the fleet in support of wireless closed loop calibrations onboard ship. This will also continue the development of the new generation automated calibration system.		
Congressional Adds Subtotals	2.793	5.776

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

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604216N: *Multi-Mssn Helicopter Upgrade 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	67.891	75.284	55.792	0.000	55.792	15.244	3.247	0.000	0.000	0.000	1,130.451
1707: *MH-60R Development*	67.891	71.540	55.792	0.000	55.792	15.244	3.247	0.000	0.000	0.000	1,125.073
9999: *Congressional Adds*	0.000	3.744	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.378

A. Mission Description and Budget Item Justification

The primary mission areas of the MH-60R include Anti-Submarine Warfare (ASW) and Surface Warfare (SUW). Secondary mission areas include Search and Rescue (SAR), Vertical Replenishment (VERTREP), Naval Surface Fire Support (NSFS), logistics support, personnel transport and Medical Evacuation (MEDEVAC). The MH-60R provides direct support to the Carrier Strike Group and provides Link Communications Relay (COMREL) via VHF/UHF, Link-16, and Common Data Link (CDL) with the incorporation of Interface Design Specification (IDS) (SAU-07-000) full data exchange via CDL. Ku-Band will be provided to DDG-1000, CVN-78 Class and LCS platforms. Aircraft Ship Integrated Secure and Traverse (ASIST) reduces operational requirements aboard ships by eliminating the need for hauldown capability and providing automatic movements for aircraft on deck. The MH-60R is Post-Milestone III; executing Pre-Planned Product Improvements (P3I) to Air Vehicle and Mission systems. P3I includes upgrades to communication, navigation, Identification Friend or Foe (IFF), Multi-Spectral Targeting System (MTS)/Forward Looking Infrared Radar (FLIR), Automatic Radar Periscope Detection and Discrimination (ARPDD), weapons, data link, safety, maintenance, airframe and mission planning systems. IFF Mode 5 Interrogator capability is being embedded into the APS-147 Radar to provide positive determination of friendly combatants beyond visual range. ARPDD funding prior to FY2008 was in PE 0604261N/4017. This PE includes Congressional Add funding: M230 30 MM Chain Gun Automatic Cannon.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	69.839	81.953	0.000	0.000	0.000
Current President's Budget	67.891	75.284	55.792	0.000	55.792
Total Adjustments	-1.948	-6.669	55.792	0.000	55.792
• Congressional General Reductions		-0.314			
• Congressional Directed Reductions		-10.100			
• Congressional Rescissions	0.000	-0.015			
• Congressional Adds		3.760			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.948	0.000			
• Program Adjustments	0.000	0.000	55.792	0.000	55.792

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *M230 30mm Chain Gun Automatic Cannon*	0.000	3.744
Congressional Add Subtotals for Project: 9999	0.000	3.744
Congressional Add Totals for all Projects	0.000	3.744

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*	PROJECT 1707: *MH-60R 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
1707: *MH-60R Development*	67.891	71.540	55.792	0.000	55.792	15.244	3.247	0.000	0.000	0.000	1,125.073
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The primary mission areas of the MH-60R include Anti-Submarine Warfare (ASW) and Surface Warfare (SUW). Secondary mission areas include Search and Rescue (SAR), Vertical Replenishment (VERTREP), Naval Surface Fire Support (NSFS), logistics support, personnel transport and Medical Evacuation (MEDEVAC). The MH-60R provides direct support to the Carrier Strike Group and provides Link Communications Relay (COMREL) via VHF/UHF, Link-16, and Common Data Link (CDL) with the incorporation of Interface Design Specification (IDS) (SAU-07-000) full data exchange via CDL. Ku-Band will be provided to DDG-1000, CVN-78 Class and LCS platforms. Aircraft Ship Integrated Secure and Traverse (ASIST) reduces operational requirements aboard ships by eliminating the need for hauldown capability and providing automatic movements for aircraft on deck. The MH-60R is Post-Milestone III; executing Pre-Planned Product Improvements (P3I) to Air Vehicle and Mission systems. P3I includes upgrades to communication, navigation, Identification Friend or Foe (IFF), Multi-Spectral Targeting System (MTS)/Forward Looking Infrared Radar (FLIR), Automatic Radar Periscope Detection and Discrimination (ARPDD), weapons, data link, safety, maintenance, airframe and mission planning systems. IFF Mode 5 Interrogator capability is being embedded into the APS-147 Radar to provide positive determination of friendly combatants beyond visual range.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Avionics H/W and S/W Development	44.644	34.848	38.347	0.000	38.347
Supports aircraft integration, problem investigation and resolution, lab management and upgrades, hardware investigations, and repairs in support of the test program. Provides for ILS support and Program Management Board Support and subvendor support. Avionics hardware and software development and integration to include: P3I/Link-16, Radar (ARPDD), IFF Mode 5 interrogator, Communications, GPS, Acoustics and post processing. Mission planning, MTS/FLIR, Weapons, Stores and self defense, Data fusion, and Logistics products including Integrated Electronic Technical Manuals (IETMS). ARPDD provides an automated periscope detection, classification, and tracking capability to					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*	PROJECT 1707: *MH-60R Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
reliably detect periscopes and masts, and reliably discriminate periscopes from clutter and confusion targets. This capability is suitable for air and surface platforms. *FY 2009 Accomplishments:* Completed Automatic Radar Periscope Detection and Discrimination (ARPDD) PDR and ARPDD CDR; Continued ARPDD SDD, and P3I integration testing. *FY 2010 Plans:* Continue ARPDD SDD, P3I integration testing, and conduct ARPDD integrated testing. *FY 2011 Base Plans:* Continue ARPDD SDD, P3I integration testing, and ARPDD integrated testing.					
Engineering , Integration, and Testing Airframe test articles, engineering support, GFE, and risk management board support. Integration and testing of P3I. ASIST integration to support aircraft movement aboard ships. *FY 2009 Accomplishments:* Completed design/integration of Aircraft Ship Integrated Secure and Traverse effort.	1.600	0.000	0.000	0.000	0.000
Common Data Link Avionics P3I Upgrade for the Common Data Link (CDL) and reversability between C-Band and KuBand software design interface (SAU-07-000) provides connectivity and full data exchange with DDG-1000, LCS and CVN-78 Class. *FY 2009 Accomplishments:* Completed CDL integrated testing and conducted SAU-07-000 testing.	6.369	14.372	0.600	0.000	0.600

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*	PROJECT 1707: *MH-60R Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue SAU-07-000 testing. *FY 2011 Base Plans:* Continue SAU-07-000 testing.					
Engineering and Logistics *FY 2009 Accomplishments:* Provided engineering specialists, Integrated Logistics Support (ILS), Government Furnished Equipment (GFE), Systems Engineering (SE), Program Management (PM), Contractor Support Services (CSS), and travel as required to support the MH-60R development program and test activities to complete ARPDD PDR and ARPDD CDR; Continue ARPDD SDD, P3I integration testing, CDL integrated testing, design/integration of ASIST effort and conduct SAU-07-000 testing. *FY 2010 Plans:* Continue to provide engineering specialists, ILS, GFE, SE, PM, CSS, and travel to support P3I integration testing, SAU-07-000 testing, ARPDD SDD, and conduct ARPDD integrated testing. *FY 2011 Base Plans:* Continue to provide engineering specialists, ILS, GFE, SE, PM, CSS, and travel to support P3I integration testing, SAU-07-000 testing, ARPDD SDD, and conduct ARPDD integrated testing.	9.731	13.672	11.138	0.000	11.138
Avionics Testing and Evaluation *FY 2009 Accomplishments:* Provided MH-60R Mission Avionics testing, Avionics Mission P3I, and ARPDD testing and evaluation efforts.	5.547	8.648	5.707	0.000	5.707

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*	PROJECT 1707: *MH-60R Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue to provide MH-60R Mission Avionics testing, Avionics Mission P3I, and ARPDD testing and evaluation efforts. *FY 2011 Base Plans:* Continue to provide MH-60R Mission Avionics testing, Avionics Mission P3I, and ARPDD testing and evaluation efforts. Begin IFF Mode 5 Interrogator testing and evaluation efforts.					
Accomplishments/Planned Programs Subtotals	67.891	71.540	55.792	0.000	55.792

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-1 BLI:018200: *MH-60R*	1,170.822	931.706	1,059.939	0.000	1,059.939	1,002.497	1,010.672	1,238.559	1,268.377	946.186	12,305.720
• APN-6 BLI: 060510: *MH-60R*	1.977	1.835	45.288	0.000	45.288	28.700	0.897	0.000	0.000	0.000	267.498
• APN-5 BLI: 053000: *SH60 Series*	21.488	34.259	23.985	0.000	23.985	38.601	55.865	59.366	58.232	562.532	881.484

D. Acquisition Strategy

Initial Operating Capability (IOC) was achieved in Dec 05 and the MSIII, Full Rate Production (FRP) decision occurred in March 2006. As the SH-60B and SH-60F reach the end of their service life, the MH-60R serves as the replacement weapon system. The MH-60R weapon system began fielding in FY2006. The mission systems include Common Cockpit, ALFS, sonobuoy launcher, COTS Acoustics Processor, ESM, MTS/FLIR system, MMR, ARPDD, CDL Hawklink, ISD and weapons capability. Pre-Planned Product Improvement (P3I) upgrades will be integrated, tested, and fielded to ensure increased capabilities are provided to the Fleet User.

E. Performance Metrics

Successfully achieve IOC for the Automatic Radar Periscope Detection and Discriminator upgrade to the MH-60R Multi-Mode Radar. Improve ESM MDL performance prior to next operational deployment and determine if any long term ESM software/hardware fixes are required. Determine solutions to the Automatic Video Tracking (AVT) lock and Eye-safe Laser Range Finder (ELRF) labeling prior to next operational deployment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*	PROJECT 1707: *MH-60R 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
Primary Hdw Dev, Airframe (SAC)	SS/CPAF	Sikorsky Stratford, CT	81.177	0.000		0.000		0.000		0.000	0.000	81.177	81.177
Primary Hdw Dev, Avionics (LMSI)	SS/CPFF	Lockheed Martin Owego, NY	769.701	34.848	Jan 2010	38.347	Nov 2010	0.000		38.347	5.862	848.758	848.758
Primary Hdw Dev, Avionics (CDL)	SS/CPAF	Harris Melbourne, FL	45.343	0.000		0.000		0.000		0.000	0.000	45.343	45.343
Primary Hdw Dev, Avionics (SAU)	SS/CPIF	Lcokheed Martin Owego, NY	4.400	2.000	Feb 2010	0.600	Feb 2011	0.000		0.600	0.000	7.000	7.000
Primary Hdw Dev, Avionics (CDL)	C/TBD	TBD TBD	0.000	12.372	Mar 2010	0.000		0.000		0.000	0.000	12.372	12.372
GFE	Various/ Various	Various Not Specified	4.688	0.000		0.000		0.000		0.000	0.000	4.688	4.688
All Product Dev Cost from FY93-FY09	Various/ Various	Various Not Specified	149.181	0.000		0.000		0.000		0.000	0.000	149.181	149.181
		Subtotal	1,054.490	49.220		38.947		0.000		38.947	5.862	1,148.519	1,148.519

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*	PROJECT 1707: *MH-60R 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
Government Engineering Support	WR	NAWC AD Patuxent River, MD	7.397	5.285	Jan 2010	4.561	Nov 2010	0.000		4.561	2.423	19.666	Continuing
Government Engineering Support	WR	NAWC WD China Lake, CA	8.740	3.745	Nov 2009	3.610	Nov 2010	0.000		3.610	0.761	16.856	Continuing
Government Engineering Support	WR	Pacific Missle Range PMRF, HI	0.183	1.487	Jan 2010	0.000		0.000		0.000	0.000	1.670	Continuing
Government Engineering Support	Various/ Various	Various Various	1.134	1.545	Dec 2009	1.357	Nov 2010	0.000		1.357	0.574	4.610	Continuing
All Product Dev Cost From FY93-FY09	Various/ Various	Various Various	123.294	0.000		0.000		0.000		0.000	0.000	123.294	Continuing
		Subtotal	140.748	12.062		9.528		0.000		9.528	3.758	166.096	

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	NAWC AD Patuxent River, MD	118.697	8.398	Nov 2009	5.212	Nov 2010	0.000		5.212	7.231	139.538	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*	PROJECT 1707: *MH-60R Development*

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
Operation Test & Evaluation	WR	COMOPTEVFOR Norfolk, VA	10.730	0.250	Dec 2009	0.495	Nov 2010	0.000		0.495	2.887	14.362	Continuing
All T&E costs from FY93-FY09	Various/ Various	various various	11.688	0.000		0.000		0.000		0.000	0.000	11.688	Continuing
		Subtotal	141.115	8.648		5.707		0.000		5.707	10.118	165.588	

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	24.566	0.910	Nov 2009	0.910	Nov 2010	0.000		0.910	0.000	26.386	Continuing
Travel	WR	NAWC AD Patuxent River, MD	3.825	0.700	Nov 2009	0.700	Nov 2010	0.000		0.700	0.000	5.225	Continuing
All Mangement cost from FY03- FY09	Various/ Various	Various Various	9.667	0.000		0.000		0.000		0.000	0.000	9.667	Continuing
		Subtotal	38.058	1.610		1.610		0.000		1.610	0.000	41.278	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*	PROJECT 1707: *MH-60R Development*	

	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	1,374.411	71.540		55.792		0.000		55.792	19.738	1,521.481	1,148.519

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*	**PROJECT** 1707: *MH-60R Development*

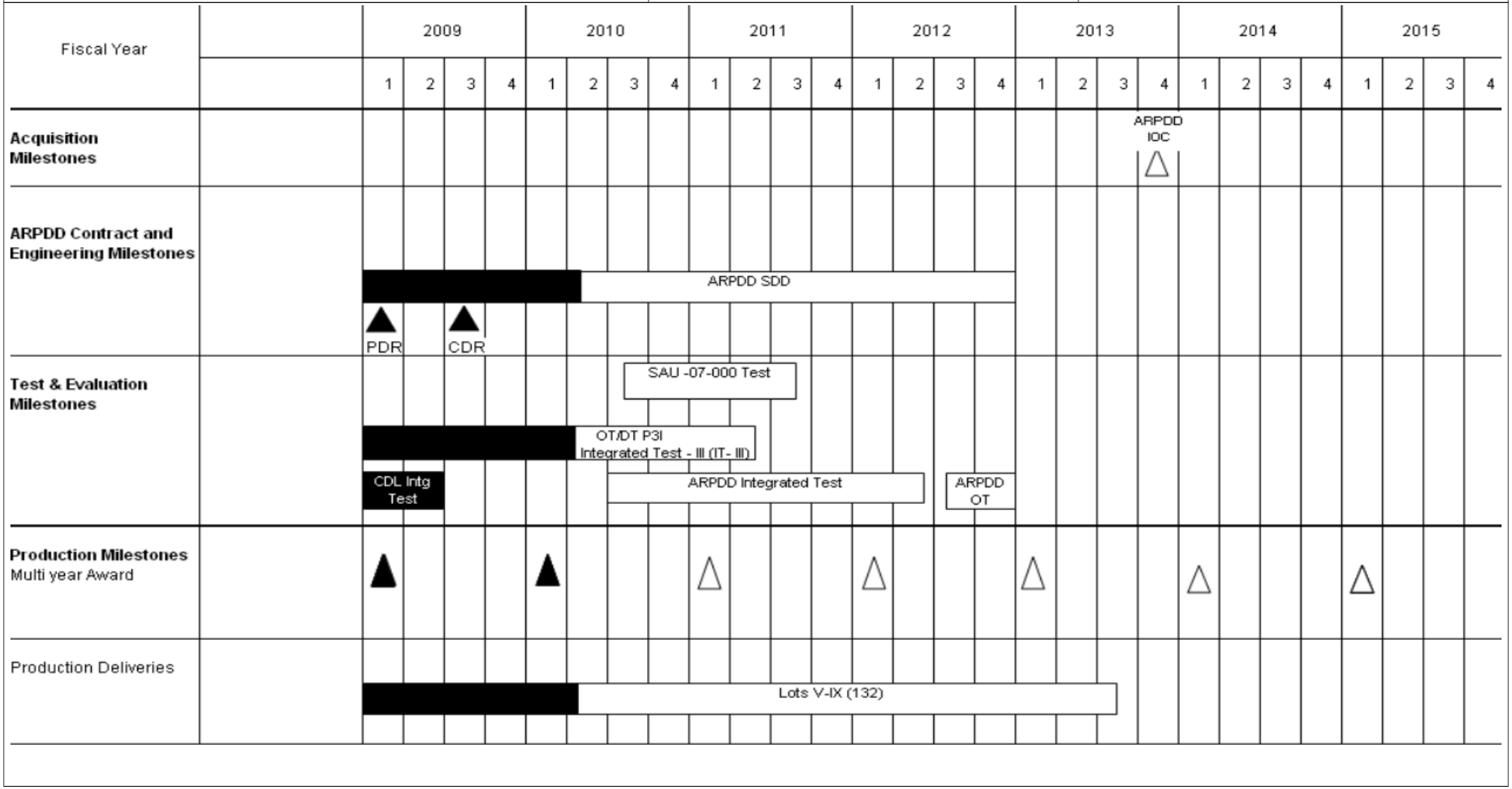


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*	**PROJECT** 1707: *MH-60R Development*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Multi-Year Award (Lockheed/SAC)	1	2009	1	2015
P3I Integrated Test (IT-III)	1	2009	2	2011
ARPDD SDD	1	2009	4	2012
CDL Integrated Test	1	2009	2	2009
ARPDD PDR	1	2009	1	2009
ARPDD CDR	3	2009	3	2009
SAU-07-000 Test	3	2010	3	2011
ARPDD Integrated Test	3	2010	2	2012
ARPDD OT	3	2012	4	2012
ARPDD IOC	4	2013	4	2013
Production Deliveries	1	2009	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604216N: *Multi-Mssn Helicopter Upgrade 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*	0.000	3.744	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.378
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: M230 30mm Chain Gun Automatic Cannon *FY 2010 Plans:* M230 Cannon Qualification and 30MM Ammunition evaluation	0.000	3.744
Congressional Adds Subtotals	0.000	3.744

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

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment 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
Total Program Element	5.362	7.454	5.735	0.000	5.735	5.993	5.615	5.737	5.852	Continuing	Continuing
2345: *Fleet METOC Equipment*	3.776	4.807	4.138	0.000	4.138	4.368	3.962	4.049	4.128	Continuing	Continuing
2346: *METOC Sensor Engineering*	1.586	2.647	1.597	0.000	1.597	1.625	1.653	1.688	1.724	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Air/Ocean Equipment Engineering (AOEE) Program Element provides future mission capabilities to support naval combat forces. This program engineers and developmentally tests organic and remote sensors, communication interfaces, and processing and display devices. These equipments are engineered to measure, ingest, store, process, distribute and display conditions of the physical environment that are essential to the optimum employment and performance of naval warfare systems. AOEE also engineers capabilities for shipboard and shore-based tactical systems. A major thrust area for the AOEE program is to provide the engineering development of specialized equipment and measurement capabilities that are intended to monitor specific conditions of the physical environment in hostile and remote areas. With such capabilities, the war fighters' situational awareness of the operational effects of the physical environment are made more certain.

Major emphasis areas include the Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) comprised of ocean LBS Gliders (G) and LBS Autonomous Undersea Vehicles (AUV), the Navy Integrated Tactical Environmental System Next Generation, the Marine Corps Meteorological Mobile Facility Replacement Next Generation, and the Environmental Satellite Receiver Processor comprised of AN/SMQ-11 (sea and shore configuration) and AN/FMQ-17 (shore configuration)) programs of record, and the Meteorological and Oceanographic Future Mission Capabilities and Tactical Oceanographic Capabilities / Under Sea Warfare projects.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604218N: *Air/Ocean Equipment Engineering*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	5.731	7.485	0.000	0.000	0.000
Current President's Budget	5.362	7.454	5.735	0.000	5.735
Total Adjustments	-0.369	-0.031	5.735	0.000	5.735
• Congressional General Reductions		-0.031			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.234	0.000			
• SBIR/STTR Transfer	-0.136	0.000			
• Program Adjustments	0.000	0.000	5.735	0.000	5.735
• Rate/Misc Adjustments	0.001	0.000	0.000	0.000	0.000

Change Summary Explanation

Schedule: The schedule for the Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) program has been has been divided into 2 unique R-4 and R-4a exhibits in order to reflect both the unique ocean LBS Glider (G) and the LBS Autonomous Undersea Vehicles (AUV) efforts that comprise the program of record.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*	

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
2345: *Fleet METOC Equipment*	3.776	4.807	4.138	0.000	4.138	4.368	3.962	4.049	4.128	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 for the engineering and manufacturing development of sensors, communication interfaces, processing and display meteorological and oceanographic (METOC) equipment. This equipment is designed to provide future mission capabilities for war fighters to measure, ingest, store, process, distribute and display METOC parameters and derived products.

This project also exploits new government off-the-shelf /commercial off-the-shelf technologies, tactical sensors and web enablement for the Navy's computer-based tactical shipboard and shore capability used to predict and assess the operational effects of the physical environment on the performance of platforms, weapons and sensor systems. This project includes development of warfare specific mission planning modules to support unmanned systems with integration of data from environmental and tactical sensor systems, model forecast information and Geospatial Information & Services Databases. This project also supports development of autonomous environmental sensing systems for situational awareness and tactical decision aid/mission planner support, as well as iridium and advanced satellite communication integration in METOC sensor, vehicle control and mission planning systems that will be required to achieve full reach back capability.

Major emphasis areas include the Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) comprised of ocean LBS Gliders (G) and LBS Autonomous Undersea Vehicles (AUV), the Navy Integrated Tactical Environmental System Next Generation, the Marine Corps Meteorological Mobile Facility Replacement Next Generation, and the Environmental Satellite Receiver Processor (comprised of AN/SMQ-11 sea and shore configuration) and AN/FMQ-17 (shore configuration)) programs of record, and the Future Mission Capabilities (METOC FMC) project.

FY 2011 request provides for the continued development of advanced tools and techniques for METOC asset allocation, METOC decision support applications and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with acquiring environmental data, and the development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command and control nodes.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition Workforce Fund	0.019	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Funded acquisition workforce fund.					
Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	0.965	1.197	2.890	0.000	2.890
FY 2009 Accomplishments: Conducted system development and demonstration for environmental equipment to include associated engineering and support efforts. Continued the development of advanced tools and techniques for METOC asset allocation, METOC decision support applications and interfaces to tactical and strategic decision aids. Developed the Hazardous Weather Detection and Display Capability, Tactical Environmental Processor (TEP), and Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) data collection and fusion systems.					
FY 2010 Plans: Continuation of FY09 efforts. Continue advanced tools and techniques for METOC asset allocation, METOC decision support applications and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with acquiring environmental data. Development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command and control nodes. Continue development of TEP, and LBS-UUV data collection and fusion systems.					
FY 2011 Base Plans: Continuation of FY10 efforts. Continue advanced tools and techniques for METOC asset allocation, METOC decision support applications and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with acquiring environmental data. Development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command and control nodes. Continue development of TEP, and LBS-UUV data collection and fusion systems. Development of support infrastructure for advanced global & regional prediction systems.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)	0.100	2.406	0.850	0.000	0.850

FY 2009 Accomplishments:

Completed sensor based atmospheric sensing Analysis of Alternatives for both stationary and expeditionary applications (including application of Unmanned Airborne Vehicle's and airborne sensors). Completed selection of potential solutions. Completed related testing. Began Program Life Cycle Cost Estimate. Developed system integration requirements, system performance specifications, and began Capabilities Development Document development. Began interoperability and system security studies and identify related requirements. Conducted studies as required. Began defining follow-on Littoral Battlespace Sensing - Glide (LBS-G) Engineering Change Proposals (ECPs) (sensor upgrades, power plant upgrades, etc.) and conducted associated engineering studies, analyses of alternatives, and cost estimates.

FY 2010 Plans:

Complete the System Development and Demonstration (SDD) phase of the LBS-G system. Complete at-sea and ashore Development Testing and Evaluation (DT&E) of the complete end-to-end glider system including command and control, mission planning, launch and recovery, mission profile characteristics and other Key Performance Parameters and Key System Parameters. Complete follow-on LBS-G ECPs (sensor upgrades, power plant upgrades, etc.) and conduct associated engineering studies, analyses of alternatives, and cost estimates for input into the POM 12 process. Funding increase reflects the beginning of the SDD phase of the LBS Autonomous Undersea Vehicle (AUV) portion of the LBS-UUV program.

FY 2011 Base Plans:

Update LBS-G Analysis of Alternatives, engineering studies, and cost estimates for the LBS-G ECPs as required. Continue the LBS-AUV SDD Phase, including the system Critical Design Review. Prepare for the delivery of the LBS-AUV Engineering Development Model. Begin DT&E of the LBS-AUV system.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
USMC Meteorological Mobile Facility (Replacement) Next Generation (METMF (R) NEXGEN) *FY 2009 Accomplishments:* Conducted Engineering Change Proposals (ECPs) to the METMF(R) NEXGEN prototype systems. *FY 2010 Plans:* Conduct Joint Interoperability Testing, and ECP's as needed, of the METMF(R) NEXGEN prototype systems. Prepare acquisition documentation in preparation for Milestone C. *FY 2011 Base Plans:* Conduct Joint Interoperability Testing, Development Testing (DT), Independent Operational Test & Evaluation, Follow-On Operational Test and Evaluation, Operational Test Readiness Review, technical evaluations, operational assessments and ECP's, as required, on the METMF(R) NEXGEN prototype systems.	1.500	0.700	0.100	0.000	0.100
Naval Integrated Tactical Environmental System Next Generation (NITES-Next) *FY 2009 Accomplishments:* Began software test and integration (developed in PE 0603207N, project 2343 Tactical METOC Applications) related to equipment and infrastructure in support of system engineering activities for Naval Integrated Tactical Environmental System Next Generation (NITES-Next). Efforts included extensive integration and test efforts on infrastructure for developmental test and evaluation (DT&E), and extensive architecture development, engineering, and design required in preparation for Milestone decision for the NITES-Next program. *FY 2010 Plans:* Continue software test and integration (developed in PE 0603207N, project 2343 Tactical METOC Applications) related to equipment and infrastructure in support of system engineering activities for Naval Integrated Tactical Environmental System Next Generation (NITES-Next). Efforts include	0.875	0.192	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
integration and test efforts on infrastructure for DT&E required in preparation for Milestone decision for NITES-Next.					
Environmental Satellite Receiver Processor (ESRP) *FY 2009 Accomplishments:* Continued and completed software integration of new Satellite Sensors for Polar Orbiting Environmental Satellite (POES). Commenced Software development in support of Polar Orbiting. Commenced and completed engineering research to determine prospective candidate technologies and/or products to augment the capabilities of ESRP and provided technical support and analysis to determine impacts of future satellite telemetries on the ESRP systems. *FY 2010 Plans:* Continue and complete software integration of new Satellite Sensors for POES. Commence Software development in support of POES National Preparatory Project (NPP) for Environmental Satellite Receiver Processors (ESRP). Commence and complete engineering research to determine prospective candidate technologies and/or products to augment the capabilities of ESRP and provided technical support and analysis to determine impacts of future satellite telemetries on the ESRP systems. *FY 2011 Base Plans:* Continue and complete software integration of new Satellite Sensors for POES. Commence Software development in support of Polar Orbiting Environmental Satellite (POES) National Preparatory Project (NPP) for ESRP. This year will also include National Polar Orbiting Satellite System that is scheduled to replace the Defense Meteorology Satellite Program.	0.317	0.312	0.298	0.000	0.298
Accomplishments/Planned Programs Subtotals	3.776	4.807	4.138	0.000	4.138

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

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/4226: *METEOROLOGICAL EQUIPMENT*	21.169	14.514	25.581	0.592	26.173	24.430	22.430	24.575	25.765	Continuing	Continuing
• RDTEN/0603207N: *Air/Ocean Tactical Applications*	65.532	118.495	123.331	0.000	123.331	113.306	77.992	47.071	47.515	Continuing	Continuing

D. Acquisition Strategy

Acquisition, management and contracting strategies are to support engineering and manufacturing development by providing funds to Naval Research Laboratories and miscellaneous contractors, with management oversight by the Program Executive Officer for Command, Control, Communications, Computers and Intelligence.

E. Performance Metrics

Goal: Develop and engineer equipment to acquire meteorological and oceanographic (METOC) data in order to improve the accuracy of global and regional scale meteorological and oceanographic forecast models.

Metric: Tasks will address no less than 75% of applicable capability gaps and requirements, as identified by Resource and Requirements Sponsor(s). As tasks relate to exploitation of fleet sensors for METOC data ("Through-the-Sensor"), no less than 80% of approved initiatives will have a cost, schedule, performance and transition risk analysis completed within the past 12 months.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

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
METOC Future Mission Capabilities	WR	NRL Washington, DC	11.885	1.602	Oct 2009	1.137	Oct 2010	0.000		1.137	0.000	14.624	Continuing
METOC Future Mission Capabilities	WR	SSCs California, SC	6.451	1.070	Oct 2009	1.108	Oct 2010	0.000		1.108	0.000	8.629	Continuing
METOC Future Mission Capabilities	C/CPFF	RAYTHEON MA	2.559	0.000		0.000		0.000		0.000	0.000	2.559	Continuing
METOC Future Mission Capabilities	C/Various	MISC MISC	16.974	1.925	Nov 2009	1.683	Nov 2010	0.000		1.683	0.000	20.582	Continuing
		Subtotal	37.869	4.597		3.928		0.000		3.928	0.000	46.394	

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
METOC Future Mission Capabilities	C/CPFF	SSA/CSC MISC	1.312	0.000		0.000		0.000		0.000	0.000	1.312	Continuing
		Subtotal	1.312	0.000		0.000		0.000		0.000	0.000	1.312	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

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	OPTEVFOR Virginia	0.404	0.010	Nov 2009	0.010	Nov 2010	0.000		0.010	0.000	0.424	Continuing
		Subtotal	0.404	0.010		0.010		0.000		0.010	0.000	0.424	

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 Services	C/CPFF	MISC MISC	0.200	0.200	Nov 2009	0.200	Nov 2010	0.000		0.200	0.000	0.600	Continuing
		Subtotal	0.200	0.200		0.200		0.000		0.200	0.000	0.600	

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	39.785	4.807		4.138		0.000		4.138	0.000	48.730	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604218N: *Air/Ocean Equipment Engineering*	**PROJECT** 2345: *Fleet METOC Equipment*

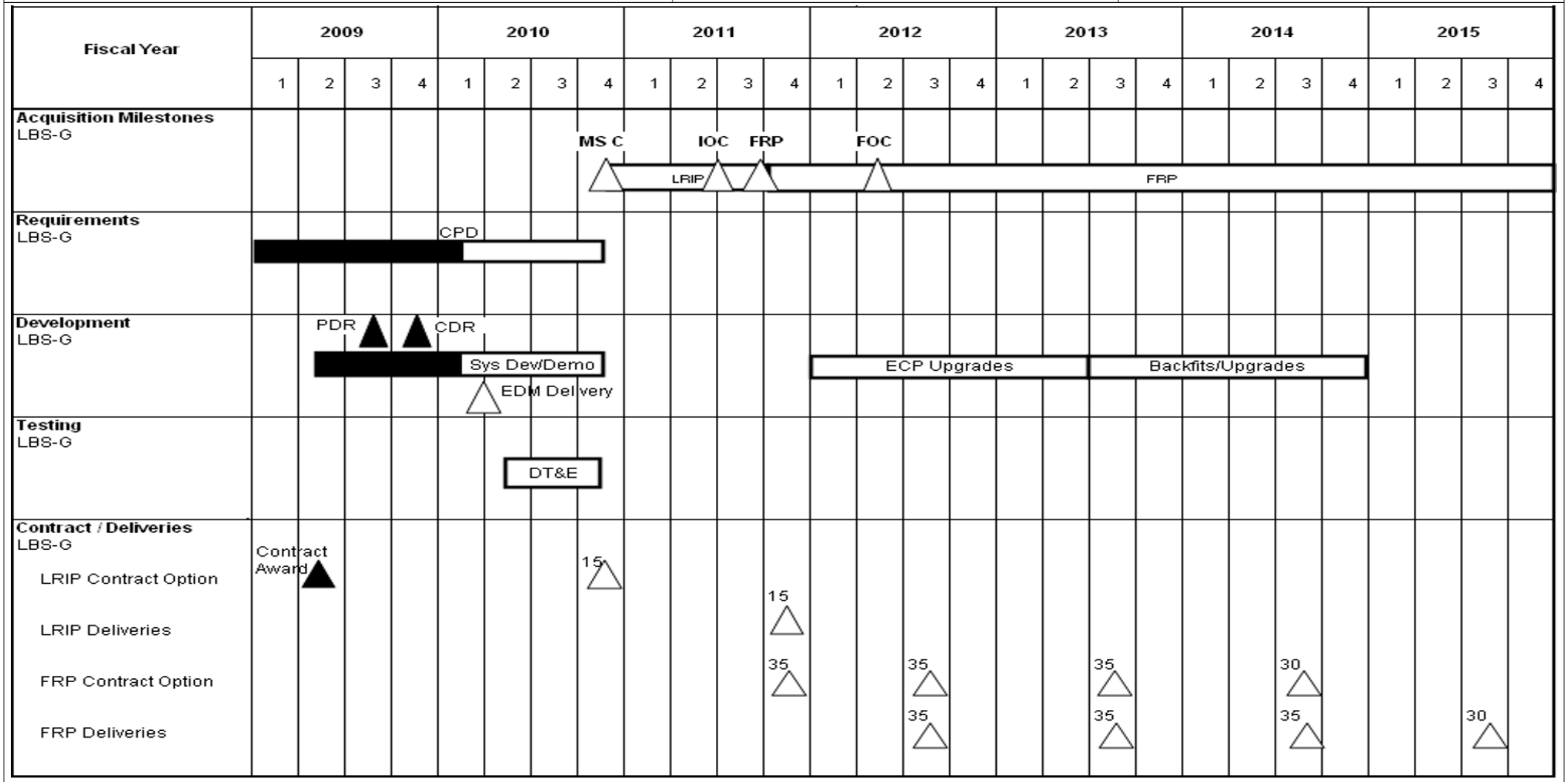


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

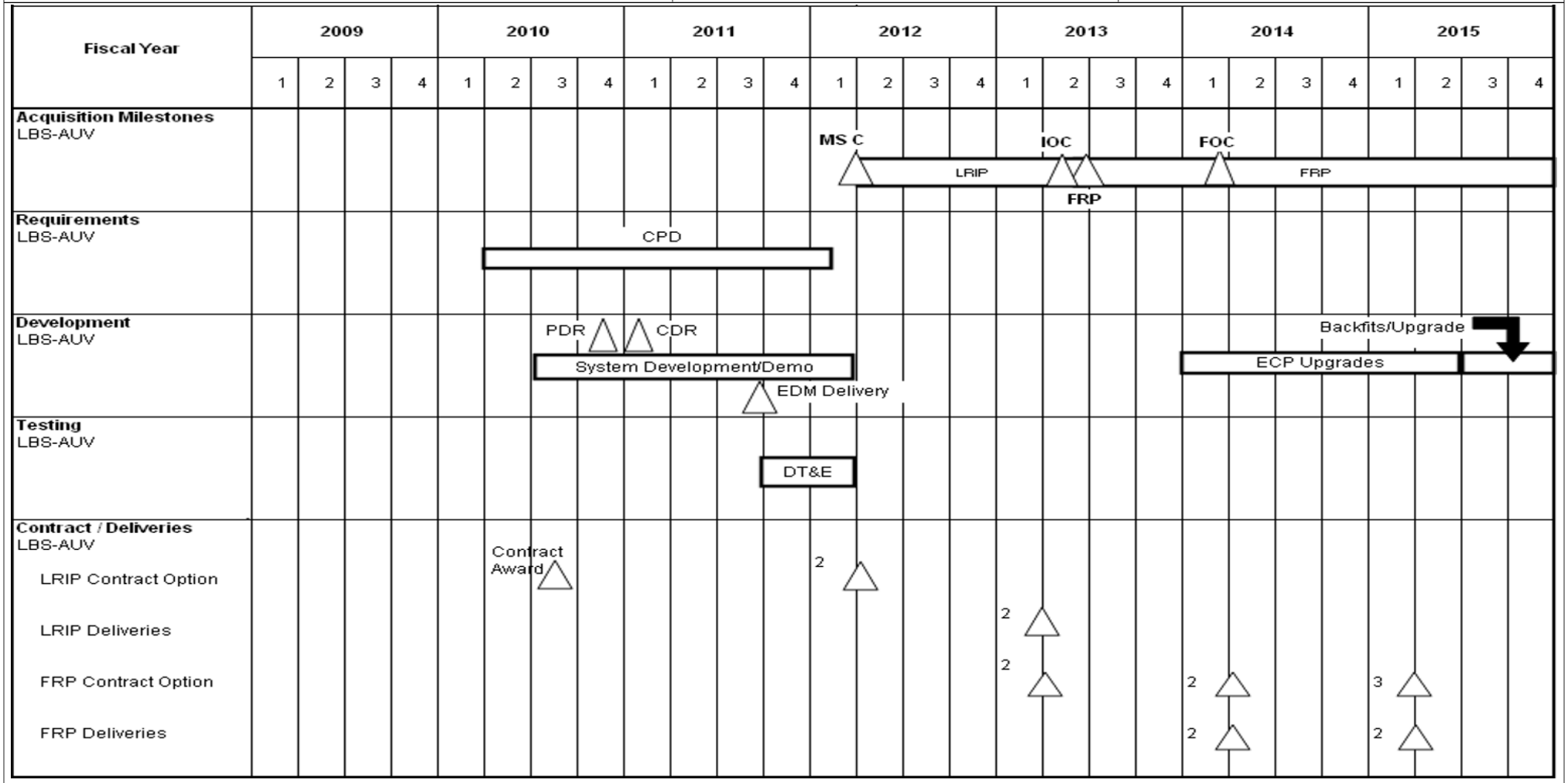


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

METOC Future Mission Capabilities

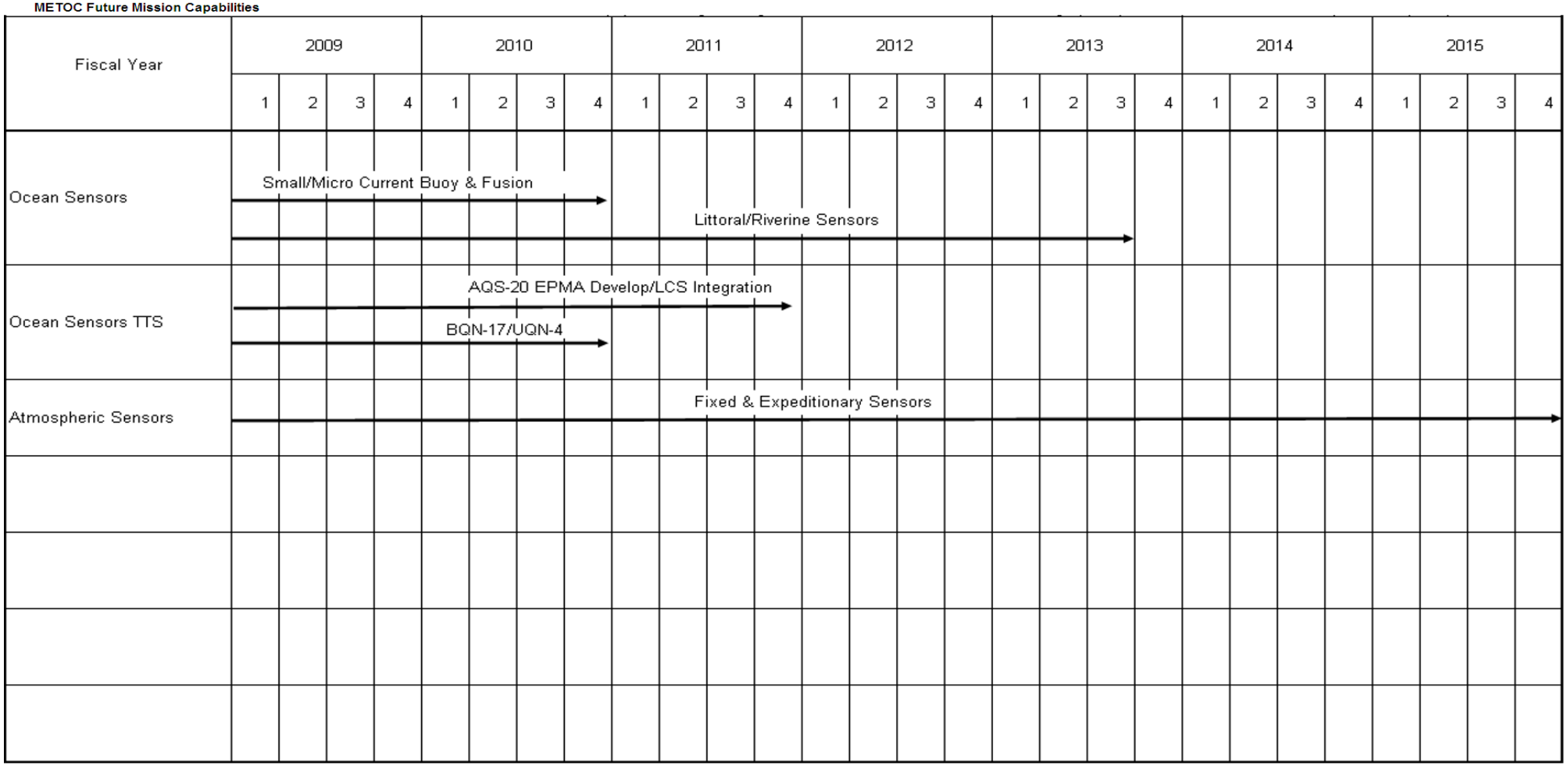


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
METOC Future Mission Capabilities (FMC) Small/Micro Current Buoy / Fusion	1	2009	4	2010
METOC FMC Littoral/Riverine Sensors	1	2009	3	2013
METOC FMC AQS-20 EPMA Develop/Littoral Combat Ship (LCS) Integration	1	2009	4	2011
METOC FMC BQN-17 and UQN-4	1	2009	4	2010
METOC FMC Fixed and expeditionary Sensors	1	2009	4	2015
Littoral Battlespace Sensing Unmanned Undersea Vehicles (LBS-UUV) Gliders (LBS-G) Milestone C (MS-C)	4	2010	4	2010
LBS-G Low Rate Initial Productio (LRIP)	4	2010	3	2011
LBS-G Initial Operational Capability (IOC)	2	2011	3	2011
LBS-G Full Rate Production (FRP)	3	2011	4	2015
LBS-G Full Operational Capability (FOC)	2	2012	2	2012
LBS-G Capabilities Production Document (CPD)	1	2009	4	2010
LBS-G System Development / Demonstration	2	2009	4	2010
LBS-G Preliminary Design Review (PDR)	3	2009	3	2009
LBS-G Critical Design Review (CDR)	4	2009	4	2009
LBS-G Enterprise Data Model (EDM) Delivery	2	2010	2	2010
LBS-G Engineering Change Proposals (ECPs)	1	2012	2	2013
LBS-G Backfits / Upgrades	3	2013	4	2014
LBS-G Development, Test and Evaluate (DT&E)	2	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

	Start		End	
Event	Quarter	Year	Quarter	Year
LBS-G LRIP Contract Award	2	2009	2	2009
LBS-G LRIP Contract Option (1):15	4	2010	4	2010
LBS-G LRIP Deliveries (1):15	4	2011	4	2011
LBS-G FRP Contract Option (1):35	4	2011	4	2011
LBS-G FRP Contract Option (2):35	3	2012	3	2012
LBS-G FRP Contract Option (3):35	3	2013	3	2013
LBS-G FRP Contract Option (4):30	3	2014	3	2014
LBS-G FRP Deliveries (1):35	3	2012	3	2012
LBS-G FRP Deliveries (2):35	3	2013	3	2013
LBS-G FRP Deliveries (3):35	3	2014	3	2014
LBS-G FRP Deliveries (4):30	3	2015	3	2015
LBS-UUV Autonomous Undersea Vehicles (LBS-AUV) Milestone C (MS-C)	1	2012	2	2012
LBS-AUV Low Rate Initial Production (LRIP)	1	2012	2	2013
LBS-AUV Initial Operational Capability (IOC)	2	2013	2	2013
LBS-AUV Full Rate Production (FRP)	2	2013	4	2015
LBS-AUV Full Operational Capability (FOC)	1	2014	1	2014
LBS-AUV Capabilities Production Document (CPD)	2	2010	1	2012
LBS-AUV System Development / Demonstration	3	2010	1	2012
LBS-AUV Preliminary Design Review (PDR)	4	2010	4	2010
LBS-AUV Critical Design Review (CDR)	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604218N: *Air/Ocean Equipment Engineering*	**PROJECT** 2345: *Fleet METOC Equipment*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
LBS-AUV Enterprise Data Model (EDM) Delivery	3	2011	4	2011
LBS-AUV Engineering Change Proposals (ECPs) Upgrades	1	2014	2	2015
LBS-AUV Backfits / Upgrades	3	2015	4	2015
LBS-AUV Development, Test and Evaluate (DT&E)	4	2011	1	2012
LBS-AUV LRIP Contract Award	3	2010	3	2010
LBS-AUV LRIP Contract Option (1):2	1	2012	2	2012
LBS-AUV LRIP Deliveries (1):2	1	2013	2	2013
LSB-AUV FRP Contract Option (1):2	1	2013	2	2013
LBS-AUV FRP Contract Option (2):2	1	2014	2	2014
LBS-AUV FRP Contract Option (3):3	1	2015	2	2015
LBS-AUV FRP Deliveries (1):2	1	2014	2	2014
LBS-AUV FRP Deliveries (2):2	1	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2346: *METOC Sensor 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
2346: *METOC Sensor Engineering*	1.586	2.647	1.597	0.000	1.597	1.625	1.653	1.688	1.724	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 for the engineering and manufacturing development of specialized, high resolution instrumentation systems and measurement capabilities for obtaining near real-time, in-situ meteorological and oceanographic (METOC) data in hostile, remote, and denied areas. The project's objectives are to engineer near-term future mission sensing capabilities that are intended to survive the harsh littoral and deep-strike environments and also to meet demanding requirements for timeliness and accuracy. Engineering is performed within this project to ensure that air and safety certification for deployment from fleet aircraft or ships is met and that the proper data formats are engineered for electronic communications transmissions, human interface displays, and inputs to predictive models.

Major emphasis areas include the METOC Future Mission Capabilities and Tactical Oceanographic Capabilities / Under Sea Warfare projects.

FY 2011 request provides for the continued development of advanced sensor system support technologies and techniques for sensor deployment, data processing and performance metrics to optimize sensor performance.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition Workforce Fund	0.008	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Funded acquisition workforce fund.					
Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	1.347	2.423	1.597	0.000	1.597
FY 2009 Accomplishments: Continued system development and demonstration of METOC manned, unmanned and automated sensors (to include integration of environmental sensors into a larger environmental sensing strategy).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2346: *METOC Sensor Engineering*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continued the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and performance metrics to optimize sensor performance. *FY 2010 Plans:* Continue system development and demonstration of METOC manned, unmanned and automated sensors (to include integration of environmental sensors into a larger environmental sensing strategy) Continue the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and performance metrics to optimize sensor performance. Funding increase reflects increased technique & deployment developmental efforts in support of the Unmanned Aerial Vehicle (UAV) automated METOC sensors project. *FY 2011 Base Plans:* Continue system development and demonstration of METOC manned, unmanned and automated sensors (to include integration of environmental sensors into a larger environmental sensing strategy). Continue the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and performance metrics to optimize sensor performance. Continue developmental efforts in support of the UAV and Autonomous Undersea platforms with automated METOC sensors.					
Tactical Oceanographic Capabilities / Undersea Warfare (TOC/USW) *FY 2009 Accomplishments:* Continued modification of existing Naval Oceanographic Office acoustic and oceanographic data collection buoys to allow them to collect geo-acoustic seabed properties via covert, passive methods and geoacoustic inversion techniques to include Semi-Empirical Surface Scattering Strength and surface loss modules.	0.231	0.224	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2346: *METOC Sensor Engineering*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continuation of FY09 efforts. Continue development of Anti-Submarine Warfare performance assessment tools, which include the following efforts: acoustic uncertainty parameterization and evolving active and passive acoustic sensors.					
Accomplishments/Planned Programs Subtotals	1.586	2.647	1.597	0.000	1.597

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Acquisition and contracting strategies are to support engineering and manufacturing development of specialized, high resolution instrumentation systems and measurement techniques for obtaining near real-time in-situ meteorological and oceanographic (METOC) data in denied or remote areas by providing funds to miscellaneous performers.

E. Performance Metrics

Goal: Develop and engineer unique sensors to acquire METOC data in order to improve the accuracy of global and regional scale meteorological and oceanographic forecast models.

Metric: Tasks will address no less than 75% of applicable capability gaps and requirements, as identified by Resource Sponsor and Type Commander(s). No less than 75% of sensor engineering initiatives will be informed by an Analysis of Alternatives or market study to assess the state of the technology.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2346: *METOC Sensor 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
Product Development	WR	NRL Washington, DC	2.761	1.578	Oct 2009	0.570	Oct 2010	0.000		0.570	0.000	4.909	Continuing
Product Development	C/Various	MISC MISC	10.681	1.069	Nov 2009	1.027	Nov 2010	0.000		1.027	0.000	12.777	Continuing
		Subtotal	13.442	2.647		1.597		0.000		1.597	0.000	17.686	

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	C/CPFF	Not Specified Not Specified	0.008	0.000		0.000		0.000		0.000	0.000	0.008	Continuing
		Subtotal	0.008	0.000		0.000		0.000		0.000	0.000	0.008	

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	13.450	2.647		1.597		0.000		1.597	0.000	17.694	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2346: *METOC Sensor Engineering*	

	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604218N: *Air/Ocean Equipment Engineering*	**PROJECT** 2346: *METOC Sensor Engineering*

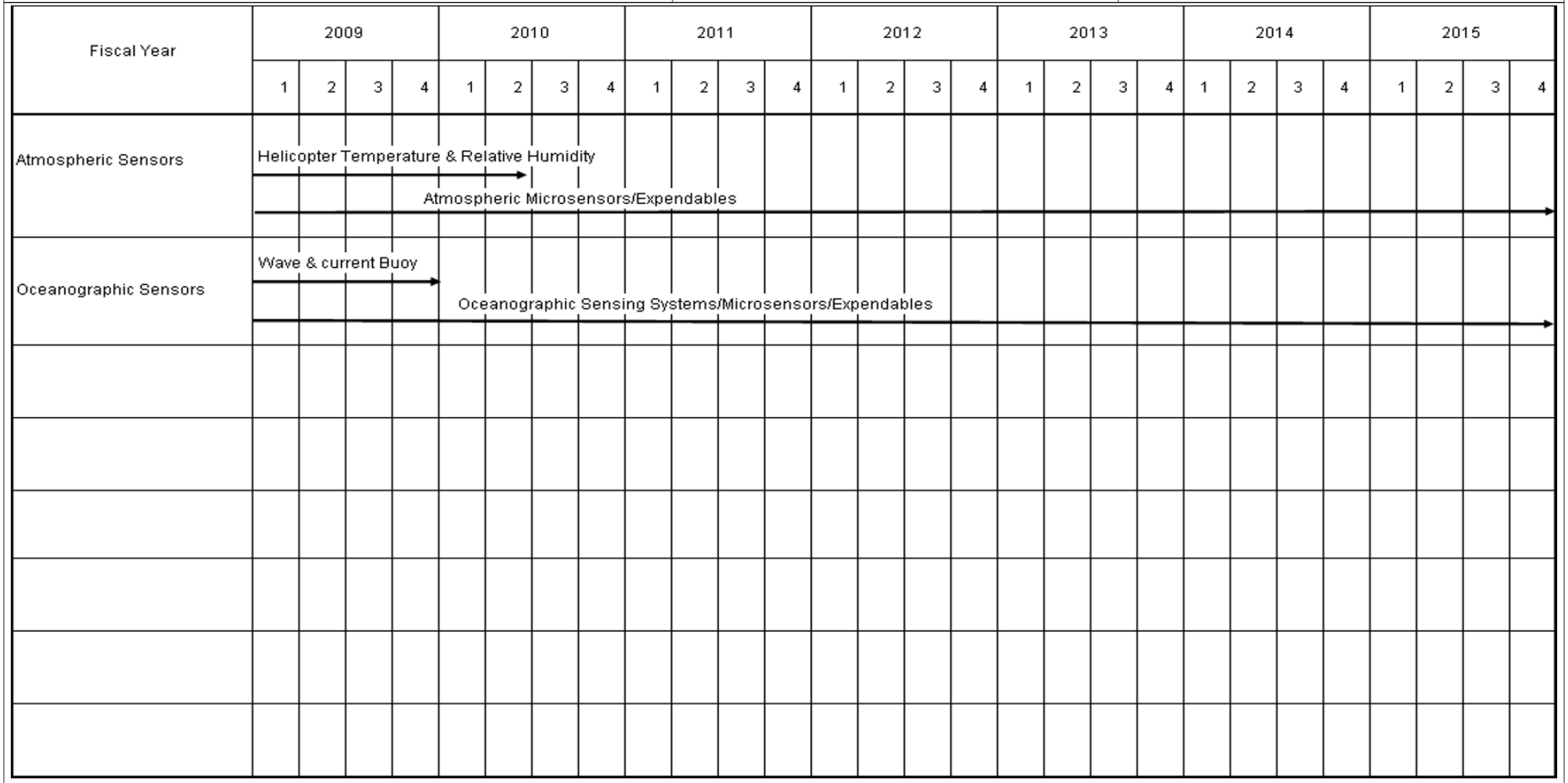


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604218N: *Air/Ocean Equipment Engineering*	**PROJECT** 2346: *METOC Sensor Engineering*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
METOC Future Mission Capabilities (FMC) Helicopter Temperature and Humidity	1	2009	2	2010
METOC FMC Atmospheric Microsensors	1	2009	4	2015
METOC FMC Wave Current and Buoy	1	2009	4	2009
METOC FMC Ocean Microsensors	1	2009	4	2015

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604221N: *P-3 Modernization 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	3.458	3.644	3.574	0.000	3.574	3.618	3.680	3.766	3.844	Continuing	Continuing
1152: *P-3 Sensor Integration*	2.109	1.493	1.469	0.000	1.469	1.483	1.508	1.543	1.575	Continuing	Continuing
3016: *Fatigue Life Mgmt Program*	1.349	2.151	2.105	0.000	2.105	2.135	2.172	2.223	2.269	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program provides for P-3C aircraft systems development and test in subsurface and surface surveillance, search, detection, localization, classification, attack and communications in support of Sea Shield/Sea Power 21. The P-3C Sensor Integration project integrates advanced and future ASW and ASuW sensors, weapons systems, and supporting technology into legacy P-3C systems and phased capabilities upgrades. The program also advances Air Acoustic Rapid COTs Insertion (ARCI) efforts by replacing legacy MIL-SPEC UYS-1 with increasingly open, COTS-based architecture. Also, P-3 Sensor Integration will expand software and hardware technology of P-3 systems to integrate additional sensor and processing capabilities, environmental prediction tools, tactical decision aides, color capabilities and communications to improve aircrew tactical proficiency and battlespace awareness. Sensor Integration is a continuous effort to integrate and test newly evolving ASW and ASuW technologies such as Improved Extended Echo Ranging (IEER) and Multistatic Acoustic Coherent (MAC) family of Multi-Static active systems, Acoustic Rapid Cots Insertion (ARCI), Non-acoustic ASW sensors and systems, and future Technical Refresh insertions for obsolescence and processing improvements. The Over the Horizon (OTH) Wideband system will provide the P-3C AIP aircraft the capability to conduct OTH Satellite communications which will allow the on-station aircraft to transmit real-time sensitive acoustic intelligence data which will maximize enemy detections, tracking and engagement opportunities. Due to program delays with the OTH system, FY09 funds were realigned from the Sensor Integration project to Test for OTH.

Fatigue Life Management Program is required to manage P-3/EP-3 inventory fatigue life and includes ongoing structural analysis, analyzing emergent structural issues, conducting engineering studies, assessing Fleet impact, and applying new technologies such as Non-Destructive Inspection (NDI) techniques.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604221N: *P-3 Modernization Program*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	3.562	3.659	0.000	0.000	0.000
Current President's Budget	3.458	3.644	3.574	0.000	3.574
Total Adjustments	-0.104	-0.015	3.574	0.000	3.574
• 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	0.000	0.000			
• SBIR/STTR Transfer	-0.104	0.000			
• Program Adjustments	0.000	0.000	3.574	0.000	3.574

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604221N: *P-3 Modernization Program*	PROJECT 1152: *P-3 Sensor 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
1152: *P-3 Sensor Integration*	2.109	1.493	1.469	0.000	1.469	1.483	1.508	1.543	1.575	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 provides for P-3C aircraft systems development and test in subsurface and surface surveillance, search, detection, localization, classification, attack and communications in support of Sea Shield/Sea Power 21.

The P-3C Sensor Integration project integrates advanced and future ASW and ASuW sensors, weapons systems, and supporting technology into legacy P-3C systems and phased capabilities upgrades. The program also advances Air Acoustic Rapid COTs Insertion (ARCI) efforts by replacing legacy MIL-SPEC UYS-1 with increasingly open, COTS-based architecture. Also, P-3 Sensor Integration will expand software and hardware technology of P-3 systems to integrate additional sensor and processing capabilities, environmental prediction tools, tactical decision aides, color capabilities and communications to improve aircrew tactical proficiency and battlespace awareness.

Sensor Integration is a continuous effort to integrate and test newly evolving ASW and ASuW technologies such as Improved Extended Echo Ranging (IEER) and Multistatic Acoustic Coherent (MAC) family of Multi-Static active systems, Acoustic Rapid Cots Insertion (ARCI), Non-acoustic ASW sensors and systems, and future Technical Refresh insertions for obsolescence and processing improvements. The Over the Horizon (OTH) Wideband system will provide the P-3C AIP aircraft the capability to conduct OTH Satellite communications which will allow the on-station aircraft to transmit real time sensitive acoustic intelligence data which will maximize enemy detections, tracking and engagement opportunities. Due to program delays with the OTH system, FY09 funds were realigned from the Sensor Integration project to Test for OTH.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Conduct P-3C OTH Satellite communications	2.109	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604221N: *P-3 Modernization Program*	**PROJECT** 1152: *P-3 Sensor Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: The OTH Wideband program researched P-3C AIP aircraft the capability to conduct OTH Satellite communications. Specifically, this program designed, developed, integrated, and evaluated this capability on the P-3C AIP aircraft.					
P-3 integration of ASW and ASuW sensors / weapon systems *FY 2010 Plans:* Continued Sensor Integration effort to integrate and test newly evolving ASW and ASuW technologies such as Improved Extended Echo Ranging (IEER) and Multistatic Acoustic Coherent (MAC) family of Multi-Static active systems, Acoustic Rapid Cots Insertion (ARCI), Non-acoustic ASW sensors and systems, and future Technical Refresh insertions for obsolescence and processing improvements. *FY 2011 Base Plans:* Continue Sensor Integration effort to integrate and test newly evolving ASW and ASuW technologies such as Improved Extended Echo Ranging (IEER) and Multistatic Acoustic Coherent (MAC) family of Multi-Static active systems, Acoustic Rapid Cots Insertion (ARCI), Non-acoustic ASW sensors and systems, and future Technical Refresh insertions for obsolescence and processing improvements.	0.000	1.493	1.469	0.000	1.469
Accomplishments/Planned Programs Subtotals	2.109	1.493	1.469	0.000	1.469

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604221N: *P-3 Modernization Program*	PROJECT 1152: *P-3 Sensor 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
• APN/0538: *P-3 Series*	340.100	462.400	222.000	6.000	228.000	202.400	66.800	44.800	12.000	0.000	4,967.000

D. Acquisition Strategy

The Air Deployable Active Receiver/Improved Extended Echo Ranging (IEER) Operational Requirements Document (Ser# 297(1)-05-97)) for 1152 was approved on 29 December 1997. The P-3 ASUW Improvement Program (AIP) ORD (Ser#355-88-94) for 2417 was approved on 30 March 1994. The Acquisition Plan (AIR-93-08A Rev 2) was approved on 30 March 1998. The ASR (AIR-ASR-26A Rev 3) was approved 29 Nov 1999 which includes Over the Horizon (OTH) Wideband system.

E. Performance Metrics

Successfully complete Developmental 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604221N: *P-3 Modernization Program*	PROJECT 1152: *P-3 Sensor 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/FFP	LM St. Paul, MN	8.678	0.000		0.000		0.000		0.000	0.000	8.678	8.678
Systems Engineering	SS/CPFF	LM Manassas, VA	11.566	1.493	Oct 2009	0.000		0.000		0.000	0.000	13.059	13.059
		Subtotal	20.244	1.493		0.000		0.000		0.000	0.000	21.737	21.737

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	VARIOUS Various	4.340	0.000		0.000		0.000		0.000	0.000	4.340	Continuing
		Subtotal	4.340	0.000		0.000		0.000		0.000	0.000	4.340	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604221N: *P-3 Modernization Program*	PROJECT 1152: *P-3 Sensor 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
Developmental Test & Evaluation	WR	NAWCAD Pax River, MD	2.438	0.000		0.000		0.000		0.000	0.000	2.438	Continuing
		Subtotal	2.438	0.000		0.000		0.000		0.000	0.000	2.438	

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	WR	SPAWARSYSC Charleston, SC	0.263	0.000		0.000		0.000		0.000	0.000	0.263	Continuing
Government Engineering Support	WR	NAWCAD Pax River, MD	1.747	0.000		1.369	Nov 2010	0.000		1.369	5.709	8.825	Continuing
Travel	WR	NAWCAD Pax River, MD	0.826	0.000		0.100	Oct 2010	0.000		0.100	0.400	1.326	Continuing
		Subtotal	2.836	0.000		1.469		0.000		1.469	6.109	10.414	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604221N: *P-3 Modernization Program*	PROJECT 1152: *P-3 Sensor Integration*	

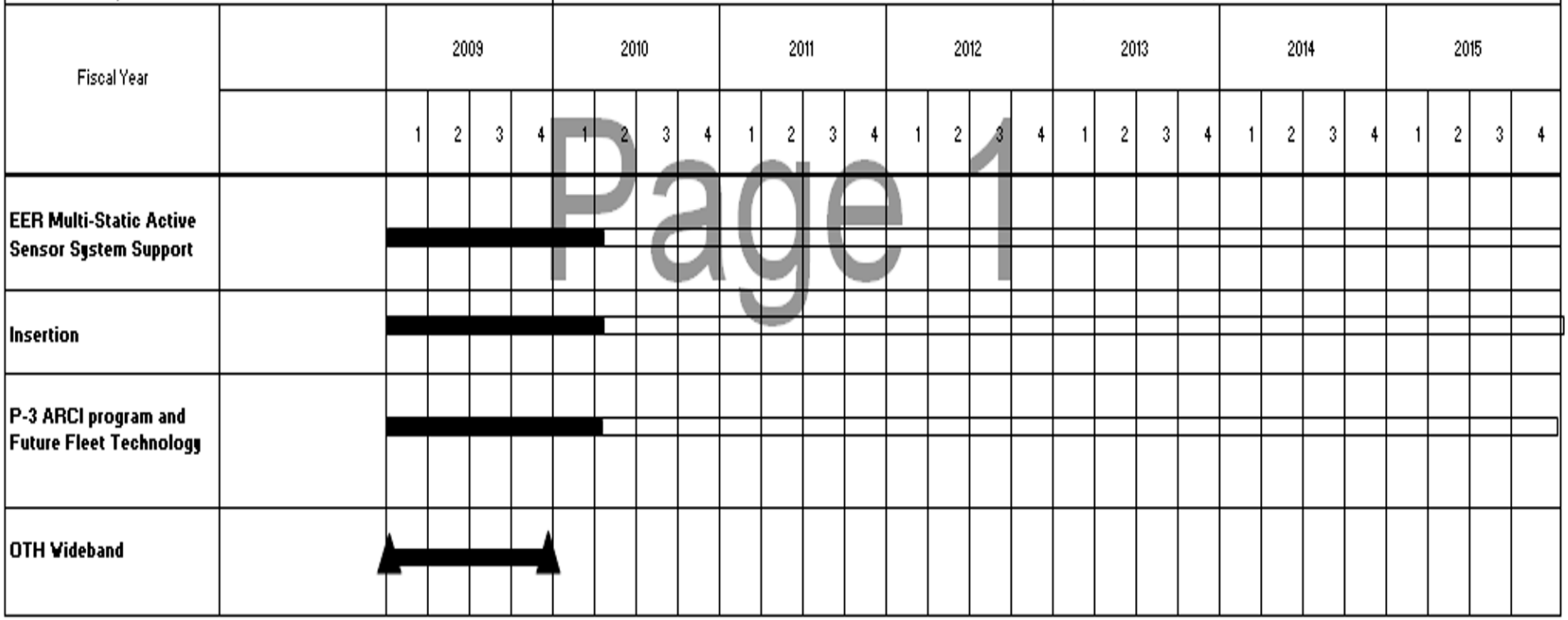
	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.858	1.493		1.469		0.000		1.469	6.109	38.929	21.737

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604221N: *P-3 Modernization Program*	**PROJECT** 1152: *P-3 Sensor Integration*

EXHIBIT R4, Schedule Profile — DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
1319 RDT&E, N / BA-5 SYSTEM DEVELOPMENT AND DEMONST	0604221N P-3 Mod	1152, P-3 SENSOR INTEGRATION



Page 1

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604221N: *P-3 Modernization Program*	**PROJECT** 1152: *P-3 Sensor Integration*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
EER Multi-Static Active Sensor System Support	1	2009	4	2015
EER Multi-Static Fleet Technology Insertion	1	2009	4	2015
P-3 ARCI and Future Fleet Technology Insertion	1	2009	4	2015
P-3 OTH Wideband	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604221N: *P-3 Modernization Program*	PROJECT 3016: *Fatigue Life Mgmt 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
3016: *Fatigue Life Mgmt Program*	1.349	2.151	2.105	0.000	2.105	2.135	2.172	2.223	2.269	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Fatigue Life Management Program is required to manage P-3/EP-3 inventory fatigue life and includes ongoing structural analysis, analyzing emergent structural issues, conducting engineering studies, assessing Fleet impact, and applying new technologies such as Non-Destructive Inspection (NDI) techniques

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
P-3/EP-3 Fatigue Life Management	1.349	2.151	2.105	0.000	2.105
FY 2009 Accomplishments: Fatigue Life Management Program : Manage P-3/EP-3 inventory fatigue life including conducting structural analysis, analyzing structural issues, conducting engineering studies, assessing Fleet impact. Research, test and apply new Fatigue Inspection techniques to the P-3/EP-3 Fleet.					
FY 2010 Plans: Fatigue Life Management Program : Manage P-3/EP-3 inventory fatigue life including conducting structural analysis, analyzing structural issues, conducting engineering studies, assessing Fleet impact. Research, test and apply new Fatigue Inspection techniques to the P-3/EP-3 Fleet.					
FY 2011 Base Plans: Fatigue Life Management Program : Manage P-3/EP-3 inventory fatigue life including conducting structural analysis, analyzing structural issues, conducting engineering studies, assessing Fleet impact. Research, test and apply new Fatigue Inspection techniques to the P-3/EP-3 Fleet.					
Accomplishments/Planned Programs Subtotals	1.349	2.151	2.105	0.000	2.105

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604221N: *P-3 Modernization Program*	PROJECT 3016: *Fatigue Life Mgmt Program*

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/0538: *P-3 Series*	340.100	462.400	222.000	6.000	228.000	202.400	66.800	44.800	12.000	0.000	4,967.000

D. Acquisition Strategy

The Fatigue Life Management Program leverages off of prior work done under P-3 SLAP (2451). The ASUW Improvement Program (AIP) ORD 355-88-94 was approved 30 March 94. PMP #0526 Ser 902D1/6U324405 was approved on 6 Feb 1986. Navy Decision Coordination Paper W-0484-AS was signed 23 Jun 1984. Work will be performed by LMAS and other industry participants along with the NAVAIR Structural Engineering Dept, AIR-4.3. This program supports the 7 June 2003 CNO approved P-3/EP-3 Sustainment Bridge to MMA.

E. Performance Metrics

Successful application of system engineering processes.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604221N: *P-3 Modernization Program*	PROJECT 3016: *Fatigue Life Mgmt 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
Systems Engineering	C/CPIF	LM Marietta, GA	5.116	1.173	Jan 2010	1.085	Jan 2011	0.000		1.085	3.935	11.309	11.309
		Subtotal	5.116	1.173		1.085		0.000		1.085	3.935	11.309	11.309

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	VARIOUS VARIOUS	4.025	0.755	Nov 2009	0.850	Nov 2010	0.000		0.850	4.000	9.630	Continuing
Program Management Support	WR	VARIOUS VARIOUS	0.000	0.200	Nov 2009	0.070	Nov 2010	0.000		0.070	0.400	0.670	Continuing
Travel	WR	NAWCAD PAX RIVER, MD	0.588	0.023	Oct 2009	0.100	Oct 2010	0.000		0.100	0.464	1.175	Continuing
		Subtotal	4.613	0.978		1.020		0.000		1.020	4.864	11.475	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604221N: *P-3 Modernization Program*	PROJECT 3016: *Fatigue Life Mgmt 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	9.729	2.151		2.105		0.000		2.105	8.799	22.784	11.309

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604221N: *P-3 Modernization Program*	**PROJECT** 3016: *Fatigue Life Mgmt Program*

EXHIBIT R4, Schedule Profile — DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY: 1319 RDT&E, N / BA-5 SYSTEM DEVELOPMENT AND DEMONS

PROGRAM ELEMENT NUMBER AND NAME: 0604221N P-3 Mod

PROJECT NUMBER AND NAME: 3016, FATIGUE LIFE MANAGEMENT PROGRAM

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
Inventorg Fatigue Life Management/Sustainment																													

Page 1

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604221N: *P-3 Modernization Program*	PROJECT 3016: *Fatigue Life Mgmt Program*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Inventory Fatigue Life Management/Sustainment	1	2009	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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare 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**
Total Program Element	12.300	6.280	3.733	0.000	3.733	3.591	8.878	6.175	1.961	Continuing	Continuing
3184: *Regional Maritime Awareness Capability (RMAC)*	0.291	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.982
4011: *Naval Coastal Warfare Surv and C4I Sys*	8.020	6.280	3.733	0.000	3.733	2.643	2.212	1.426	1.487	Continuing	Continuing
9999: *Congressional Adds*	3.989	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.254
9C86: *Combatant Craft Replacement*	0.000	0.000	0.000	0.000	0.000	0.948	6.666	4.749	0.474	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Naval Coastal Warfare (NCW) community consists of 22 Mobile Inshore Undersea Warfare (MIUW) units and 8 Harbor Defense Command (HDC) units operating Mobile Ashore Support Terminal IIIs (MAST IIIs). NCW also includes 14 Inshore Boat Units (IBU) comprised of 6 small craft (boats) each on which are installed C4I systems . The Mobile Inshore Undersea Warfare - System Upgrade (MIUW-SU), the primary system used by the NCW MIUW Units, is the only land-based and rapidly deployable mobile Navy system with the ability to conduct surface and subsurface surveillance in coastal and littoral areas. The system provides detailed contact information via various C4I systems to the tactical area commander based on radar, visual, thermal, electronic, and underwater acoustic sensor information. Missions supported with the MIUW-SU's are: OCONUS and INCONUS Force Protection, protecting port areas, high value assets, and surveilling the near shore areas. The MAST III is the C4ISR hub for the NCW Commander. MAST IIIs deploy to support Force Protection/Force Security Officer for Commander, Amphibious Group in its Harbor Defense and Coastal Sea Control missions.

In the aftermath of the attack on USS COLE and particularly post 11 SEP, the role, structure, and utilization for the NCW program has changed appreciably and continues to evolve in the face of developing world events. However, the core competencies resident in expeditionary NCW forces to conduct surveillance, C4I and patrol/interdiction have not changed.

NCW remains a specialized force constituted to accomplish specific tasks under specific conditions, but also agile enough to fill emergent and non-traditional roles. Post 11 SEP, NCW Groups and Units have been mobilized to perform force protection missions at different levels in all CinC area of responsibility (AOR)'s and within the continental United States in support of Maritime Homeland Security. This RDT&E exhibit supports the future direction of Naval Coastal Warfare as it is being determined externally by world events and internally by the progress of DoD initiatives to replace Cold War forces and capabilities with 21st century transformational forces and capabilities. NCW forces currently field legacy systems designed to counter more traditional military threats in a two Major Theater War scenario. Future NCW forces will develop into a highly effective, relatively low cost transformational force capable of operating anywhere in the world to perform a spectrum of force

protection missions ranging from full scale port security/harbor defense operations during wartime to short duration point defense of high value units or facilities in operations other than war. This transformational force will be agile, tailorable, and scalable and will use applied technology to quickly detect, deter or interdict potential threats to DoN assets in the littoral environment. Next generation surface and subsurface surveillance systems, as well as enhanced C4I capabilities, are required to meet these operational objectives. These capabilities must be interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces.

Sea Eagle is an Advanced Concept Technology Demonstration (ACTD) with USN as lead service and USSOCOM as the Combatant Command sponsor. Sea Eagle will provide integrated and enhanced technologies in order to provide persistent, clandestine, and unattended monitoring of denied and sensitive maritime, littoral, and harbor areas. These sensors and

systems will be deliverable by Special Operational Forces (SOF) and networked in a multi-media (sea, air, land) system of systems approach. Sea Eagle will focus on close access networking, both wireless through air and underwater, to support networked tactical sensors. The special operations warfighter will tactically emplace Sea Eagle systems to provide targeted, tactical information that complements national and theater intelligence assets to enable a layered intelligence collection strategy.

Riverine Force will integrate and employ a variety of surface and air assets, special vehicles, weapons and appropriately trained personnel. Mission assets needed to support the operational capabilities will vary widely dependant on the Host Nations involved. The Riverine Squadron will deploy with inherent, but limited, force protection capabilities. The Modular Unmanned Scouting Craft Littoral (MUSCL), is man-portable "X-Class" Unmanned Surface Vehicle providing enhanced surveillance and reconnaissance capability to Naval Expeditionary Combat Command (NECC) Riverine forces.

Regional Maritime Awareness Capability (RMAC) - support GWOT by providing other USG Agencies with maritime traffic information that is not currently available. RMAC also provides enhanced regional security, safety, economic stability and environmental protection through shared maritime domain awareness (MDA).

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604230N: *Warfare Support System*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	12.574	6.307	0.000	0.000	0.000
Current President's Budget	12.300	6.280	3.733	0.000	3.733
Total Adjustments	-0.274	-0.027	3.733	0.000	3.733
• Congressional General Reductions		-0.027			
• 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	-0.274	0.000			
• Program Adjustments	0.000	0.000	3.733	0.000	3.733

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Common Expeditionary Force Protection System Archi*	3.989	0.000
Congressional Add Subtotals for Project: 9999	3.989	0.000
Congressional Add Totals for all Projects	3.989	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 3184: *Regional Maritime Awareness Capability (RMAC)*	

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
3184: *Regional Maritime Awareness Capability (RMAC)*	0.291	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.982
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Regional Maritime Awareness Capability (RMAC) - support GWOT by providing other USG Agencies with maritime traffic information that is not currently available. RMAC also provides enhanced regional security, safety, economic stability and environmental protection through shared maritime domain awareness (MDA). Capabilities include the ability to detect, track, identify and display information on a cooperative and non-cooperative surface vessels to enable maritime security operations. The Regional Maritime Awareness Capability (RMAC) Joint Capabilities Technology Demonstration (JCTD) is a coordinated Department of Defense (DoD) and Department of State project. The goal of the US European command, as the Combatant Command sponsor for this JCTD, is to establish a maritime domain awareness (MDA) system that can be propagated to allied nations and is compliant with US Navy afloat and expeditionary systems. The RMAC incorporates data models that enable the US Navy to leverage data from indigenous sensors as policy and the situation dictates. The Navy is the sponsoring branch of DoD for the RMAC JCTD because of their vested interest in sensors and surveillance throughout the maritime domain. The RMAC JCTD will demonstrate and, possibly, transition a regional maritime awareness solution set, consisting of sensors and their indigenous processors, communication systems, and software. The initial application of the capability will enable friendly nations in the Gulf of Guinea region to develop
maritime domain awareness in the regional waters, and share their data with each other and US government users (including the US Navy), as authorized by RMAC JCTD coalition partners. This solution set will be equally applicable to local sensor sites, national operations centers, regional coordination centers, and external users. The sensors and
processors include Automated Identification System (AIS), radar, video cameras, and night vision devices. The RMAC JCTD outputs and efficiencies include: surveillance; tracking; correlation and analysis; and multi-national information sharing and collaboration capabilities. The US Navy is directly contributing approximately 17% of the total RMAC JCTD cost. The Navy funding is directed to the performing activities as outlined in the Office of the Secretary of Defense coordinated RMAC JCTD Management Plan via a program element line executed by the Program Executive Officer, Littoral and Mine Warfare's (PEO LMW) Anti-Terrorism Afloat Program Office (PMS 480).

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 3184: *Regional Maritime Awareness Capability (RMAC)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
DAWDF *FY 2009 Accomplishments:* DAWDF	0.001	0.000	0.000	0.000	0.000
RMAC *FY 2009 Accomplishments:* Develop an increased Maritime Domain Awareness through improved integration with interagency and international partners. Funding provided site survey participation in Nigeria.	0.290	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.291	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

RMAC performance criteria for the JCTD will be determined jointly by the operational and technical managers as outlined in the Office of the Secretary of Defense RMAC JCTD Management Plan.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I 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
4011: *Naval Coastal Warfare Surv and C4I Sys*	8.020	6.280	3.733	0.000	3.733	2.643	2.212	1.426	1.487	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Maritime Expeditionary Security Force (MESF), formerly Naval Coastal Warfare (NCW), consists of two Groups and ten Squadrons; nine regular and one special (Guam). Each squadron is organized by Boat Detachments, Security Detachments and Command and Control (C2) divisions. The C2 Division is comprised of Sensor Detachments (SENSDET)operating the Radar Sonar Surveillance Center (RSSC) and Communications Detachments (COMMSDET) operating the Mobile Ashore Support Terminal (MAST IIIs), each separately funded. The Radar Sonar Surveillance Center (RSSC) is the only land-based and rapidly deployable mobile Navy system with the ability to conduct surface and subsurface surveillance in coastal and littoral areas. The system provides detailed contact information via various C4I systems to the tactical area commander based on radar, visual, thermal, electronic, and underwater acoustic sensor information. Missions supported with the MIUW-RSSCs are: OCONUS and INCONUS Force Protection, protecting port areas, high value assets, and surveilling the near shore areas. The MAST III is the C4ISR hub for the NCW Commander. MAST IIIs deploy to support Force Protection/Force Security Officer for Commander, Amphibious Group in its Harbor Defense and Coastal Sea Control missions.

As stated in the Maritime Expeditionary Security Force (MESF) CONOPS dated 11 April 2007: The MESF organization will be established through realignment of the Naval Coastal Warfare (NCW) organizations (NCW Squadrons, Mobile Inshore Undersea Warfare Units, Inshore Boat Units, Mobile Security Squadrons, Mobile Security Detachments, Embarked
Security Detachments, and Embarked Security Teams) into the MESF structure. Further realignment will result in the integration of intelligence, VBSS, and additional waterborne and security detachments to support new mission capability and provide additional NCC / JFMCC capacity. In addition to enhancing readiness of the current force, MESF will deploy adaptive force packages (AFPs) tailored for the specific missions to achieve greater efficiency and combat readiness than the current NCW force. By establishing a professional warfare community and dedicated Maritime Expeditionary Security Force capable of meeting the full range of security requirements, MESF closes a critical gap essential to full mission readiness for MSO. MESF provides a structure that establishes a single integrated maritime security force with one standard for training, certification, employment, and tactics, techniques, and procedures (TTP).
This funding supports the future direction of the MESF as it is being determined externally by world events and internally by the progress of DoD initiatives to replace Cold War forces and capabilities with 21st century transformational forces and capabilities. The associated developmental efforts will ultimately transition into an adaptive force package Navy Expeditionary Security System (NESS). MESF forces currently field legacy systems designed to counter more traditional military threats in

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I Sys*

a two Major Theater War scenario. Future MESF units will develop into a highly effective, relatively low cost transformational force capable of operating anywhere in the world to perform
a spectrum of force protection missions ranging from full scale port security/harbor defense operations during wartime to short duration point defense of high value units or facilities in operations other than war. This transformational force will be agile, tailorable, and scalable and will use applied technology to quickly detect, deter or interdict potential threats to DoN assets in the littoral environment. Next generation surface and subsurface surveillance systems, as well as enhanced C4I capabilities, are required to meet these operational objectives. These capabilities must be interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces.

The Tactically Integrated Sensors (TIS) software constitutes an upgrade to the MAST-RSSC and is being executed as a separate Abbreviated Acquisition Program. The AAP will
enable the deployment of a currently fielded Program of Record (POR) combat system (AN/SQQ-34C) known as Tactically Integrated Sensors (TIS) to the MESF units. TIS system restores the acoustic surveillance capability that has been eroded from the current RSSC suite. Additionally, future mult-spectal technologies are being looked at as
enabling capabilities to expand the situational awareness of the littoral region, providing additional tactical decision aids to the local area commander.

This funding supports the Identity Dominance System (IDS) as key enabler in support of the Joint Personnel Identity (JPI) program. OPNAV N857 conducted the NCW CBA and MES ICD. MESF forces have a mobile security mission that requires methodologies, procedures, equipment and the communications capacity to identify individuals who represent a
potential threat as a means to deter and eliminate individuals from conducting asymmetric/non-traditional attacks upon friendly forces, high value assets and coastal areas that NCW is charged with protecting. The Vessel Boarding Search and Seizure (VBSS) teams conducting Expanded Maritime Interception Operations also have a similar requirement
to identify individuals. The development of a device to support identity functions is captured in the Identity Dominance System Capability Development Document (IDS CDD). IDS will be used in the following environments: aboard ship and ashore in ports, the littorals and extended inland field environments worldwide. IDS will be employed in
maritime and very austere ashore environments and carried by individuals who are part of ship boarding parties and dismounted patrols. These mission and environmental demands dictate a portable, lightweight, rugged, and reliable system with intuitive and user friendly features. IDS biometric modalities may differ by mission profile,
requiring the authoritative response to the On-Scene Commander/Boarding Officer on whether to detain or further investigate an individual of interest.

Riverine Force will integrate and employ a variety of surface and air assets, special vehicles, weapons and appropriately trained personnel. Mission assets needed to support

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I Sys*

the operational capabilities will vary widely dependant on the Host Nations involved. The Riverine Squadron will deploy with inherent, but limited, force protection capabilities. The Modular Unmanned Scouting Craft Littoral (MUSCL), is man-portable "X-Class" Unmanned Surface Vehicle providing enhanced surveillance and reconnaissance capability to Naval Expeditionary Combat Command (NECC) Riverine forces.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MESF (Formerly NCW) Upgrades	3.440	2.498	0.877	0.000	0.877
FY 2009 Accomplishments: MESF Upgrades - Research and develop next generation NCW surveillance and C4I systems capabilities, to include new or improved Tactical Command and Control system, Electronic Systems Management, Under-Sea surveillance, Acoustic tracking of surface contacts, Data Fusion, Autonomous Sensors, Small Craft Situational Awareness/Combat ID, improved IR cameras, auto detect and track software, and improved data recording technologies. The next generation capabilities are based on the requirements in the Maritime Expeditionary Security Initial Capability Document (MES ICD). The Modular Unmanned Scouting Craft Littoral (MUSCL), is man-portable "X-Class" Unmanned Surface Vehicle will provide enhanced surveillance and reconnaissance capability to Naval Expeditionary Combat Command (NECC) Riverine forces. MUSCL will be developed, tested, and delivered (3 systems) to NECC Forces.					
FY 2010 Plans: MESF Upgrades - Research and develop next generation NCW surveillance and C4I systems capabilities, to include new or improved Tactical Command and Control system, Electronic Systems Management, Under-Sea surveillance, Acoustic tracking of surface contacts, Data Fusion, Autonomous Sensors, Small Craft Situational Awareness/Combat ID, improved IR cameras, auto detect and track software, and improved data recording technologies. The next generation capabilities are based on the requirements in the Maritime Expeditionary Security Initial Capability Document (MES ICD). The Modular Unmanned Scouting Craft Littoral (MUSCL), is man-portable "X-Class" Unmanned Surface Vehicle will provide enhanced surveillance and reconnaissance capability to Naval					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I Sys*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Expeditionary Combat Command (NECC) Riverine forces. MUSCL will be developed, tested, and delivered (3 systems) to NECC Forces. Continues development of the Tactically Integrated Sensors, Abbreviated Acquisition Program (TIS AAP) to modify and transition an ASW combat system software tool to the MESF Forces. Provide system engineering and software/system integration activities with next generation C4ISR systems and sensors with a specific focus on the transition of the Improved Imaging Technology (IIT) Future Naval Capability sensor systems. The IIT FNC supports the MESF role in Maritime Domain Awareness and is a capability need for the Integrated Swimmer Defense program. Provides program management support to transition next generation MESF capabilities based on the Maritime Expeditionary Security Initial Capabilities Document (MES ICD). *FY 2011 Base Plans:* MESF Upgrades - Continue research and development efforts to integrate emerging C4I technologies into Mess units. Efforts will focus on improved satellite communications, integration with the next generation of naval networks and improvements to network security applications. The next generation capabilities are based on the requirements in the Maritime Expeditionary Security Initial Capability Document (MES ICD).					
DAWDF *FY 2009 Accomplishments:* DAWDF	0.040	0.000	0.000	0.000	0.000
Identity Dominance System *FY 2009 Accomplishments:* Identity Dominance System - Program Management acquisition preparations for a Milestone B for the IDS program of record. Additional efforts will focus on the systems engineering and hardware/software development of the Identity Dominance System device.	4.540	3.782	2.856	0.000	2.856

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I Sys*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Identity Dominance System - Program Management acquisition preparations for a Milestone C for the IDS program of record and the design and development of the IDS device. Additional efforts will focus on systems engineering and hardware/software integration of the Identity Dominance System device. *FY 2011 Base Plans:* Identity Dominance System - Program Management acquisition preparations for a Milestone C for the IDS program of record and continued development of the IDS hardware and software. Additional efforts will focus on developmental and operational testing of the Identity Dominance System system in preparation for Full Rate Production.					
Accomplishments/Planned Programs Subtotals	8.020	6.280	3.733	0.000	3.733

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
• 0203422N/8I20: *Maritime Expeditionary Security Force*	16.404	5.307	5.317	0.000	5.317	7.850	7.970	10.231	10.308	0.000	63.387
• 0208147N/8128I: *Physical Security Equipment*	0.030	0.030	1.830	0.000	1.830	3.158	3.186	3.186	3.186	0.000	14.606

D. Acquisition Strategy

MESF (formerly NCW) - There are ten (10) MESF MAST III systems and twenty (20) MIUW-RSSC systems. The Naval Coastal Warfare systems, the Mobile Ashore Support Terminal (MAST III) and the MIUW Radar Sonar Surveillance Center (RSSC) AN/TSQ-108A(V)4 MOD 2 require the production of Engineering Change Packages (ECPs) for the purposes of technology
refresh and to mitigate the impact of obsolescent components. This issue supports the development and testing of the ECP kits as well as the procurement of material of initial kits involved in testing. For the MAST III systems - AN/USC-60 baseband equipment upgrades and GCCS-M upgrades. Timeplex are no longer supported and will need to be replaced with Promina multiplexers. For the MIUW systems - The key effort in FY10 is to provide an IP connectivity path using 1) VSAT for short ops

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I Sys*

requiring quick set ups using commercial SATCOM and 2) USC-67 (triband SHF) for longer ops using MILSATCOM. This IP capability is required because Navy legacy circuits that MIUW relies on (i.e. OTCIXS, CUDIXS, Fleet Broadcast) are being ceased in FY11 and transitioning to IP circuits (i.e. DMS Proxy, Assured IP). GCCS-M upgrades from 3.x to 4.x (or Maritime Tactical Services) will be required as 3.x will not be supported after FY10.

IDS - The fundamental purpose of the IDS program is to provide the Navy and Marine Corps with an integrated and ruggedized capability to employ individual-oriented identity information in the conduct of maritime and expeditionary operations. Fieldable prototypes in response to the CENTCOM JUONS were evaluated in limited user assessments and
under stringent to meet Naval operational effectiveness and suitability. Additionally, a market survey conducted and concluded that no COTS or GOTS systems could meet the requirements in the IDS/JPI(V)1 program is planned to enter System Demonstration (SD) at Milestone B in 2QTR FY10, and the SD phase is planned to culminate in a Milestone C
decision in 4th QTR FY11. The SBIR process was executed in a Phase I initiative as a risk mitigation step to enable the EMD Phase II process in developmental testing, design refinement, production representative level articles for evaluation/selection, and logistical support preparations to formulate the production decision (MS C) in FY11.
Production will be accomplished via a prime contractor to be selected during a competitive contracting process.

E. Performance Metrics

MESF: Successfully complete Preliminary Design Review (PDR), Critical Design Review (CDR) and Physical Configuration Audit (PCA) for Tactically Integrated Sensor (TIS).

IDS: Conduct Milestone reviews in order to successfully achieve Mileston B and C. Successfully achieve IOC.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I 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
Hardware/Software Development	C/CPFF	SSC CH SSC SAN DIEGO	0.100	0.000		0.000		0.000		0.000	0.000	0.100	Continuing
Hardware/Software Development	WR	NSWC DAHLGREN DAHLGREN	1.800	1.250	Feb 2010	0.200	Feb 2011	0.000		0.200	0.000	3.250	Continuing
Hardware/Software Development	WR	NSWC CRANE CRANE	0.500	0.250	Feb 2010	0.150	Feb 2011	0.000		0.150	0.000	0.900	Continuing
Systems Engineering1	C/CPFF	SSC CH SSC SAN DIEGO	0.547	0.000		0.000		0.000		0.000	0.000	0.547	Continuing
Systems Engineering2	WR	SSC CH SSC SAN DIEGO	0.300	0.300	Feb 2010	0.150	Feb 2011	0.000		0.150	0.000	0.750	Continuing
Systems Engineering3	WR	NUWC KEYPORT	0.400	0.300	Feb 2010	0.150	Feb 2011	0.000		0.150	0.000	0.850	Continuing
Systems Engineering4	WR	NSMRL Not Specified	0.100	0.000		0.000		0.000		0.000	0.000	0.100	Continuing
Systems Engineering5	C/CPFF	SSC SD SAN DIEGO	6.647	0.000		0.000		0.000		0.000	0.000	6.647	Continuing
Systems Engineering6	WR	NSWC DAHLGREN	1.800	0.500	Feb 2010	0.150	Feb 2011	0.000		0.150	0.000	2.450	Continuing
Systems Engineering7	WR	NUWC NEWPORT	0.000	0.000		0.080	Feb 2011	0.000		0.080	0.000	0.080	Continuing
Training Development	WR	SSC CH SSC SAN DIEGO	0.301	0.100	Feb 2010	0.000		0.000		0.000	0.000	0.401	Continuing
Test Integration	WR	NUWC KEYPORT	0.819	0.000		0.000		0.000		0.000	0.000	0.819	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I 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
Test Integration	WR	NSWC CRANE	0.200	0.000		0.000		0.000		0.000	0.000	0.200	Continuing
		Subtotal	13.514	2.700		0.880		0.000		0.880	0.000	17.094	

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
Technical Data	WR	SSC CH/SSC SD SSC SAN DIEGO	0.200	0.101	Feb 2010	0.080	Feb 2011	0.000		0.080	0.000	0.381	Continuing
Technical Data	WR	NSWC CRANE	0.250	0.000		0.000		0.000		0.000	0.000	0.250	Continuing
Technical Data	WR	NUWC KEYPORT	0.150	0.050	Feb 2010	0.050	Feb 2011	0.000		0.050	0.000	0.250	Continuing
Technical Data	MIPR	Coast Guard Not Specified	0.175	0.000		0.000		0.000		0.000	0.000	0.175	Continuing
Technical Data	WR	NSWC DAHLGREN	0.000	0.000		0.175	Feb 2011	0.000		0.175	0.000	0.175	Continuing
Test Planning	WR	NUWC KEYPORT	0.100	0.000		0.100	Feb 2011	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I 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
Test Planning	WR	NSWC CRANE	0.250	0.000		0.100	Feb 2011	0.000		0.100	0.000	0.350	Continuing
Test Planning	WR	SSC CH/ SSC SAN DIEGO	0.100	0.000		0.100	Feb 2011	0.000		0.100	0.000	0.200	Continuing
Test Planning - Non-Lethal	WR	NSWC DAHLGREN	0.500	0.000		0.250	Feb 2011	0.000		0.250	0.000	0.750	Continuing
Test Planning - IDS	WR	NSWC DAHLGREN	0.000	0.300	Feb 2010	0.150	Feb 2011	0.000		0.150	0.000	0.450	Continuing
		Subtotal	1.725	0.451		1.005		0.000		1.005	0.000	3.181	

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	SSC CH SSC SAN DIEGO	0.032	0.079	Feb 2010	0.100	Feb 2011	0.000		0.100	0.000	0.211	Continuing
Program Management Support	WR	NUWC KEYPORT	0.100	0.000		0.000		0.000		0.000	0.000	0.100	Continuing
Program Management Support	WR	NSWC DAHLGREN	0.942	1.000	Feb 2010	1.000	Feb 2011	0.000		1.000	0.000	2.942	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I 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
Program Management Support	WR	NSWC CRANE	0.302	0.100	Feb 2010	0.160	Feb 2011	0.000		0.160	0.000	0.562	Continuing
Program Management Support	C/Various	Various Various	0.000	1.920	Feb 2010	0.558	Feb 2011	0.000		0.558	0.000	2.478	Continuing
Travel	C/Various	Various Various	0.025	0.030	Feb 2010	0.030	Feb 2011	0.000		0.030	0.000	0.085	Continuing
DAWDF	C/TBD	Not Specified Not Specified	0.040	0.000		0.000		0.000		0.000	0.000	0.040	Continuing
		Subtotal	1.441	3.129		1.848		0.000		1.848	0.000	6.418	

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	16.680	6.280		3.733		0.000		3.733	0.000	26.693	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604230N: *Warfare Support System*	**PROJECT** 4011: *Naval Coastal Warfare Surv and C4I Sys*

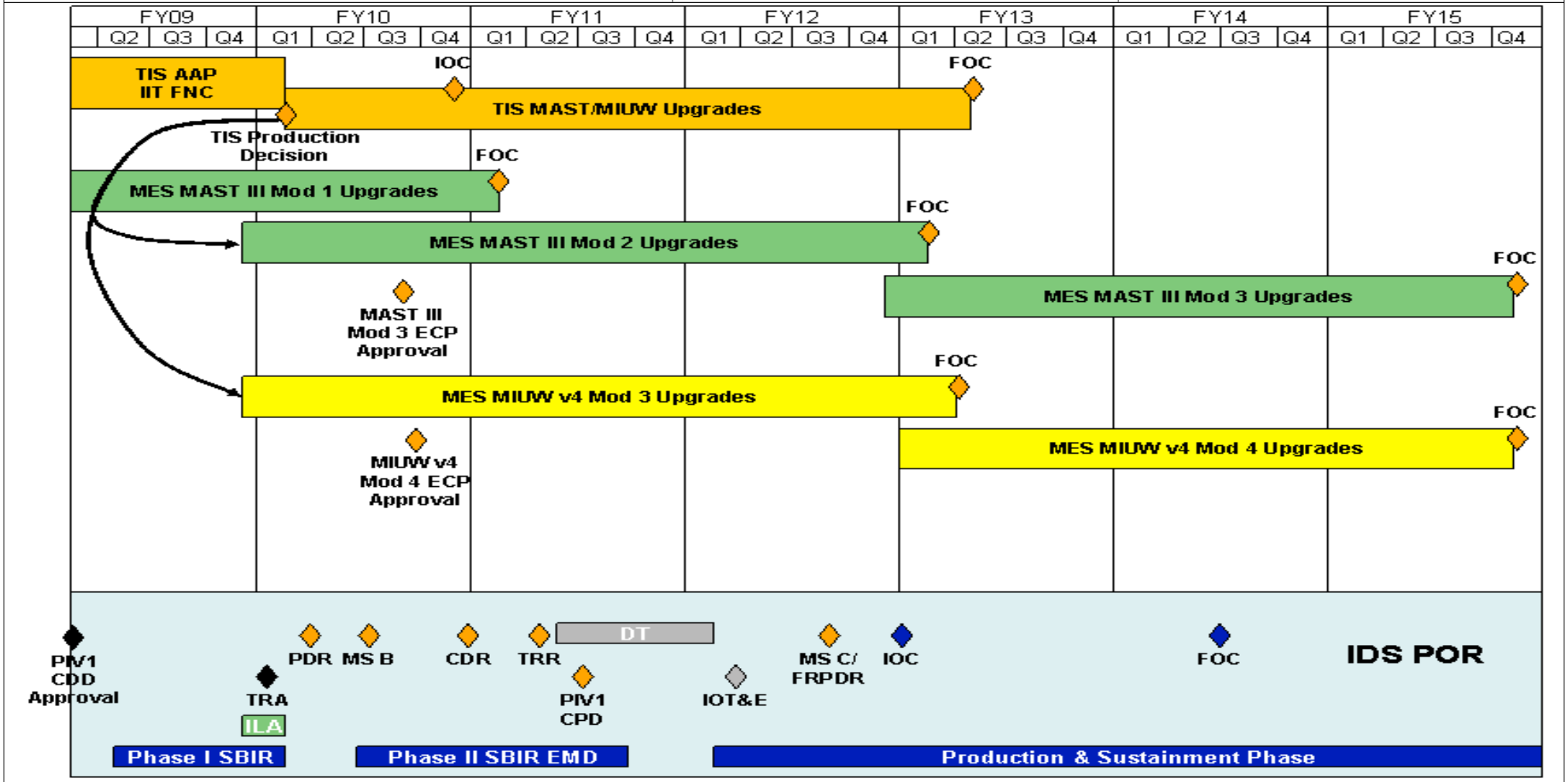


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I Sys*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
IDS ILA	1	2010	1	2010
IDS TRA	1	2010	1	2010
IDS PDR	2	2010	2	2010
IDS MILESTONE B	2	2010	2	2010
IDS CDR	4	2010	4	2010
IDS TRR	2	2011	2	2011
IDS DT	2	2011	1	2012
IDS CPD	3	2011	3	2011
IDS IOT&E	2	2012	2	2012
IDS MILESTONE C	3	2012	3	2012
IDS FRP DR	3	2012	3	2012
IDS IOC	4	2012	4	2012
IDS FOC	3	2014	4	2014
TIS AAP PRODUCTION DECISION	1	2010	1	2010
TIS AAP IOC	4	2010	4	2010
TIS AAP FOC	2	2013	2	2013
MIUW v4 MOD 3 ECP FOC	2	2013	2	2013
MIUW v4 MOD 3 UPGRADES	4	2009	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 4011: *Naval Coastal Warfare Surv and C4I Sys*

	Start		End	
Event	Quarter	Year	Quarter	Year
MIUW v4 ECP APPROVAL	4	2010	4	2010
MIUW v4 MODE 4 UPGRADES	1	2013	4	2015
MIUW v4 MOD 4 FOC	4	2015	4	2015
MAST III MOD 1 UPGRADES	1	2009	1	2011
MAST III MOD 1 FOC	1	2011	1	2011
MAST III MOD 2 UPGRADES	4	2009	1	2013
MAST III MOD 2 FOC	1	2013	1	2013
MAST III MOD 3 UPGRADES	4	2012	4	2015
MAST III MOD 3 ECP APPROVAL	3	2010	3	2010
MAST III MOD 3 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support 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*	3.989	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.254
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: Common Expeditionary Force Protection System Archi *FY 2009 Accomplishments:* Common Expeditionary Force Protection System - Development of common Expeditionary Force Protection System Architecture (CEFPSA) to provide command and control decision support for the Integrated Swimmer Defense System (ISD). CEFPSA is the integrating backbone for the various sensors and data feeds required for ISD. CEFPSA technology is also flexible enough to meet Navy Expeditionary Combat Command (NECC) land-based force protection mission requirements.	3.989	0.000
Congressional Adds Subtotals	3.989	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 9999: *Congressional Adds*

E. Performance Metrics

Successfully provide command and control data to meet Navy Expeditionary Combat Command (NECC) land-based force protection missions.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604230N: *Warfare Support System*	PROJECT 9C86: *Combatant Craft 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
9C86: *Combatant Craft Replacement*	0.000	0.000	0.000	0.000	0.000	0.948	6.666	4.749	0.474	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Combatant Craft Replacements will provide second generation Riverine Multi Mission Craft that will replace in-service Riverine Patrol Boats (RPBs) and Riverine Assault Boats (RABs). Combatant Craft replacements will: conduct inland waterway patrol and interdiction to preserve the rivers for friendly use as lines of communications; deny the use of rivers and waterways to waterborne and immediate shore sited hostile forces by barrier and interdiction operations; and, with augmentation of ground and air forces, locate and destroy hostile forces within a riparian area. Specific mission and capabilities will be identified in an NECC developed/OPNAV N85 approved Initial Capabilities Document (ICD). RDT&E funding will fund feasibility studies and procurement of mock-ups and prototype craft to demonstrate capabilities prior to production craft procurement.

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

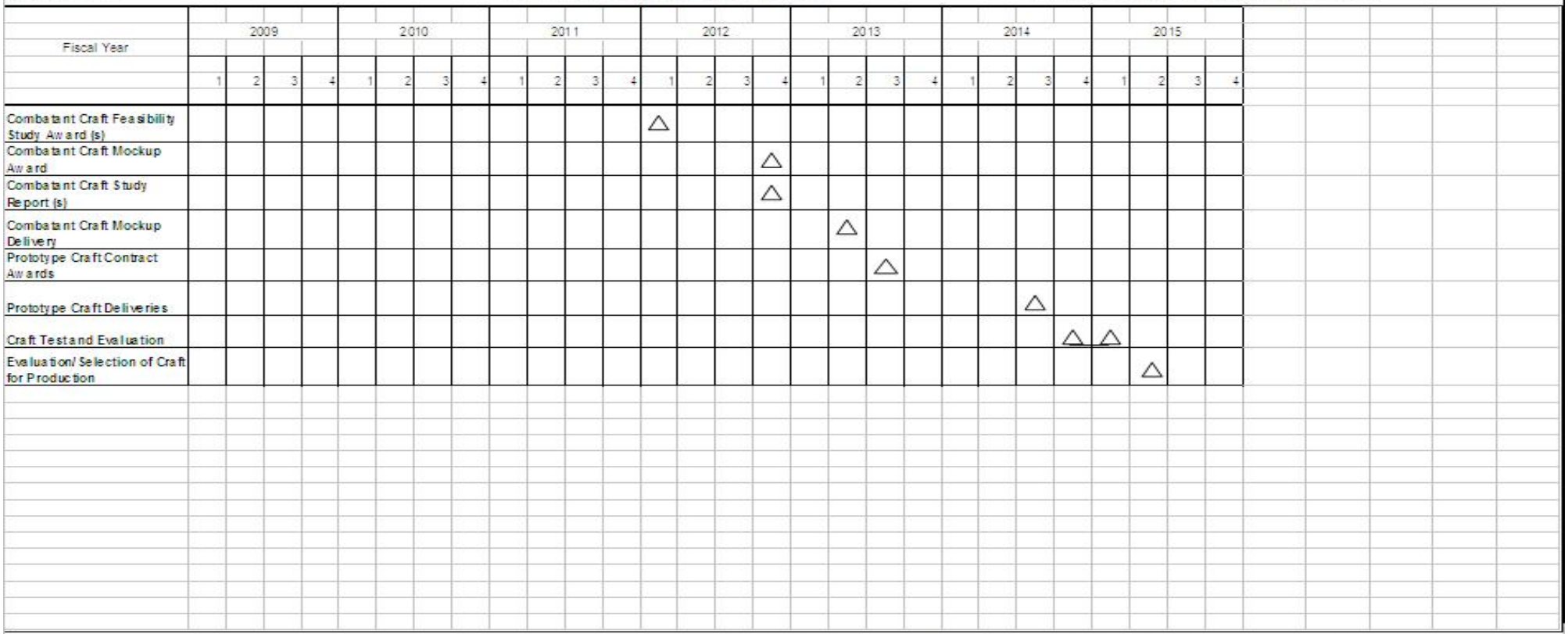
Acquisition of RDT&E funded mockup and prototype craft for testing to be accomplished using "tailored" GSA procurements in accordance with a PMS325G approved/ OPNAV N85 endorsed Riverine Combatant Craft Replacement Acquisition Strategy.

E. Performance Metrics

Successfully demonstrate system and prototype functionality to support approved Initial Capabilities Document (ICD).

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604230N: *Warfare Support System*	**PROJECT** 9C86: *Combatant Craft Replacement*

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE: August 2008
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDTEN/BA 5	0604230N / Warfare Support System	9C86 Combatant Craft Replacement



R-1 Line Item No	CLASSIFICATION:	EXHIBIT R-4
PAGE 5 of 6	UNCLASSIFIED	SCHEDULE PROFILE

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604230N: *Warfare Support System*	**PROJECT** 9C86: *Combatant Craft Replacement*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Combatant Craft Feasilibty Study(ies) Award	1	2012	1	2012
Combatant Craft Mockup Award	4	2012	4	2012
Combatant Craft Study Report(s)	4	2012	4	2012
Combatant Craft Mockup Delivery	2	2013	2	2013
Combatant Craft Prototype Awards	3	2013	3	2013
Combatant Craft Prototype Deliveries	3	2014	3	2014
Craft Test and Evaluation	4	2014	1	2015
Selection of Craft for Production	2	2015	2	2015

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command 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	110.568	92.379	89.955	0.000	89.955	89.967	79.455	53.321	53.357	Continuing	Continuing
0486: *Tactical Support Center*	8.781	10.852	15.972	0.000	15.972	14.268	7.369	7.132	7.181	Continuing	Continuing
0521: *Shipboard Tactical Intel Proc*	3.803	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	51.330
0709: *GCCS-M Maritime Applications*	19.995	19.275	28.216	0.000	28.216	19.581	20.789	20.272	20.373	Continuing	Continuing
2009: *OSIS Evolutionary Development (OED)*	1.084	1.306	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	31.062
2213: *Mission Planning*	18.440	18.704	16.345	0.000	16.345	15.830	6.477	6.628	6.765	Continuing	Continuing
2307: *Shipboard LAN/WAN*	12.105	1.719	0.464	0.000	0.464	0.360	0.358	0.000	0.000	0.000	51.599
2351: *MDA*	0.000	21.111	19.630	0.000	19.630	15.489	7.670	1.061	0.089	Continuing	Continuing
3032: *NTCSS (Naval Tactical Command Spt Sys)*	0.050	6.332	3.661	0.000	3.661	13.114	26.053	0.603	1.065	Continuing	Continuing
9123: *FORCEnet*	42.321	6.707	5.667	0.000	5.667	11.325	10.739	17.625	17.884	Continuing	Continuing
9999: *Congressional Adds*	3.989	6.373	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.949

A. Mission Description and Budget Item Justification

The Tactical Command System upgrades the Navy's Command, Control, Computer and Intelligence (C3I) systems and processes C3I information for all warfare mission areas including planning, direction and reconstruction of missions for peacetime, wartime and times of crises.

Global Command and Control System - Maritime (GCCS-M): GCCS-M is a part of the GCCS Family of Systems (FoS). As such and responding to Congressional direction (Section 247 of Fiscal Year 2010 National Defense Authorization Act (NDAA)), it will form the basis for the evolution of new command and control capabilities and Maritime Tactical Command and Control (C2) capabilities within the Department of Defense (DoD). While sustaining and synchronizing currently fielded operations, the Navy will modernize and enhance current capabilities to support both the Service and Joint war fighter as a part of a synchronized, orchestrated DoD-wide effort that will transition the current GCCS FoS into a more agile, net-centric, services-oriented environment. These efforts will take advantage of both streamlined processes within the requirements community, such as the "IT Box" and ongoing changes in the information technology acquisition process, as described in chapter 6

of the March 2009 Report of the Defense Science Board (DSB) Task Force on DoD Policies and Procedures for the Acquisition of Information Technology (Section 804 of Fiscal Year 2010 NDAA).

Mission Planning: The Joint Mission Planning System (JMPS) is the Chief of Naval Operation's (CNOs) designated automated mission planning system for the Navy. JMPS enables weapon system employment by providing the information, automated tools, and decision aids needed to rapidly plan aircraft, weapon, or sensor missions, load mission data into aircraft and weapons, and conduct post-mission analysis. JMPS is a mission critical system which is a co-development effort between the United States Navy, United States Air Force, United States Army, and United States Special Operations Command. Common requirements are identified and capabilities are developed and prioritized in an evolutionary approach. An individual JMPS mission-planning environment (MPE) is a combination of the JMPS framework, common capabilities, and the necessary system hardware required to satisfy mission planning objectives. Most Tactical Naval Aviation platforms are dependent solely on JMPS to plan precision guided munitions, sensor systems, tactical data links, secure voice communications, and basic Safety of Flight functions. The following type/model/series naval aircraft are supported by JMPS: F/A-18 A-F, E-2C, EA-6B, S-3, MV-22 and AV-8B. Future JMPS platforms include: CH-46E, CH-53, MH-53E, H-60B/F/H, UH-1N, P-3, KC-130T/J, C-2, AH-1W/Z, EA-18G, H-60 R/S, VH-71, P-8, E-2D, UH-1Y, H-53K, VH-3, VH-60 and C-130. As directed via the CNO's Navy Enterprise Architecture and Data Strategy policy, the next JMPS architecture version (Framework V 1.4) will support net-centric goals by providing route "publish and subscribe" capabilities.

Tactical Support Center: The Tactical Mobile program provides evolutionary systems and equipment upgrades to support the Maritime Component Commanders (Expeditionary Ashore) and Maritime Patrol and Reconnaissance Force Commanders with the capability to plan, direct and control the tactical operations of Joint and Naval Expeditionary Forces and other assigned units within their respective area of responsibility. These operations include littoral, open ocean, and over land surveillance, anti-surface warfare, over-the-horizon targeting, counter-drug operations, power projection, antisubmarine warfare, mining, search and rescue, and special operations. The missions are supported by the Tactical Operations Centers (formerly Tactical Support Centers), the Mobile Tactical Operations Centers (formerly Mobile Operations Control Centers), and the Joint Mobile Ashore Support Terminal. TacMobile C2 systems are based on the Global Command and Control System - Maritime architecture which is Defense Information Infrastructure Common Operating Environment compliant.

Trusted Information Systems: Radiant Mercury is a secure information platform that provides an automated means to sanitize, downgrade, guard, and transliterate formatted data at various classifications, compartments and releasabilities. With the aid of a reliable human reviewer, RM can process nonstandard messages, such as messages with National Imagery Transmission Format products and other non/semi-formatted file types. It enables combat commanders and operational commanders, afloat and ashore, to disseminate and receive critical operational and intelligence information with coalition and allied forces.

Shipboard Local Area Network (LAN)/Wide Area Network (WAN) : Integrated Shipboard Network System (ISNS): ISNS provides Navy ships with reliable, high-speed SECRET and UNCLASSIFIED LANs, providing the network infrastructure (switches and drops to the PC), Basic Network Information Distribution Services and access to the Defense Information Systems Network WAN, Secure and Nonsecure Internet Protocol Router Network (SIPRNET and NIPRNET) which are used by other hosted applications or systems such as Naval Tactical Command Support System, Global Command and Control System - Maritime, Defense Messaging 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*

Navy Standard Integrated Personnel System, Naval Mission Planning System, Theater Battle Management Core Systems, and Tactical Tomahawk Weapons Control System. It enables real-time information exchange within the ship and between afloat units, Component Commanders, and Fleet Commanders, and is a key factor in the implementation of the Navy's portion of Joint Vision 2020. Funding supports the design, development, and testing of the ISNS LAN for surface ships. ISNS includes integrated core services to provide a Service Oriented Architecture which is the mechanism to deliver the FORCEnet interface to the warfighter. The Afloat Core Services (ACS) provides a composeable warfighting environment enabling dynamic configuration of capabilities tailored to meet specific warfighting missions. As the warfighting mission changes, the capabilities or services can be re-configured on the fly to meet the new warfighting requirement. This dynamic reconfiguration of services also known as "plug and fight" meets the composeable services vision of FORCEnet. ACS also provides the common core enterprise services and framework to allow organizations ubiquitous access to reliable, decision-quality information through a net-based services infrastructure and applications to bridge real-time and near-real-time Communities Of Interest. The ACS will empower the end user to pull information from any available source, with minimal latency, to support the mission. Its capabilities will allow Department of the Navy as well as Global Information Grid users to task, post, process, use, store, manage, and protect information resources on demand for warfighters, policy makers, and support personnel. ACS will utilize a spiral process for delivering capability to the warfighter. The ISNS Inc 1, Sensitive Compartmented Information (SCI) Networks and Combined Enterprise Regional Information Exchange System (CENTRIXS) programs will begin migrating to ISNS Inc 2/Consolidated Afloat Networks and Enterprise Services (CANES) in FY09. 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: ACS; and Multi-Level Security /Cross Domain Solutions. Full transition to CANES Inc 1 occurs in FY 2010.

Combined Enterprise Regional Information Exchange System (CENTRIXS): The CENTRIXS program provides US Navy ships with secure, reliable, high-speed Local Area Network (LAN) with access to the Coalition WAN to include CENTRIXS Four-Eyes, Global Counter Terrorism Task Force, North Atlantic Treaty Organization Information Data Transfer System, Multinational Coalition Force - Iraq, bilateral networks such as CENTRIXS-J (Japan) and CENTRIXS-K (Korea), and Communities Of Interest virtual networks such as Coalition Naval Forces - U.S. Central Command (CENTCOM) (CNFC), and Cooperative Maritime Forces - Pacific. The CENTRIXS system provides real-time tactical and operational information sharing at the SECRET and SECRET REL (Releasable) level between naval afloat units, Component Commanders, Fleet Commanders, Numbered Fleet Commanders and Coalition Forces/Allies. When the CENTRIXS network is combined with other subsystems (Radio/Satellite Communications), it delivers an end-to-end network centric warfighting capability. The CENTRIXS program is comprised of Block 0, I, and II systems fielded across the Fleet, and Increment 1 which provides a network infrastructure that allows simultaneous access to multiple Coalition WAN and incorporates the Common PC Operating System Environment which provides a server and client operating system environment for other applications and collaborative tools such as Same time Chat, Domino and Command and Control PC as means to share a Common Operational Picture and exchange information using Collaboration At Sea. The CENTRIXS program uses both Commercial Off The Shelf hardware and software and Open Standards to maximize commercial technology and support. In-service engineering and technical support ensures existing systems are upgraded and modified to keep pace with current technology and industry.

Combined Enterprise Regional Information Exchange System (CENTRIXS) funding supports the design, development and testing of the CENTRIXS LAN for surface and subsurface platforms and the CENTRIXS Network Operations Center (NOC). The goal of the CENTRIXS program is to provide a cost-efficient, operationally effective network that dramatically reduces current infrastructure requirements while maximizing operational flexibility and war fighter utility in a coalition environment.

Multi-Level Thin Client (MLTC) architecture support shipboard Space, Weight and Power (SWAP) reductions and include initiatives for server virtualization (ability to run multiple servers on a single server), drop scalability leveraging existing Secure Internet Protocol Router Network (SIPRNET) drops, remote authentication and remote system management. Additionally funding will provide design, development and testing for a Unit Level MLTC system (provides a compressed shipboard rack/client footprint) and initiatives to include Language Translation, Communities Of Interest (COI) and Network Enclave Agility (ability to dynamically shift between all coalition networks and COIs) and Multi-Level Chat (a Cross Domain Solution (CDS) chat capability). The CENTRIXS program will start migrating to ISNS Inc 2/ Consolidated Afloat Networks and Enterprise Services (CANES) in FY09. Integrated Shipboard Network Systems (ISNS) Inc 2/Consolidated Afloat Networks and Enterprise Services (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)/CDS. Full transition to CANES Inc 1 occurs in FY 2010.

Submarine Local Area Network (SubLAN): The SubLAN program provides Navy submarines with reliable, high-speed Mission Critical SECRET and Mission Essential UNCLASSIFIED Local Area Networks (LANs). When the SubLAN network is combined with other subsystems, it will deliver an end to end network-centric warfare capability. The SubLAN program provides network infrastructure including an Unclassified Wireless Local Area Network (UWLAN), servers, and the Common Personal Computer Operating System Environment (COMPOSE) which provides the operating system, office automation, security, and other basic network services used by all hosted applications. Funding supports the design, development, and testing of SubLAN for addition of capabilities in support of migration to the CANES program effort.

Naval Tactical Command Support System (NTCSS) Enterprise Database and Maritime Logistics Data Network (MLDN): The NTCSS is a multi-function program designed to provide standard tactical support information systems to various afloat and associated shore-based fleet activities. The mission is to provide the Navy and Marine Corps with an integrated, scalable system that supports the management of logistical information, personnel, material and funds required to maintain and operate ships, submarines, and aircraft.

FORCEnet: Initiative's mission is to (a) accelerate the transformation to a Distributed, Networked force; (b) achieve interoperability based on Architectures and Standards; and (c) Experiment with, evaluate and employ the enabling technologies. Effort is a non-acquisition program that is the operational instantiation of FORCEnet. The end-state is a distributed network of weapons, sensors, Command and Control (C2), platforms and warriors.

Maritime Domain Awareness (MDA) Project 2351 and 9123 (FY09 only)): MDA is the effective understanding of anything associated with the global maritime domain that could impact the security, safety, economy or environment. MDA objectives include the persistent monitoring of and ability to access and maintain data on vessels, cargo, people, and infrastructure; and the ability to collect, fuse, analyze, and disseminate information to decision makers to facilitate effective understanding. This initiative will identify, develop and transition data fusion and mining, replication, sharing and assessment tools to achieve MDA across the non-classified, unclassified and classified enclaves. Additionally, MDA will ensure capability integration with related activities and sites (both technologies and facilities). This warfighting enhancement is designed to achieve an all-source MDA capability, leveraging existing MDA initiatives in the developmental phase and ensuring the best products transition to strategic, operational and tactical users as well as further development of MDA prototypes. The products will support all-source data fusion, development

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*

and replication of MDA related data gathered in various operations such as Expanded-Maritime Intercept Operations, sharing information with allies, and developing subject matter expertise and assessment tools to achieve MDA and enhance operational decision making.

Deep Lightning Bolt / Rapid Capability Development: Transformational initiative for the Navy, focused on the introduction of technologies will have the ability to immediately enhance the Navy's Sea Power 21 objectives.

Congressional Increases: FY09 includes: Congressional increase for Intelligence, Surveillance, and Reconnaissance Enhancements. FY10 includes: Congressional increase for Intelligence, Surveillance, and Reconnaissance Enhancements and Shipboard Wireless Network.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	102.164	86.462	0.000	0.000	0.000
Current President's Budget	110.568	92.379	89.955	0.000	89.955
Total Adjustments	8.404	5.917	89.955	0.000	89.955
• Congressional General Reductions		-0.401			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.082			
• Congressional Adds		6.400			
• Congressional Directed Transfers		0.000			
• Reprogrammings	9.831	0.000			
• SBIR/STTR Transfer	-1.428	0.000			
• Program Adjustments	0.000	0.000	89.955	0.000	89.955
• 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: *Shipboard Wireless Network*	0.000	2.390
Congressional Add: *ISR Enhancements*	3.989	3.983
Congressional Add Subtotals for Project: 9999	3.989	6.373
Congressional Add Totals for all Projects	3.989	6.373

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*

Change Summary Explanation

Technical: Not applicable.

Schedule: See below

Mission Planning (Project 2213):
Acquisition Milestones:
JMPS 1.2.4 OTRR (4Q FY08 - 1Q FY09) - Operational Testing (OT) resources not available during 4Q FY08.
JMPS V.1.4 OTRR (4Q FY10 - 4Q FY11) - Slipped due to prime contractor delays in meeting exit criteria for Preliminary Design Review (PDR).
JMPS V.1.2.4 OT (4Q FY08 - 1Q - 2Q FY09) - Corresponding change in OT schedule to reflect change in OTRR schedule.
JMPS V1.4 OT (4Q FY11 - 2Q FY12 to 1Q-2Q FY12) - FW 1.4 Development Schedule Slip.

Test and Evaluation Milestones:
JMPS 1.2.4 MPE Integration/Valid. (2Q FY09 - 4Q FY13) - JMPS 1.2.4 Integration will continue to be fielded longer than planned due to FW 1.4 schedule slips.
JMPS 1.4 MPE Integration/Valid. (1Q FY11 - 4QQ FY15) - Slipped due to prime contractor delays in meeting exit criteria for PDR (Preliminary Design Review).
JMPS V1.4 FQT (1Q FY 11 - 1Q FY 11) - Slipped due to Air Force Contracting Delays.
JMPS V1.4 DT (2Q FY09 - 2Q FY 11) - Sipped due to Air Force Contracting Delays.

Production Milestones:
JMPS V1.4 IOC (3QFY13 - 3Q FY12) - FW 1.4 IOC established during Integrated Baseline Review (IBR) completed May 09.

TACTICAL SUPPORT CENTER (Project 0486): MSC decision is scheduled for 4th Qtr FY11. Operational Test is scheduled for 2nd Qtr FY12. FRP is scheduled for 4th Qtr FY12.

Naval Tactical Command Support System (NTCSS) (Project 3032): Increasing requirements in information security and functional capability have required shifts in the approach for systems design and development. The updated schedule reflects a more integrated plan to accomplish refined requirements, fact-of-life changes, and modernization of the NTCSS system.

Global Command and Control System - Maritime (GCCS-M) (Project 0709): In August 2009, the MDA approved an alternate material solution of Increment 2 was approved to support the requirements of Group Level ships, Unit Level ships, and submarines. This solution was based on the Office of Naval Research (ONR)-funded project extensible Common Operational Picture (XCOP). The Increment 2 Milestone C decision is scheduled in 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*

Radiant Mercury (RM) - Schedule slip of RM Version 5.0 from 4QFY09 to 3QFY10 caused by delay in award of follow-on developer contract.

CENTRIXS (Project 2307): The CENTRIXS-M program achieved MS C in July 2009 and the schedule has been modified to reflect a shift for Increment 1 (Inc 1) Development Test/Operational Test (DT/OT) Force Level (FL) from Jul 2010 (Q4 FY10) to Feb 2010 (2QFY10) and Increment 1 FL Full Rate Production (FRP) from 2Q FY10 to 3Q FY11]. Inc 1 FL Initial Operating Capability (IOC) is updated from (2Q FY11) to (2/3Q FY10) and Inc 1 Unit Level (UL) FRP is updated from (1Q FY12) to (4Q FY11). Inc 1 Low Rate Initial Production (LRIP) deliveries shift reflects updated production leadtime. Inc 1 DT/OT UL is scheduled for Jul 2010 (3QFY10) with a Inc 1 UL Fielding Decision scheduled from 4QFY11 to 1Q/FY12. Full transition to CANES Inc 1 occurs in FY 2010. COMPOSE 4.0 Software deliveries changed from 2Q FY10 to 4Q FY11 and has been updated to reflect current software fielding schedule.

ISNS (Project 2307): ISNS Inc 2/CANES Material Development Decision (MDD) shifted Milestone B 1Q FY09 to 3Q FY10. In addition, a fielding decision for D(V)X has been added in 2Q FY09. Full transition to CANES Inc 1 occurs in FY 2010.

SubLAN (Project 2307): Multi Level Security requirements have been removed from SubLAN POR.

Maritime Domain Awareness (MDA) (Project 2351): MDA program schedule has been modified to reflect an acceleration of the MDA Fielded Enterprise Node integration to complete in FY11. This includes planned and approved enhancements to the MDA Fielded baseline to optimize performance with the Enterprise Node while realizing life-cycle cost savings through reduced hardware footprint at deployed locations. For Expanded-Maritime Intercept Operations (EMIO), the changes reflect the completion of the End to End EMIO capability enhancements which resulted in reduced time to capture, transmit, analyze and act on maritime boarding information from days to hours. The schedule also reflects increased testing and validation of EMIO capabilities supporting transition. The schedule has been updated to facilitate Requirement Manager's incorporation of stakeholder inputs.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*	

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
0486: *Tactical Support Center*	8.781	10.852	15.972	0.000	15.972	14.268	7.369	7.132	7.181	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Tactical/Mobile program provides evolutionary systems and equipment upgrades to support Maritime Component Commanders (Expeditionary Ashore) and Maritime Patrol and Reconnaissance Force Commanders with the capability to plan, direct, and control the tactical operations of Joint and Naval Expeditionary Forces and other assigned units within their respective area of responsibility. These operations include littoral, open ocean, and over land all-sensor surveillance, anti-surface warfare, over-the-horizon targeting, counter-drug operations, power projection, antisubmarine warfare, mining, search and rescue, and special operations.

The missions are supported by the Tactical Operations Centers (TOCs) (formerly Tactical Support Centers), the Mobile Tactical Operations Centers (formerly Mobile Operations Control Centers (MOCCs)), and the Joint Mobile Ashore Support Terminal (JMAST). Services provided include analysis and correlation of diverse sensor information; data management support; command decision aids; rapid data communication; mission planning and evaluation and dissemination of surveillance data and threat alerts to operational users ashore and afloat. Tactical/Mobile Command and Control systems are based on the Global Command and Control System - Maritime (GCCS-M) architecture, which is Defense Information Infrastructure (DII) Common Operating Environment compliant.

TOCs and their equivalents provide Command, Control, Communications, Computers and Intelligence (C4I) capability, air-ground, satellite and point-to-point communications systems; sensor analysis capabilities; avionics and weapons system interfaces and facilities equipment. MTOCs and their equivalents are scalable and mobile versions of the TOC for operations from airfields that do not have TOC support. This program assures that existing TOCs and MTOCs are modernized to fulfill their operational requirements. TOC/MTOC will continue to provide the ground Command and Control capabilities and C4I interfaces for the Maritime Patrol and Reconnaissance Force (MPRF) Family of Systems (FOS) aircraft and systems evolution including P-3C aircraft updates to sensors and weapons systems, such as the Anti-Surface Warfare Maritime Improvement Program (AMIP), and the Command Control Communications Computers for Anti-Submarine Warfare (C4 for ASW) P-3C aircraft upgrades, as well as development of emergent, ground C4I support capabilities for the P-8A Multi-mission Maritime Aircraft (MMA) and Broad Area Maritime Surveillance Unmanned Aerial System (BAMS UAS).

The JMAST supports the Fleet Commanders, Naval Component Commanders, and other military commanders from forward deployed bases or operational sites ashore that are not equipped with C4I facilities. It provides the Navy Component, and other military commanders with flexible, mobile, organic response, to command, control and communicate with assigned forces via voice, video, and data media forms, during all aspects of military operations, including joint, combined, and coalition operations.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 0486: *Tactical Support Center*

The TacMobile program was designated as an Acquisition Category III weapons system program July 2004 and is no longer directly associated with the GCCS-M program. The TacMobile program follows an Evolutionary Acquisition approach, which provides a mechanism for adding a series of future capabilities that maintain and enhance the operational relevance of the systems provided, as well as augments improvements in airborne networking. Transformation of the TOC/MTOC Force to a more mobile, scaleable, and network-centric configuration, convergence of TOC, MTOC, and JMAST architectures to a single configuration, and as an integral component of the Maritime Patrol and Reconnaissance Force MPRF FOS, operational C4I integration support for new and upgraded MPRA such as MMA, AIP, BAM UAS as well as other Command and Control (C2) and fighter aircraft are primary objectives.

FY11 Base: Funding supports TacMobile systems development to achieve increased modularity, enhancing flexibility and mobility, to offset the size/weight/cube of additional required aircraft interfaces that are currently under development. Network-centric and airborne C4I integration efforts continue as improvements to airborne networking technology are matured. Will achieve interoperability with emerging MPRF Aircraft and Sensors while reducing TacMobile footprint enhancing Mobility capability.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Net Ready	0.806	0.978	0.829	0.000	0.829
FY 2009 Accomplishments: Communications: Began Integration of Wide Band Line of Sight (LOS) and Beyond Line of Sight (BLOS) Tactical Edge Networking Waveforms to support Internet Protocol (IP) connected end-to-end Net Centric Under Sea Warfare (USW) communications between TacMobile units and Maritime Patrol and Reconnaissance Aircraft (MPRA) enabling networked reach back, data sharing and real time collaborative analysis. Studied Integration of communications capabilities compatible with Federal, State and Local government agencies and Non Government Organizations (NGO) activities to enhance Humanitarian Assistance/Disaster Relief (HADR) and Homeland Defense (HD) interagency interaction.					
FY 2010 Plans: Communications: Continue with Integration Wide Band LOS and BLOS Tactical Edge Networking Waveforms to meet migration of Defense Information Systems Agency (DISA) interoperability					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
standards, incorporating Black Core Routing to support IP connected end-to-end Net Centric USW communications between TacMobile units, MPRA and supported commanders and other external agencies. Begin research and coordination with appropriate Communities of Interest (COI's) to implement appropriate data strategies (open-source extensible markup language (XML) metadata or schemas) to enable data visibility, accessibility, understanding and trustworthiness. *FY 2011 Base Plans:* Base - Communications: Continue to investigate technology readiness and overall maturity Level of Joint Tactical Radio System (JTRS) and other software definable radio options for applicability for incorporation into TacMobile communications architecture. Begin test and evaluate Cipher Text Routing Wide Band BLOS IP solutions. Begin integration of Converged IP interoperability standards to the Wide Band BLOS networking systems. Commence investigation of requirements for Range of Warfare Command and Control (ROWC2) reach-back Internet Protocol (IP) connectivity options.					
Fast Time Analysis System (FTAS)/Tactical Mobile Acoustic Support System (TACMASS) *FY 2009 Accomplishments:* Analysis: Began integration Acoustic Analysis capabilities to support post-flight Fast Time Acoustic Analysis and intelligence gathering for Operational Plans (OPLANs) execution to include advanced multi-static's and digital capabilities. Began integration of advanced Non-Acoustic Electro Optical/ Infrared (EO/IR) Analysis capabilities to support emerging and developing Maritime Patrol and Reconnaissance Intelligence Surveillance and Reconnaissance (ISR) sensor systems. *FY 2010 Plans:* Analysis: Continue Integration of Advanced Multi-static Acoustic Analysis Capabilities into Tactical Mobile Acoustic Support System (TacMASS). Continue integration of Non-Acoustic Electro Optical/ Infrared (EO/IR) Analysis capabilities. Begin to Develop/Integrate auto detection, tracking and screening capabilities to reduce acoustic analyst workload and increase ASW probability of detection. Begin to develop concurrent processing enhancements to increase processing capacity and reduce	0.717	0.951	0.745	0.000	0.745

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
processing time to support increased volume of recorded MPRA ASW acoustic data. Begin to integrate advanced Joint and Common display formats to enhance system Operator Machine Interface (OMI). *FY 2011 Base Plans:* Analysis: Continue test, assess and evaluate advanced multi static, digital and concurrent processing capabilities, automation capabilities, and advanced display formats. Begin development of enhanced broadband processing capabilities. Integrate Acoustic Intercept System updated screeners. Integrate analysis capabilities to support evolving data standards and media interfaces for Maritime Patrol Aircraft ISR and ASW sensor systems. Begin development and integration of Improved and Advanced Multi-Static Acoustic Analysis capabilities required to support fielding in P-8A Increment 2.0.					
NORAD-NORTHCOM Surveillance *FY 2011 Base Plans:* Commense NORAD-NORTHCOM Surveillance Tactical Command Systems.	0.000	0.000	7.100	0.000	7.100
Aircraft Interfaces *FY 2009 Accomplishments:* Media: Continued to develop new ground support capabilities to support capabilities being developed for Maritime Patrol and Reconnaissance Aircraft (MPRA). Continued transformation of TacMobile Command, Control, computers, Communications and Intelligence (C4I) ground support to include P-8A Multi-mission Maritime Aircraft (MMA) and Broad Area Maritime Surveillance Unmanned Aerial System (BAMS UAS), and other Command and Control (C2) and intelligence, Surveillance and Reconnaissance (ISR) platforms, to ensure platform Warfighting wholeness. Began integration and evaluation of discovery-search and storage services capable of providing persistent and reliable searchable access and storage as a proxy for the P-8A MMA produced data that satisfies the data sharing and data visibility tenets of the DoD Net-Centric Data Strategy. Continued research and study	0.538	0.864	0.643	0.000	0.643

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
of software application that stores shipwreck and bottom contour data for P-3C AMIP and allows the user to segment portions of this for a particular Area of Responsibility (AOR). *FY 2010 Plans:* Media: Continues to integrate new ground support capabilities to support capabilities being developed for Maritime Patrol and Reconnaissance Aircraft (MPRA) incorporating P-8A Multi-mission Maritime Aircraft (MMA). Continue to evaluate and assess those interfaces required to support Broad Area Maritime Surveillance Unmanned Aerial System (BAMS UAS) and other aircraft to ensure platform Warfighting wholeness. Identify, evaluate, and assess interfaces required for network-centric operations with various air platforms involved in airborne networks. Continue development of discovery-search and storage services capable of providing persistent and reliable searchable access and storage as a proxy for the P-8A MMA produced data that satisfies the data sharing and data visibility tenets of the DoD Net-Centric Data Strategy. *FY 2011 Base Plans:* Media: Continues to Test and Evaluate new ground support capabilities to support capabilities being developed for Maritime Patrol and Reconnaissance Aircraft (MPRA) incorporating P-8A Multi-mission Maritime Aircraft (MMA). Continue to evaluate and begin design for those interfaces required to support Broad Area Maritime Surveillance Unmanned Aerial System (BAMS UAS) to ensure platform Warfighting wholeness. Continue to evaluate and assess network-centric interfaces. Begin review and analysis of integration requirements for P-8A MMA Increment 2.0, and MPRA Special Project Aircraft (SPA) . Continue to evaluate and assess those interfaces required to support Broad Area Maritime Surveillance Unmanned Aerial System (BAMS UAS).					
Tactical Data Links *FY 2009 Accomplishments:* Tactical Data Links: Continue integration of software and communications capabilities to provide interoperable IP addressable high bandwidth data transmission to support persistent C2, sensor,	0.161	0.210	0.169	0.000	0.169

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
and interagency information capabilities. Continued development and began integration of a portable LINK-16 capability solution. *FY 2010 Plans:* Tactical Data Links: Continue to integrate and test Link-16 portable capability, Begin investigation of future Tactical Data Link (TADIL) requirements that transition from legacy systems to support emerging and evolving MPRA interface requirements while maintaining support for NATO Standardization Agreement (STANAG) defined minimum capabilities. *FY 2011 Base Plans:* Continue to explore emergent TADIL standards and MPRA interface requirements, and develop Analysis of Alternatives (AoA) for TacMobile TADIL transition roadmap. Conduct integrated testing of Tactical Data Links (TADILs) in conjunction with P-8A operational evaluation. Review and assess potential Link-11 sundown replacement options.					
Enterprise Solutions *FY 2009 Accomplishments:* Computers/Knowledge Management: Continued integration of Tactical Operations Center (TOC) and Mobile Tactical Operations Center (MTOC) configurations. Began development of next generation software and hardware that is modular and scalable, surgeable and sustainable, promoting responsiveness to mission requirements. Continued development of replacement for obsolete, maintenance-intensive hardware, eliminate legacy systems and technologies to reduce logistics tail and ease training burden. Studied integration of Distributed Common ground System Navy (DCGS-N) Intelligence Surveillance Reconnaissance (ISR) and Undersea Warfare (USW) Decision Support System (DSS) (USW-DSS) USW Battle Space Characterization capabilities and Global information Grid (GiG) Enterprise Services into TacMobile systems architecture.	0.921	1.301	1.040	0.000	1.040

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue of investigation into modern navy networking infrastructure appropriate for a tactical and mobile environment that comply with net ready, Defense Information Systems Agency (DISA) and Navy Net-Centric Operating standards that support evolutionary transition to a Services Oriented Architecture with Cross Domain accessibility . Design and develop network infrastructure to meet increased Intelligence Surveillance Reconnaissance (ISR) data volume, provide redundant back-up and disaster recovery Quality of Service (QOS). Integrate architectural updates to maintain evolving information assurance standards. *FY 2011 Base Plans:* Continue design tactical mobile networking infrastructure to comply with net ready, DISA and Navy Net-Centric Operating standards that support evolutionary transition to a Services Oriented Architecture with Cross Domain accessibility . Integrate, test and evaluate network infrastructure to meet increased ISR data volume, provide redundant back-up and disaster recovery QOS. Continue investigation into modern navy networking infrastructure appropriate for a tactical and mobile environment that comply with net ready, Defense Information Systems Agency (DISA) and Navy Net-Centric Operating standards that support evolutionary transition to a Services Oriented Architecture with Cross Domain accessibility . Study data at rest storage, data content management and security requirements for P-8A Increment 2.0 and Broad Area Maritime Surveillance Unmanned Aircraft System mission data. Begin integration of appropriate Distributed Common Ground System Navy (DCGS-N) capabilities.					
Command and Control (C2) *FY 2009 Accomplishments:* Command and Control (C2): Continue to investigate and implemente plans to integrate updates to Intelligence Preparation of the Battle Space capabilities to provide access to Signal Intelligence (SIGINT), Electronic Warfare (EW), and General Military Intelligence database products, into	0.276	0.258	0.202	0.000	0.202

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
TacMobile systems architecture. Investigate, initiate, and implement transition plans to future release of Global Command and Control System (GCCS) or follow on Joint Command and Control capability. *FY 2010 Plans:* Command and Control (C2): Continue to integrate appropriate C2 GCCS-M 4.0.1 follow on for integration to provide Intelligence Preparation of the Battle Space capabilities to provide access to Signal Intelligence (SIGINT), Electronic Warfare (EW), and General Military Intelligence database products, into TacMobile systems architecture and provides Common Operational Picture (COP) management, display, and processing capabilities that meet information assurance and interoperability standards. *FY 2011 Base Plans:* Continue to test and evaluate GCCS-M 4.0.1 follow on to provide Intelligence Preparation of the Battle Space capabilities, access to Signal Intelligence (SIGINT), Electronic Warfare (EW), and General Military Intelligence database products, and COP management, display, and processing capabilities that meet information assurance standards and maintain interoperability. Identify and begin integration of follow on Command and Control (C2) prototype. Investigate and study Maritime Patrol and Reconnaissance Force (MPRF) Commander Task Force (CTF) C2 requirements. Investigate and identify C2 track data correlation and fusion tool options.					
Mission Planning *FY 2009 Accomplishments:* Mission Planning: Continue to analyze Fleet requirement to identify unique Maritime Patrol fixed wing mission planning capabilities for P-3C and Command Control Communications Computers Intelligence Surveillance Reconnaissance (C4ISR) Ground Support Systems (Tactical Operations Centers (TOC) and Mobile Tactical Operations Centers (MTOC)). Began development of overarching Maritime Patrol Anti Submarine Warfare (ASW) mission planning user environment to operate with Joint Collaborative distributed networks that interface to existing Multistatic, Acoustic and Non Acoustic ASW mission	5.362	1.878	1.383	0.000	1.383

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
planning Tactical Decision Aids as well as ASW Decision Support Systems and Tactical Decision Aids (TDA) under development. Began development of Maritime Patrol weapons planning environment for weapons such as Standoff Land Attack Missile-Extended Range (SLAM-ER). Began integration of mission planning outputs to Maritime Patrol and Reconnaissance Aircraft (MPRA) flight, mission, and sensor systems for development of Aircraft Pre-flight Insertion Data (PID) and participation in coordinated ASW mission rehearsal. *FY 2010 Plans:* Mission Planning: Continue to integrate overarching Maritime Patrol ASW mission planning user environment to operate with Joint Collaborative distributed networks that interface to existing Multistatic, Acoustic and Non Acoustic ASW mission planning Tactical Decision Aids as well as ASW Decision Support Systems and TDA's under development. Integrate Maritime Patrol weapons planning environment for weapons such as SLAM-ER. Integrate mission planning outputs to MPRA flight, mission, and sensor systems for development of Aircraft Pre-flight Insertion Data and participation in coordinated ASW mission rehearsal. *FY 2011 Base Plans:* Mission Planning: Continue to Test and Assess Maritime Patrol ASW mission planning user environment. Test and Assess Maritime Patrol weapons planning environment. Test and Assess TacMobile systems Aircraft Pre-flight Insertion Data outputs. Study and evaluate P-8A Increment 2.0 and Broad Area Maritime Surveillance Unmanned Aerial System (BAMS UAS) mission planning, and begin prototype development of alternatives.					
MPRF Interoperability/TacMobile Footprint Reduction	0.000	4.412	3.861	0.000	3.861
FY 2010 Plans: Architecture Engineering: Continue to assess and analyze TacMobile systems for opportunities to enhance flexibility and mobility offsetting additional aircraft interface device size/weight/cube by developing and incorporating increased modularity to transition from hardware independent solutions.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Analyze convergence of Tactical Operations Center (TOC) and Mobile tactical Operations Center (MTOC) architecture toward common baseline to reduce platform unique training requirements and duplicative life cycle logistics costs. Explore automation of system functionality to reduce operator to operator and operator to machine interactions, to offset increasing workload as additional MPRA platforms and capabilities are introduced that require TacMobile systems support. Explore Solutions to minimize/consolidate MPRA media interface devices and streamline data transfer rates. *FY 2011 Base Plans:* Architecture Engineering: Continue to design for integration of modular and hardware independent solutions to reduce mobile system architecture footprint. Begin design for convergence of TSC and MOCC architecture toward common baseline to reduce platform unique training requirements and duplicative life cycle logistics costs. Analyze and assess alternative courses of action for incorporating automation of TacMobile system functionality to reduce operator workload, to offset increasing MPRF Intelligence Surveillance and Reconnaissance (ISR) Mission/Function/Task growth. Begin design to achieve reduction and consolidation of MPRA media interface devices and to streamline data transfer rates.					
Accomplishments/Planned Programs Subtotals	8.781	10.852	15.972	0.000	15.972

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Evolutionary Acquisition - Increment 2.0 provides enhanced Beyond Line of Site Global Information Grid reach back capability, and supports Maritime Situational Awareness connectivity enhancements for data exchange with Maritime Patrol and Reconnaissance Force (MPRF) aircraft and with Coalition data networks. It incorporates Anti Submarine Warfare (ASW) acoustical analysis improvements and new P-3 aircraft ASW interfaces. Increment 2.1 will support migration to a follow on GCCS-M version and introduction of the P-8A Multi-mission Maritime Aircraft. Future Increments will support introduction of the Broad Area Maritime Surveillance Unmanned Aerial System and other Maritime MPRF Family of Systems Aircraft and Systems.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 0486: *Tactical Support Center*

E. Performance Metrics

The primary metrics utilized by the TacMobile program development process, include achieving/maintaining all required Interface Exchange Requirements (IER's) and successful achievement of 100% of Key Performance Parameters for incremental upgrade threshold capabilities, as observed by Commander Operational Test Force representatives during Operational Evaluation. TacMobile Inc 2.1 development in FY-09 and FY-10 supports increased IER requirements of 486% from 112 to 544. Development to support these new IER's tapers off in FY-11 as the Increment enters the Operational Evaluation Phase. Development focus then shifts to efforts required to retain fielded IER's and update IER's to comply with emerging and evolving standards and evolving operational employment concepts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

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	1.226	1.832	Oct 2010	1.670	Oct 2011	0.000		1.670	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	Various Various	20.212	2.985	Oct 2010	8.932	Oct 2011	0.000		8.932	Continuing	Continuing	Continuing
Training Development	Various/ Various	Various Various	0.200	0.427	Oct 2010	0.384	Oct 2011	0.000		0.384	Continuing	Continuing	Continuing
		Subtotal	21.638	5.244		10.986		0.000		10.986			

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	36.810	2.919	Oct 2010	2.085	Oct 2011	0.000		2.085	Continuing	Continuing	Continuing
Integrated Logistics Support	Various/ Various	Various Various	0.000	0.125	Oct 2010	0.225	Oct 2011	0.000		0.225	Continuing	Continuing	Continuing
Configuration Management	Various/ Various	Various Various	0.000	0.100	Oct 2010	0.175	Oct 2011	0.000		0.175	Continuing	Continuing	Continuing
Technical Data	Various/ Various	Various Various	0.000	0.160	Oct 2010	0.220	Oct 2011	0.000		0.220	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

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	0.000	0.325	Oct 2010	0.100	Oct 2011	0.000		0.100	Continuing	Continuing	Continuing
		Subtotal	36.810	3.629		2.805		0.000		2.805			

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	SSC LANT Charleston, NC	0.000	0.600	Oct 2010	0.800	Oct 2011	0.000		0.800	Continuing	Continuing	Continuing
Operational Test & Evaluation	Various/ Various	OPTEVFOR Not Specified	3.585	0.226	Oct 2010	0.250	Oct 2011	0.000		0.250	Continuing	Continuing	Continuing
		Subtotal	3.585	0.826		1.050		0.000		1.050			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

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	0.050	0.210	Oct 2010	0.220	Oct 2011	0.000		0.220	Continuing	Continuing	Continuing
Government Engineering Support	Various/ Various	SSC LANT Charleston, NC	0.200	0.387	Oct 2010	0.384	Oct 2011	0.000		0.384	Continuing	Continuing	Continuing
Program Management Support	Various/ Various	SSC LANT Charleston, NC	11.641	0.519	Oct 2010	0.494	Oct 2011	0.000		0.494	Continuing	Continuing	Continuing
Travel	Various/ Various	SSC LANT Charleston, NC	0.030	0.037	Oct 2010	0.033	Oct 2011	0.000		0.033	Continuing	Continuing	Continuing
		Subtotal	11.921	1.153		1.131		0.000		1.131			

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	73.954	10.852		15.972		0.000		15.972			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 0486: *Tactical Support Center*

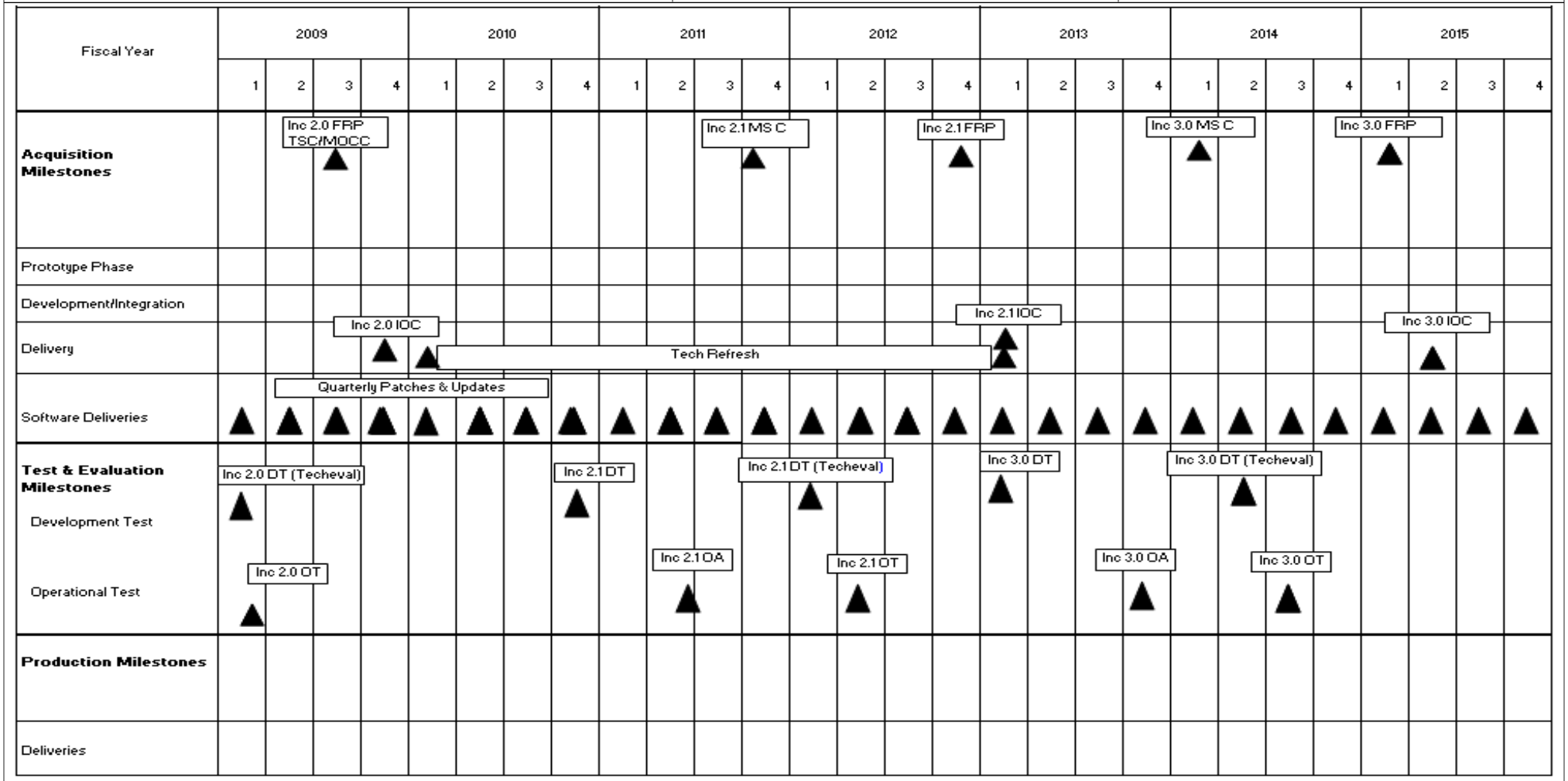


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Software Delivery (Quarterly)	1	2009	4	2015
Developmental Test (Increment 2.0 Tech Eval)	1	2009	1	2009
Operational Test (Increment 2.0)	1	2009	1	2009
Full Rate Production (Increment 2.0)	3	2009	3	2009
Initial Operational Capability (Increment 2.0) (TSC/MOCC)	4	2009	4	2009
Tech Refresh Delivery	1	2010	1	2013
Developmental Test (Increment 2.1)	4	2010	4	2010
Operational Assessment (Increment 2.1)	2	2011	2	2011
Milestone C (Increment 2.1)	4	2011	4	2011
Developmental Test (Increment 2.1 Tech Eval)	1	2012	1	2012
Operational Test (Increment 2.1)	2	2012	2	2012
Full Rate Production (Increment 2.1)	4	2012	4	2012
Initial Operational Capability (Increment 2.1) (TSC/MOCC)	1	2013	1	2013
Developmental Test (Increment 3.0)	1	2013	1	2013
Operational Assessment (Increment 3.0)	4	2013	4	2013
Milestone C (Increment 3.0)	1	2014	1	2014
Developmental Test (Increment 3.0 Tech Eval)	2	2014	2	2014
Operational Test (Increment 3.0)	3	2014	3	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0486: *Tactical Support Center*

	Start		End	
Event	Quarter	Year	Quarter	Year
Full Rate Production (Increment 3.0)	1	2015	1	2015
Initial Operational Capability (Increment 3.0) (TSC/MOCC)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0521: *Shipboard Tactical Intel Proc*	

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
0521: *Shipboard Tactical Intel Proc*	3.803	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	51.330
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

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 (MIDB) 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 also continued the transition to Commercial Off The Shelf (COTS) hardware and software. The Navy's I3 effort is part of the Military Intelligence Program (MIP) program, managed by the Secretary of Defense through the Assistant Secretary of Defense for Command, Control, Communications, Computers and Intel (C4I). Efforts in FY08 will entail preparation for Operational Evaluation (OPEVAL), and software development to address emerging Fleet requirements in areas such as Maritime Interdiction Operations (MIO), Maritime Domain Awareness (MDA), and sharing unique Navy sensor information across the DCGS enterprise.

Beginning in FY10, I3 Applications funding will be realigned to the Distributed Common Ground System - Navy Program Element 0305208N Project 2174.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
C2 Fires Integration	1.017	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY09: Continued to conduct operational testing, and provided the technical migration of standardized, linked intelligence and imagery software tools and services from a platform-centric model to a services oriented architecture, ensuring accessibility and analysis / targeting support based on current / next generation sensors and data streams including Moving Target Indicator (MTI), Unmanned Aerial Sensors (UASs), and the Distributed Common Ground Station (DCGS) joint enterprise.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0521: *Shipboard Tactical Intel Proc*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Imagery/Video Processing *FY 2009 Accomplishments:* FY09: Imagery Exploitation - Continued to conduct operational testing and new software development to provide the capability for Commanders, their battle staffs, and supporting intelligence analysts to exploit ISR from current/next generation sensors and data streams including Moving Target Indicator (MTI), Unmanned Aerial Sensors (UASs), and the DCGS joint enterprise.	0.852	0.000	0.000	0.000	0.000
Threat Order of Battle (OOB) *FY 2009 Accomplishments:* FY09: Continued to conduct operational testing and began new development to provide intelligence data and tools in a service-oriented architecture including support for maritime interdiction operations, Maritime Domain Awareness (MDA), and end to end intelligence analysis tools that leverage Modernized Integrated Database (MIDB), National Geospatial-Intelligence Agency (NGA) related digital mapping and imagery products, and other intelligence support streams, while continuing to ensure joint intelligence interoperability across the Global Command and Control System (GCCS) and Distributed Common Ground Station (DCGS) enterprise.	1.915	0.000	0.000	0.000	0.000
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded Acquisition Workforce Fund.	0.019	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	3.803	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0521: *Shipboard Tactical Intel Proc*

E. Performance Metrics

Milestone reviews.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0709: *GCCS-M Maritime Applications*	

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
0709: *GCCS-M Maritime Applications*	19.995	19.275	28.216	0.000	28.216	19.581	20.789	20.272	20.373	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Global Command and Control System Maritime (GCCS-M) system is the component of GCCS used in the afloat, ashore, and tactical/mobile maritime environments. GCCS-M meets the requirements of the tactical commander for a near real-time, fused common tactical picture with integrated intelligence services and databases. GCCS-M supports the Command, Control, Communication, Computers and Intelligence mission requirements of the Chief of Naval Operations, Fleet Commanders, Numbered Fleet Commanders, Officer in Tactical Command/Composite Warfare Commander, Type Commanders, Commander Submarine Operations Authority, Commander Task Force, Commander Amphibious Task Force, Commander Landing Force, Ship's Commanding Officer/Tactical Action Officer, and Joint Task Force Commanders, as well as other functional Maritime commanders. It also integrates both joint and service-unique Command and Control systems in order to support Joint task force and Navy afloat requirements. Efforts include design, integration, and test of Tactical Decision Aids, Navy Status of Forces, mission planning and status update tools, and integration of GCCS-M baselines with weapons systems and Combat Direction Systems. These efforts will provide the strike group/force commanders with the information needed to enhance their war fighting capabilities. System scalability is addressed by developing modular capability and application sets that can be deployed based on the mission profile of a particular ship. Continuation of these efforts, especially in the area of undersea superiority, will significantly enhance tactical units' ability to perform precision engagements by consolidating the common operational and undersea tactical pictures into a single comprehensive Command and Control (C2) picture, addressing the requirement of War fighters and significantly improving interoperability. GCCS-M continues a hardware transition to Common Computing Environments such as Consolidated Afloat Networks and Enterprise Services along with a transition of capabilities into a Service Oriented Architecture. Currently, GCCS-M is a key system that is used to support real world operations afloat, ashore, and with tactical/mobile commanders. In FY2011, the program will focus on operational testing of GCCS-M Increment 2 for Force and Unit Level ships. Also, in FY2011, the program will develop, test and accredit GCCS-M Increment 2 for Group Level ships. Finally, in FY2011, the program will continue integration efforts with other C2 / Command, Control, Communication and Computers systems within the Navy and Joint community. FY11 program office will begin development of maritime tactical command and control capabilities in support of fleet requirements.

FY 2011 OCO - N/A

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0709: *GCCS-M Maritime Applications*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
GCCS-M Increment 2	5.928	8.101	24.398	0.000	24.398
FY 2009 Accomplishments: Continued integration and tested Global Command and Control System Maritime (GCCS-M) interfaces with organic shipboard systems to ensure integrity and accessibility of the Global Common Operating Picture (COP) 100K track database. Integrated and tested interfaces with Tactical Data Links. Integrated and tested the Global COP's filtering and management enhancements. Integrated and tested Integrated Imagery and Intelligence interfaces. Integrated and tested enhancements in force projection (enhanced WebSked), force readiness (Navy Status of Forces enhancements), force employment-maritime/littoral operations (enhanced Water Space Management and undersea warfare capabilities), force protection (Joint Effects Model/Joint Warning And Reporting Network), and other cross functional areas such as collaboration, messaging, and information assurance. Tested in the Common Computing Environment/Consolidated Afloat Networks and Enterprise Services (CCE/ CANES) environment to ensure that capabilities transitioning into a Service Oriented Architecture (SOA) are effective and suitable for Fleet use.					
FY 2010 Plans: Continue GCCS-M Increment 2 integration and testing of interfaces. Develop and test interfaces with Program Executive Office Integrated Warfare Systems (PEO IWS) Command and Control (C2) systems, Ship Self-Defense Systems (SSDS) and systems from other Services, Agencies, and traditional and non-traditional partners. Migrate and integrate Maritime Command, Control, Communication, Computers and Intelligence capabilities in Increment 2 for Group and Unit Level ships to the CCE/CANES environment. Investigate and adopt SOA, open standards-based design and data management methodologies, where appropriate.					
FY 2011 Base Plans: Continue GCCS-M Increment 2 integration and testing of interfaces. Transition GCCS-M Increment 2 for Unit Level, Group Level, and Force Level ships to the CCE/CANES environment. Continue developing and testing interfaces with PEO IWS C2 systems, (SSDS) and systems from other					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0709: *GCCS-M Maritime Applications*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Services, Agencies, and traditional and non-traditional partners. Investigate and adopt SOA, open standards-based design and data management methodologies, where appropriate. FY11 program office will begin development of maritime tactical command and control capabilities in support of fleet requirements.					
Acquisition Workforce Fund *FY 2009 Accomplishments:* Completed the funding for the acquisition workforce fund.	0.101	0.000	0.000	0.000	0.000
Undersea Superiority/Undersea Forcenet *FY 2009 Accomplishments:* Continued the development of effort funds development of Undersea FORCEnet capabilities to support a real-time command and control capability of all Undersea Warfare (USW) assets (Maritime Patrol Aircraft (MPA) & Submersible Ship, Nuclear (SSN)). The ASW (Anti-Submarine Warfare) Commander had a requirement for robust track management capabilities to support contact fusion, correlation and synchronization to improve operators ability to manage contacts on system displays in light of the high density of contacts, latency of reports, lack of filtering and numerous track input option. This effort funded development and integration of USW track correlation and data fusion capabilities into Global Command and Control System Maritime (GCCS-M) Increment 2. Efforts also identified and implemented Human Systems Integration (HSI) and display management improvements within the system. This effort also supported development of low confidence level track types to allow ASW community to share information on possible enemy submarine before elevating to a track in the Common Operational Picture. This effort also supported continued transition of ASW-demonstrated capabilities into GCCS-M Program of Record. *FY 2010 Plans:* Finalize and complete integrating and testing Undersea FORCEnet capabilities into the GCCS-M Increment 2 baseline. Begin Composeable FORCEnet (CFn) migration to the Common Computing	13.966	11.174	2.089	0.000	2.089

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0709: *GCCS-M Maritime Applications*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Environment, a precursor to Consolidated Afloat Network Enterprise System (CANES). These capabilities will be integrated into the Force Level and Ashore baseline implementations. *FY 2011 Base Plans:* Finalize and complete CFn migration to the GCCS M Increment 2 Force level baseline. Continue integration of additional data sources and interfaces as required to meet program objectives.					
Navy C2 Air Planning Capability *FY 2011 Base Plans:* Start the Command and Control (C2) Air Planning Capability portion which provides initial engineering for software application transition to an afloat Common Computing Environment (CCE) and requirements development to support increased Joint interoperability and enhanced capability including theater level planning plus distributed planning and execution processes.	0.000	0.000	1.729	0.000	1.729
Accomplishments/Planned Programs Subtotals	19.995	19.275	28.216	0.000	28.216

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/2608: *Trusted Information Systems*	23.468	13.552	0.338	0.000	0.338	0.471	0.539	0.535	0.555	Continuing	Continuing
• OPN/2618: *Navy Command and Control System*	0.000	0.000	8.920	0.000	8.920	3.778	7.191	10.065	8.666	Continuing	Continuing

D. Acquisition Strategy

Increment 2 delivers two different materiel solutions: (1) Force Level, based on the GCCS-J 4.2 or higher software, and (2) Group and Unit Level, based on the Office of Naval Research (ONR) extensible Common Operational Picture (XCOP) software. This approach satisfies the current validated requirements, supports the accelerated retirement of legacy systems, and reduces overall risk to the program. Each solution will integrate maritime-specific capabilities and will be scalable to the ship class.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 0709: *GCCS-M Maritime Applications*

The Global Command and Control System-Maritime (GCCS-M) Program Office promotes full and open competition by competitively awarding software and Fleet support engineering services contracts. Additionally, the Program Office has awarded a Command and Control (C2) Indefinite Delivery Indefinite Quantity (IDIQ) Multi-Award Contract (MAC) from which task orders will be competitively awarded to one of the C2 IDIQ MAC awardees. Any contract awards for software development subsequent to the Milestone C will also be competitively awarded.

E. Performance Metrics

GCCS-M Increment 2 leverages software investments by Defense Information Systems Agency (DISA) and ONR to realize both the Force Level and Group/Unit Level material solutions. This leverage greatly reduces the integration and testing costs associated with each software release. The Force Level solution will reside on Common Computing Environment/Consolidated Afloat Networks and Enterprise Services (CCE/CANES) architecture; the Group/Unit Level solution will be implemented on the current/future infrastructure. These Increment 2 software-only solutions eliminate the GCCS-M hardware procurement, installation and sustainment costs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0709: *GCCS-M Maritime Applications*

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	29.141	6.546	Nov 2009	12.710	Nov 2010	0.000		12.710	Continuing	Continuing	Continuing
		Subtotal	29.141	6.546		12.710		0.000		12.710			

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	76.502	6.541	Nov 2009	9.898	Nov 2010	0.000		9.898	Continuing	Continuing	Continuing
		Subtotal	76.502	6.541		9.898		0.000		9.898			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0709: *GCCS-M Maritime Applications*

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	0.500	0.500	Nov 2009	1.675	Nov 2010	0.000		1.675	Continuing	Continuing	Continuing
Operational Test & Evaluation	Various/ Various	Various Various	3.030	1.000	Nov 2009	1.675	Nov 2010	0.000		1.675	Continuing	Continuing	Continuing
		Subtotal	3.530	1.500		3.350		0.000		3.350			

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	1.976	1.947	Nov 2009	0.000		0.000		0.000	0.000	3.923	2.976
Program Management Support	Various/ Various	Various Various	16.240	2.741	Nov 2009	2.258	Nov 2010	0.000		2.258	Continuing	Continuing	Continuing
Acquisition Workforce	Various/ Various	Various Various	0.101	0.000		0.000		0.000		0.000	0.000	0.101	Continuing
		Subtotal	18.317	4.688		2.258		0.000		2.258			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0709: *GCCS-M Maritime Applications*	

	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	127.490	19.275		28.216		0.000		28.216			

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 0709: *GCCS-M Maritime Applications*

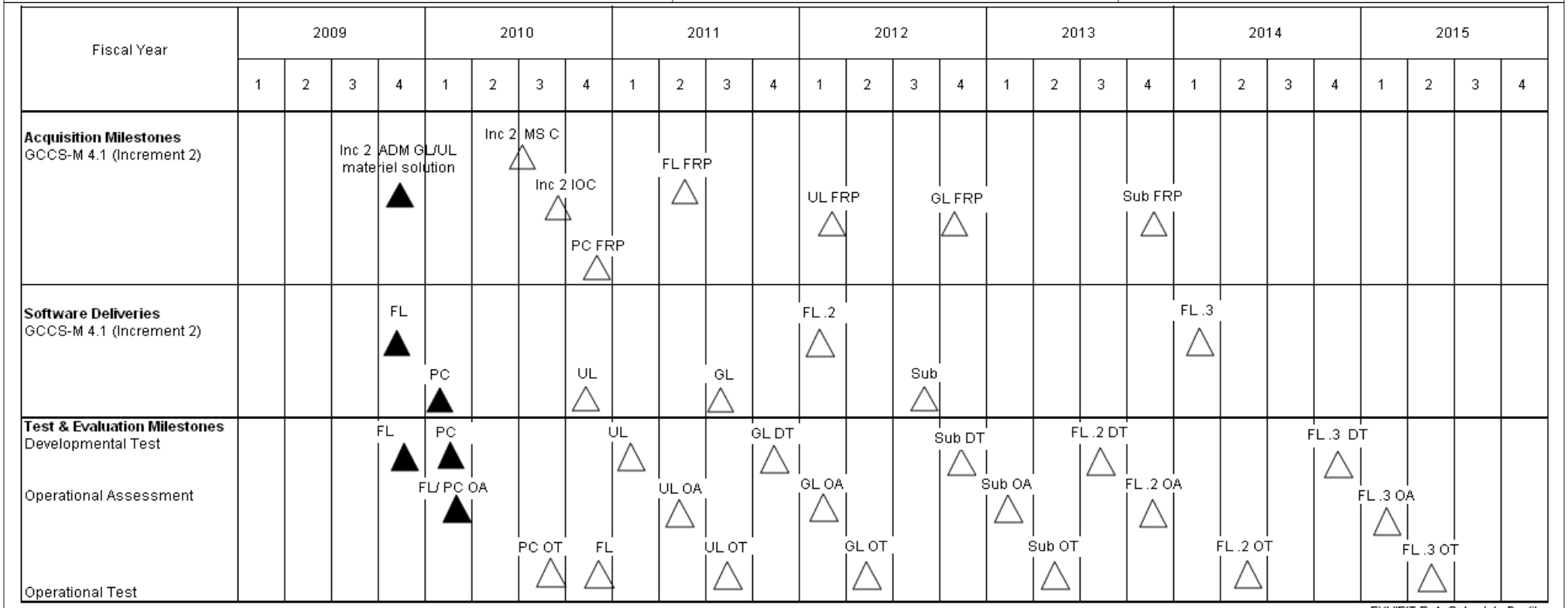


EXHIBIT R-4, Schedule Profile

Legend:
FRP - Full Rate Production
PC - Patrol Craft
FL - Force Level
GL - Group Level
UL - Unit Level
DT - Developmental Test
OT - Operational Test
OA - Operational Assessment

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 0709: *GCCS-M Maritime Applications*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Increment 2 ADM GL/UL materiel solution	4	2009	4	2009
Force Level (FL) - software delivery	4	2009	4	2009
Force Level - Developmental Test (DT)	4	2009	4	2009
Patrol Craft (PC) - software delivery	1	2010	1	2010
Patrol Craft - developmental test	1	2010	1	2010
Force Level/Patrol Craft - Operational Assessment (OA)	1	2010	1	2010
Increment 2 Milestone C	3	2010	3	2010
Increment 2 - Initial Operating Capability (IOC)	3	2010	3	2010
Patrol Craft - Operational Test (OT)	3	2010	3	2010
Patrol Craft - Full Rate Production (FRP)	4	2010	4	2010
Unit Level (UL) - software delivery	4	2010	4	2010
Force Level - Operational Test	4	2010	4	2010
Unit Level - Developmental Test	1	2011	1	2011
Force Level - Full Rate Production	2	2011	2	2011
Unit Level - Operational Assessment	2	2011	2	2011
Group Level (GL) - software delivery	3	2011	3	2011
Unit Level - Operational Test	3	2011	3	2011
Group Level - Developmental Test	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 0709: *GCCS-M Maritime Applications*

	Start		End	
Event	Quarter	Year	Quarter	Year
Unit Level - Full Rate Production	1	2012	1	2012
Group Level - Operational Assessment	1	2012	1	2012
Force Level.2 - software delivery	1	2012	1	2012
Group Level - Operational Test	2	2012	2	2012
Sub - software delivery	3	2012	3	2012
Group Level - Full Rate Production	4	2012	4	2012
Sub - Developmental Test	4	2012	4	2012
Sub - Operational Assessment	1	2013	1	2013
Sub - Operational Test	2	2013	2	2013
Force Level.2 - Developmental Test	3	2013	3	2013
Sub - Full Rate Production	4	2013	4	2013
Force Level.2 - Operational Assessment	4	2013	4	2013
Force Level.3 - software delivery	1	2014	1	2014
Force Level.2 - Operational Test	2	2014	2	2014
Force Level.3 - Developmental Test	4	2014	4	2014
Force Level.3 - Operational Assessment	1	2015	1	2015
Force Level.3 - Operational Test	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2009: *OSIS Evolutionary Development (OED)*	

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
2009: *OSIS Evolutionary Development (OED)*	1.084	1.306	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	31.062
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Radiant Mercury (RM): Trusted Information System (TIS) RM is a system that successfully provides accredited Cross Domain Solutions (CDS) to the Navy, DoD, and intelligence Community. TIS RM is a critical component of network-centric warfare, supporting joint operations and coalition forces world-wide. The ability to pass sensitive, yet critical, data across security domains and to our Coalition partners in a timely fashion can only be met by accredited Cross Domain Solution (CDS) systems such as RM. RM enables US Navy to operate in a multi-national environment.

TIS RM provides automated, bi-directional sanitization, transliteration and guarding capability for formatted and unformatted data between security enclaves. RM helps ensure critical intelligence is provided quickly to operational decision-makers. TIS RM provides the capability to disseminate information for operating forces worldwide, including the operating forces of key allies in Pacific, Central and Europe Command regions. This capability to move all-source intelligence-derived track information into the realm of the operational community significantly improves the situational awareness of tactical operators and planners. Additionally, it assists in providing critical operational information to intelligence and cryptologic analysts. Unformatted data is handled by the Information Review Process. The system provides cross domain services to a wide variety of customers including Combatant Commanders, Air Force (Shared Early Warning program), Army (Blue Force Tracking program), Navy (Global Command and Control System - Maritime and Automatic Identification System), Maritime Operations Centers, Distributed Common Ground System-Navy, Tactical Ranges, and numerous other DoD and Intelligence agencies.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Radiant Mercury (RM)	1.084	1.306	0.000	0.000	0.000
FY 2009 Accomplishments: Ported RM software from Trusted Solaris 8 Trusted Extension to Trusted Solaris 10 Trusted Solaris Trusted Extension. Factory Acceptance and Alpha Tests were conducted to test added functionalities.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2009: *OSIS Evolutionary Development (OED)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RM 5.0's new capabilities to include IPv6, web-based interface for status control, wider hardware options, multiple configuration management, enhanced parsing and formatting using Commercial-off-the-shelf (COTS) Extended Markup Language (XML) tools, remote monitoring and centralized account/configuration object management. Investigated and developed support for emerging communication mechanisms. Continued the development, integration and testing of emerging unformatted file types. Developed criteria and procedures for system verification and validation in anticipation of updated information assurance and cross-domain policies. *FY 2010 Plans:* Investigate a follow-on update to version 5.0 to address emerging Cross Domain Solution requirements. Investigate and develop support for emerging communication mechanisms. Continue the development, integration and testing of emerging unformatted file types. Continue to investigate technologies related to collaboration. Identify new requirements capabilities needed by the Navy programs and non-Navy customers post Radiant Mercury Version 5.0					
Accomplishments/Planned Programs Subtotals	1.084	1.306	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Provide and develop certified, accredited Cross Domain Solution (CDS) and transfer capabilities to the Department of Defense and Intelligence Community, and provide the capability to disseminate and receive operational and intelligence information for 100% of authorized sites.
Complete 100% of certification, system and security testing of Radiant Mercury (RM) version 5.x for release. Provide the capability to sanitize, downgrade, guard, and transliterate formatted data at various classifications, compartments and releasabilities to combat and operational commanders, coalition and allied forces at over 330 sites world wide.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2213: *Mission Planning*	

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
2213: *Mission Planning*	18.440	18.704	16.345	0.000	16.345	15.830	6.477	6.628	6.765	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Mission Planning: The Joint Mission Planning System (JMPS) is the CNO's designated automated mission planning system for the Navy. JMPS enables weapon system employment by providing the information, automated tools, and decision aids needed to rapidly plan aircraft, weapon, or sensor missions, load mission data into aircraft and weapons, and conduct post-mission analysis. JMPS is a mission critical system which is a co-development effort between the United States Navy (USN), United States Air Force (USAF), United States Army (USA), and United States Special Operations Command (USSOCOM). Common requirements are identified and capabilities are developed and prioritized in an evolutionary approach. An individual JMPS mission-planning environment (MPE) is a combination of the JMPS framework, common capabilities, and the necessary system hardware required to satisfy mission planning objectives. Most Tactical Naval Aviation platforms are dependent solely on JMPS to plan precision guided munitions, sensor systems, tactical data links, secure voice communications, and basic Safety of Flight functions. The following type/model/series naval aircraft are supported by JMPS: F/A-18 A-F, E-2C, EA-6B, S-3, MV-22 and AV-8B. Future JMPS platforms include: CH-46E, CH-53, MH-53E, H-60B/F/H, UH-1N, P-3, KC-130T/J, C-2, AH-1W/Z, EA-18G, H-60 R/S, follow-on version of VH-71, P-8, E-2D, UH-1Y, H-53K, VH-3, VH-60 and C-130. As directed via the CNO's Navy Enterprise Architecture and Data Strategy (NEADS) policy, the next JMPS architecture version (Framework V 1.4) will support net-centric goals by providing route "publish and subscribe" capabilities.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
JMPS Version 1.2.4, FRAMEWORK V1.4 & CC	4.653	0.928	0.102	0.000	0.102
JMPS Framework Version 1.2.4 efforts: development of common helo tool sets and navigation functionality and common helo transfer devices. Funding for FW 1.4 will be used to support system engineering processes, management interface controls, software architectural analysis, requirements management and a centralized website for MPE developers. Migration to .net environment in framework versions 1.3 & 1.4 will enable interoperability improvements through utilization of the SOA and supported by the Global Information Grid-Enterprise Services (GIG-ES). Common Capabilities					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2213: *Mission Planning*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(CC) software updates augment core mission planning capabilities across multiple aircraft. No further CCs are funded within current budget controls. *FY 2009 Accomplishments:* Completed Integrated Baseline Review, Interim Design Review, System Requirements Review and Preliminary Design Review #1. *FY 2010 Plans:* Plan to complete Interim Design Review #2, Beta Releases #1, and #2 and release of Framework 1.4 software. *FY 2011 Base Plans:* JMPS Framework 1.4 Functional Qualification Test (FQT) and Operational Test Readiness Review (OTRR).					
JMPS Expeditionary (JMPS-E)	1.688	0.470	0.325	0.000	0.325
JMPS Expeditionary (JMPS-E): The goal of the JMPS-E team is to produce a scalable, tailorable, mission planning and execution monitoring tool for Amphibious Squadron staffs. The primary focus of this system is to provide an automated capability to assist planners with mission analysis, course of action development and automated creation of doctrinal orders based on planning data inputted into the system. Current expeditionary planning is done manually on paper charts. JMPS-E will provide a digital map allowing for better response times to changing plans, easier distribution of planning artifacts and a reduction in human error during the planning process. The variety and geographically separated nature of forces involved with Ship to Shore Maneuver amplifies the need for web-based technologies to enable collaborative planning, improve overall situational awareness and enable the monitoring of mission execution from different locations. The primary outputs are tasking orders, route plans, battlespace geometries and decision briefs. The system will also incorporate modeling and simulation					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2213: *Mission Planning*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
tools to rehearse and deconflict mission plans. This capability will be initially fielded using Framework Version 1.2.4. *FY 2009 Accomplishments:* JMPS-E software version 1.2.1 was released for developmental testing in July 09. *FY 2010 Plans:* Plan to conduct operational testing in March 2010; plan to initially field JMPS-E version 1.2.1 to PHIBRON 3 in May 2010. Full Operational Capability (FOC) fielding to seven PHIBRONs planned to begin in 2010. *FY 2011 Base Plans:* Plan to continue FOC fielding in FY11. Plan to begin software development of JMPS-E version 2.0.					
MPE Integration and Test Mission Planning Environment (MPE) Integration and Test efforts support the Navy's developmental testing/operational testing (DT/OT), integration and system of system testing for MPE fielding. Efforts consist of integration of components provided by various developers into a platform-centric MPE and testing of the integrated MPE. MPE integration and testing results in a consistent and repeatable system configuration that enables stability and reliability. Current budget supports the integration and testing of 21 MPEs in FY10. *FY 2009 Accomplishments:* Integration and test of thirty-one (31) MPEs in progress; six (6) MPEs were completed and fleet released: AV-8B H50 2.1.0, EA-6B I2B4 (Release 3), EA-6B I3B3 (Release 4), F/A-18 H5E/21X 2.2.0, E-2C 2.0, C-2A 1.0; one Maritime Patrol Reconnaissance Force (MPRF) MPE prototype was completed.	12.099	17.306	15.918	0.000	15.918

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2213: *Mission Planning*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Integration & test of twenty-nine MPEs are planned: AV-8B H50 2.1.0, AV-8B H60 3.0, AV-8B H70 4.0, BAMS 1.0, C-130 1.0, C-2A 1.0, C-2A 2.0, CNATRA 1.0, CNATRA 1.1, E-2C 2.0, E-2C 3.0, E-2C 4.0, E-2D 1.0, EA-6B I3B4 (Rel 5), EA-6B I3B5 (Rel 6), F/A-18 H6E/23X (2.3), F/A-18 H8E/G (2.4), JMPS-E 1.0, Marine Helo 2.0, Marine Helo 2.1, Marine Helo 3.0, MH-60 R/S 1.0, MH-60 R/S 2.0, Maritime Patrol Reconnaissance Force 1.0, Navy Legacy Helo 1.0, P-3 2.0, P-3 3.0, V-22 1.2 and VH-3/VH-60 1.0. *FY 2011 Base Plans:* Integration and test of twenty-one (21) MPEs are planned.					
Accomplishments/Planned Programs Subtotals	18.440	18.704	16.345	0.000	16.345

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/287600: *TAC A/C Mission Plng System*	9.484	9.074	9.098	0.000	9.098	9.465	4.885	5.159	6.448	Continuing	Continuing
• RDTE/3858: *A/P Mission Plng Support System*	97.296	91.995	99.261	0.000	99.261	101.224	101.635	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy

Engineering Manufacturing Development (EMD) efforts. The strategy entails a two-phased evolutionary approach to acquire the initial JMPS development effort. Phase I was a combined USAF/USN effort that obtained various studies, extensive joint requirements analysis, design to cost estimates, an architecture concept, and development statement of work. The Program's Phase I was planned to identify reduced costs strategies through software reuse from both USN Tactical Automated Mission Planning Systems (TAMPS) and USAF Air Force Mission Support Systems (AFMSS) legacy mission planning programs. Additionally, this phase provided a risk reduction plan by identifying the most effective migration of existing mission planning systems. Phase I was awarded to two contractors, Post Phase I during the down select process, one contractor was selected to develop the JMPS architecture work and Version 1.0 basic flight planning components. Phase II focused

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2213: *Mission Planning*

on strike planning requirements (i.e., support Precision Guided Missions and other tactical data load intensive missions) in order to migrate platforms from legacy mission planning systems to JMPS. The USAF continued development of JMPS Version 1.3 and has contractual control of the program which is facilitated via a Mission Planning Enterprise Contract (MPEC). The USN continued limited development in JMPS Version 1.2 which is focused on helicopter platform migrations. USN integration and fielding strategy changed to support a Mission Planning Environment (MPE) focus, where framework and common components are integrated as bundled packaged and fielded by airwings. The completion of Phase II is targeted for JMPS Version 1.4, which focuses on migration to a net architecture and rejoins the multi-service enterprise to reduce costs through co-development. As platforms plan their migration to JMPS, the acquisition strategy, plan, and baseline will be updated in order to drive the retirement of legacy mission planning systems.

E. Performance Metrics

Average time to plan a flight: Threshold value is < 1 hour average time to plan a flight that includes a Military Training Route (MTR), routing to and from the MTR, producing kneeboard cards, Instrument Flight Rules (IFR) flight planning materials and a Data Transfer Device (DTD) Load.
Objective value is < 30 minutes average time to plan a flight that includes a Military Training Route (MTR), routing to and from the MTR, producing kneeboard cards, Instrument Flight Rules (IFR) flight planning materials and a Data Transfer Device (DTD) Load.

Interoperability: Threshold value is 100% of top level IERs designated critical will be satisfied.
Objective value is 100% of top level IERs will be satisfied.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2213: *Mission Planning*

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/CC	C/CPAF	USAF Hanscom AFB, MA	0.001	0.001	Mar 2010	0.001	Mar 2011	0.000		0.001	Continuing	Continuing	Continuing
Primary Hardware Development/FW	C/CPAF	USAF Hanscom AFB, MA	20.540	0.778	Mar 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Primary Hardware Development/JMPS-E	C/CPFF	USAF Hanscom AFB, MA	3.971	0.310	Mar 2010	0.343	Feb 2011	0.000		0.343	Continuing	Continuing	Continuing
Primary Hardware Development	SS/CPIF	Northrop Grumman VA	68.091	0.000		0.000		0.000		0.000	0.000	68.091	Continuing
Primary Hardware Development	Various/ Various	Various Various	13.164	2.614	Dec 2009	1.925	Jan 2011	0.000		1.925	0.000	17.703	Continuing
Award Fees 9%	Various/ Various	Various Various	1.543	0.136		0.061		0.000		0.061	0.000	1.740	Continuing
FY99-06	Various/ Various	Various Various	15.791	0.000		0.000		0.000		0.000	0.000	15.791	Continuing
		Subtotal	123.101	3.839		2.330		0.000		2.330			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2213: *Mission Planning*

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	SPAWAR Philadelphia, PA	11.538	0.000		0.000		0.000		0.000	0.000	11.538	Continuing
Integrated Logistics Support	C/CPAF	Lockheed Martin Marlton, NJ	0.000	0.876	Jan 2010	0.400	Jan 2011	0.000		0.400	0.000	1.276	Continuing
Integrated Logistics Support	WR	NAWCWD Point Mugu, CA	0.000	0.000		0.500	Jan 2011	0.000		0.500	0.000	0.500	Continuing
		Subtotal	11.538	0.876		0.900		0.000		0.900	0.000	13.314	

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
System Eng Integration & Test	WR	NAWCWD Point Mugu, CA	35.710	11.669	Dec 2009	11.415	Dec 2010	0.000		11.415	Continuing	Continuing	Continuing
Test & Evaluation	WR	COTF Norfolk, VA	0.287	0.564	Jan 2010	0.150	Jan 2011	0.000		0.150	Continuing	Continuing	Continuing
		Subtotal	35.997	12.233		11.565		0.000		11.565			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2213: *Mission Planning*

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	NAWCAD Patuxent River, MD	26.845	1.756	Dec 2009	1.550	Dec 2010	0.000		1.550	Continuing	Continuing	Continuing
		Subtotal	26.845	1.756		1.550		0.000		1.550			

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	197.481	18.704		16.345		0.000		16.345			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2213: *Mission Planning*

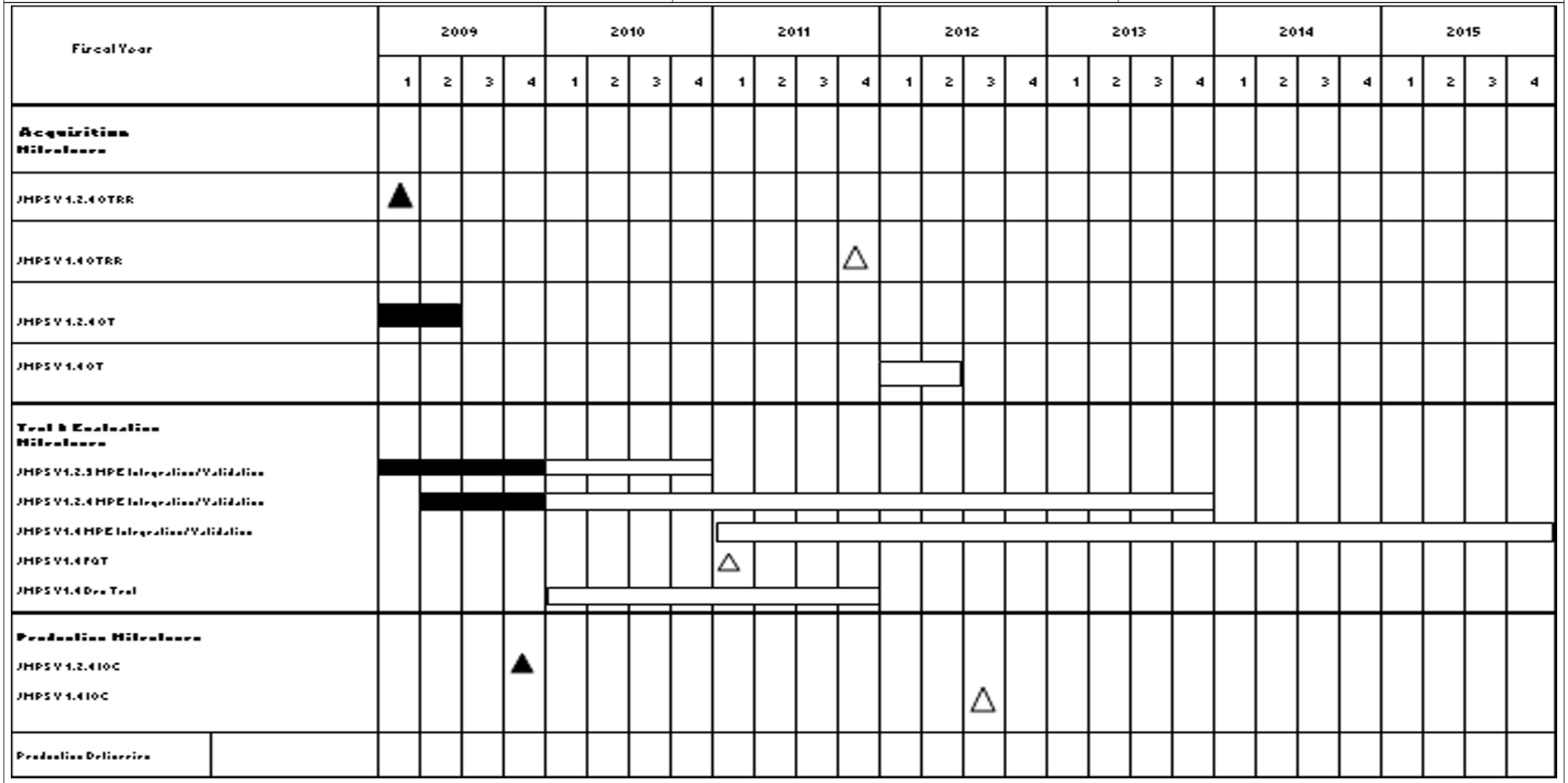


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 2213: *Mission Planning*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
JMPS V1.2.4 OTRR	1	2009	1	2009
JMPS V1.2.4 OT	1	2009	2	2009
JMPS V1.2.3 MPE Integration/Validation	1	2009	4	2010
JMPS V1.2.4 MPE Integration/Validation	2	2009	4	2013
JMPS V1.2.4 IOC	4	2009	4	2009
JMPS V1.4 Development Test	1	2010	4	2011
JMPS V1.4 FQT	1	2011	1	2011
JMPS V1.4 MPE Integration/Validation	1	2011	4	2015
JMPS V1.4 OTRR	4	2011	4	2011
JMPS V1.4 OT	1	2012	2	2012
JMPS V1.4 IOC	3	2012	3	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*	

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
2307: *Shipboard LAN/WAN*	12.105	1.719	0.464	0.000	0.464	0.360	0.358	0.000	0.000	0.000	51.599
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Shipboard LAN / WAN / Integrated Shipboard Network System (ISNS) provides Navy ships, including submarines, and Ashore sites with reliable, high-speed SECRET and UNCLASSIFIED Local Area Networks (LAN)s and wireless network technologies. The LAN provides Basic Network Information Distribution Services (BNIDS) and access to the Defense Information Systems Network (DISN) Wide Area Network (WAN) (Secure and Nonsecure Internet Protocol Router Network -SIPRNet and NIPRNet). It provides the network infrastructure and services to enable real-time information exchange within the ship and between afloat units, Component Commanders, and Fleet Commanders. It is a key factor in the implementation of the Navy's portion of Joint Vision 2020 and the migration of existing legacy systems into the IT-21 strategy. Program funding supports the design, development and testing of the ISNS LAN for surface ships, shore sites, and SubLAN for submarines.

The ISNS program maximizes the use of both Commercial off the Shelf (COTS) software and hardware. Engineering and technical support is provided so that existing systems will keep pace with hardware and software that continues to be commercially supported. ISNS uses a combination of high speed wired and wireless switches, routers, access points, servers, workstations and operating system software technologies to provide network access to classified and unclassified applications for use by ship's force, embarked units, embarked commanders and their staffs. Under the Navy's information modernization strategy, full synchronization of shipboard networks, mission and information applications, radio/satellite communications, and shore data dissemination infrastructure are necessary to ensure end-to-end mission capability. The Integrated Shipboard Networking System program is closely synchronized on a ship by ship basis with over 460 different systems of application configurations including the following: Global Command and Control System Maritime (GCCS-M), Navy Tactical Command Support System (NTCSS), Navy Standard Integrated Personnel System (NSIPS), Theatre Medical Information Program - Maritime (TMIP-M), Defense Messaging System (DMS), Automated Digital Network System (ADNS), Global Broadcasting System (GBS), Tactical Tomahawk Weapons Control System (TTWCS) and Information Security (INFOSEC) programs. The ISNS program provides the infrastructure to support implementation/fielding of these programs. The LAN modernization rate must keep pace with hardware and software that is supported commercially in order to provide a supportable and secure FORCEnet infrastructure. ISNS includes Afloat Core Services (ACS) which is the mechanism to deliver the FORCEnet interface to the warfighter. ACS provides a composeable warfighting environment enabling dynamic configuration of capabilities tailored to meet specific warfighting missions. As the warfighting mission changes, the capabilities or services can be re-configured on the fly to meet the new warfighting requirement. This dynamic reconfiguration of services also known as "plug and fight" meets the composeable services vision of FORCEnet. ACS also provides the common core enterprise services and technical framework to allow organizations ubiquitous access to reliable, decision-quality information through a net-based services infrastructure and applications to bridge real-time and near-real-time communities of interest (COI). ACS will empower the end user to pull information

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*

from any available source, with minimal latency, to support the mission. Its capabilities will allow Department of the Navy as well as Global Information Grid (GIG) users to task, post, process, use, store, manage and protect information resources on demand for warfighters, policy makers and support personnel. ACS will utilize a spiral process for delivering capability to the warfighter.

The ISNS Inc 1, Sensitive Compartmented Information (SCI) Networks and Combined Enterprise Regional Information Exchange System (CENTRIXS) programs will begin migrating to ISNS Inc 2/Consolidated Afloat Networks and Enterprise Services (CANES) in FY09. 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); ACS; and Multi-Level Security (MLS)/Cross Domain Solutions (CDS). Full transition to CANES Inc 1 occurs in FY 2010.

The Combined Enterprise Regional Information Exchange System - Maritime (CENTRIXS-M) program provides US Navy ships and submarines with secure, reliable, high-speed Local Area Network (LAN) with access to the Coalition Wide Area Network (WAN) to include CENTRIXS Four-Eyes (CFE), Global Counter Terrorism Task Force (GCTF), NATO Information Data Transfer System (NIDTS), Multinational Coalition Force - Iraq (MCFI), bilateral networks such as CENTRIXS-U.S. Japan (J) and CENTRIXS-US. Korea (K), and Communities Of Interest (COI) virtual networks such as Coalition Naval Forces - CENTCOM (CNFC), and Cooperative Maritime Forces - Pacific (CMFP). The CENTRIXS system provides real-time tactical and operational information sharing at the SECRET and SECRET REL (Releasable) level between naval afloat units, Component Commanders, Fleet Commanders, Numbered Fleet Commanders and Coalition Forces/Allies. When the CENTRIXS network is combined with other subsystems (Radio/Satellite Comms), it delivers an end-to-end network centric warfighting capability. CENTRIXS is the primary means for sharing classified, but releasable, data with coalition partners to enable the Navy to mean the National Strategy for Maritime Domain Awareness. The CENTRIXS program is comprised of Block 0, I, and II systems fielded across the Fleet, and Increment 1 which provides a network infrastructure that allows simultaneous access to multiple Coalition WAN and incorporates the Common PC Operating System Environment (COMPOSE) which provides a server and client operating system environment for other applications and collaborative tools such as Same time Chat, Domino and Command and Control PC (C2PC) as means to share a Common Operational Picture (COP) and exchange information using Collaboration At Sea (CAS). The CENTRIXS program uses both Commercial Off The Shelf (COTS) hardware and software and Open Standards to maximize commercial technology and support. Engineering and technical support ensures existing systems are upgraded and modified to keep pace with current technology and industry.

Funding supports the design, development and testing of the CENTRIXS LAN for surface and submarine platforms and the CENTRIXS Network Operations Center (NOC). The goal of the CENTRIXS program is to provide a cost-efficient, operationally effective network that dramatically reduces current infrastructure requirements while maximizing operational flexibility and warfighter utility in a coalition environment. Multi-Level Thin Client (MLTC) architecture supports shipboard Space, Weight and Power (SWAP) reductions and includes initiatives for server virtualization (ability to run multiple servers on a single server), drop scalability leveraging existing SIPRNET drops, remote authentication and remote system management. Additionally, funding will provide design, development and testing for a Unit Level MLTC system (provides a compressed shipboard rack/client footprint) and initiatives to include Language Translation, COI and Network Enclave Agility (ability to dynamically shift between all coalition networks and COIs) and Multi-Level Chat (a Cross Domain Solution (CDS) chat capability). The CENTRIXS program will begin migrating to ISNS Inc 2/CANES in FY09. ISNS Inc 2/CANES will serve to transition numerous Fleet networks to a single, adaptive, available, secure computing network

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*

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).

Submarine Local Area Network (SubLAN): The SubLAN program provides Navy submarines, with reliable, high-speed mission critical SECRET and mission critical UNCLASSIFIED Local Area Networks (LANs). When the SubLAN network is combined with other subsystems, it delivers an end-to-end network-centric warfare capability by hosting applications capable of connectivity with coalition communications enclaves. The SubLAN program provides network infrastructure including an Unclassified Wireless Local Area Network (UWLAN), servers, and the Common Personal Computer Operating System Environment (COMPOSE) which provides the operating system, office automation, security, and other basic network services used by all hosted applications.

FY11 OCO: N/A

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Integrated Shipboard Network System (ISNS)	7.199	0.832	0.419	0.000	0.419
FY 2009 Accomplishments: Integrated Shipboard Network System (ISNS): Continued to develop ISNS Increment 2/CANES capabilities which will begin to consolidate the afloat networks and enterprise services aboard ships. These capabilities include increased availability to mission critical level ships, multiple security enclaves, application hosting, and collaboration services. Supported studies for an Ashore ISNS variant in support of the COMUSFLTFORCOM MOC requirement. Continued with at sea demonstrations for the following technologies: 1. Identity Management/Service Security, including Entity Management & Credential Management. 2. Collaboration, including Session Management and Presence & Awareness. 3. Discovery, including Content/Device/People Discovery. 4. Cross Domain Solutions (CDS) 5.Afloat Core Services (ACS) Completed acquisition documentation required for ISNS Inc 1 and 2/CANES. Awarded the prototype development contract for ISNS Incr 1 . Set up lab for applicable Early Adopter testing. Performed					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Developmental and Operational Testing (DT/OT) on Increment 1 Wireless (MOD2), COMPOSE 3.5 (MOD3), Common Computing Environment (CCE) (MOD4), and Afloat Core Services (ACS) 1.0 as needed. Implemented Fielding Decision (FD) D(V)X. SubLAN: Tested and integrated follow-on COMPOSE software package in support of Consolidated Afloat Networks and Enterprise Services (CANES) migration strategy. Demonstrated Cross Domain Solution architecture with Common Personal Computer Operating System Enviornment (COMPOSE) software packages that enabled capability for SCI, JWICS, and Combined Enterprise Regional Information Exchange System (CENTRIXS) in support of CANES migration strategy rescheduled for Trident Warrior (TW) to FY09. CENTRIXS-M: Obtained MS C Decision and Low Rate Initial Production (LRIP) for Inc 1. MS C for INC 1 slipped to 3QFY09 due to approval delays of the Capabilities Production Document (CPD). No program impacts. Utilized existing Q-70 contract for LRIP. Performed Operational Assessment (OA) on Force Level (FL) Block II. Began migration to ISNS Inc 2/CANES. Developed CENTRIXS capability on submarines. *FY 2010 Plans:* Integrated Shipboard Network System (ISNS): Complete development of the ISNS Increment 1and 2/ CANES capabilities consolidating Afloat LANs and Enterprise Services aboard ships and Ashore sites. These capabilities included increased availability to mission critical level systems, multiple security enclaves, and application hosting, ACS, and collaboration services. Develop replacement solutions for End of Life (EOL) equipment as EOL occurs. Continue support of sea demonstrations for the following technologies: 1. Identity Management/Service Security, including Entity Management & Credential Management. 2. Collaboration, including Session Management and Presence & Awareness. 3. Discovery, including Content/Device/People Discovery. 4. CDS					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
5. Secure classified wireless 6. ACS Continue working with ISNS labs on Early Adopter and ACS testing and integration. Investigate new technology associated with classified wireless LANs. Support Trident warrior exercises. Support Compose 4.0 DT & OT events. Program transitions from ISNS Inc 2/CANES to CANES Inc 1. Continue support for wireless initiatives towards a more interoperable and secure wireless network infrastructure. Support Certification and Accreditation activities for efforts under development. SubLAN: Perform OTRR and Follow on Operational Test & Evaluation (FOT&E) of Inc. 1. CENTRIXS-M: Perform environmental testing for Unit Level Inc 1. Conduct a combined Development Test / Operational Test (DT/OT) for Inc 1 FL with COMPOSE 4.0. Support Inc I Unit level (UL) Enviornmental Qualification DT/OT transition to Canes Inc I. Program transitions from ISNS Inc 2/ CANES to CANES Inc 1. *FY 2011 Base Plans:* Integrated Shipboard Network System (ISNS): Continue transition support from ISNS Increment 1 to CANES Inc 1 through continued consolidation of Afloat LANs and Enterprise Services aboard ships and Ashore sites. Continue development of replacement solutions for End of Life (EOL) equipment as EOL occurs. Develop replacement solutions for End of Sale (EOS) equipment/software as EOS occurs. Support Certification and Accreditation activities for efforts under development. Continue support of at sea demonstrations. Continue working with the ISNS labs on Early Adopter and ACS testing and integration. Investigate new technologies associated with classified wireless LANs. Support Test and Evaluation events for efforts under development. SubLAN: Investigate and test server architecture in support of Commercial off the Shelf (COTS) End-of-Life (EOL).					
Combined Enterprise Regional Information Exchange System (CENTRIXS)	3.674	0.290	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: N/A *FY 2010 Plans:* N/A					
Submarine Local Area Network (SubLAN) *FY 2009 Accomplishments:* N/A *FY 2010 Plans:* N/A *FY 2011 Base Plans:* N/A	1.232	0.597	0.045	0.000	0.045
Accomplishments/Planned Programs Subtotals	12.105	1.719	0.464	0.000	0.464

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/3050/ISNS: *ISNS*	147.389	137.373	124.041	0.000	124.041	68.953	0.000	0.000	0.000	0.000	477.756
• OPN/3050/CENTRIX: *CENTRIXS-M*	28.299	16.220	15.911	0.000	15.911	0.000	0.000	0.000	0.000	0.000	60.430
• OPN/3050/SubLAN: *SubLAN*	32.720	29.959	22.440	0.000	22.440	32.356	36.114	0.806	0.816	0.000	155.211

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*

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/3051: *CENTRIXS-M MDA*	0.000	4.898	9.250	0.000	9.250	24.566	1.161	0.000	0.000	0.000	39.875

D. Acquisition Strategy

Procurement and integration efforts for ISNS, CENTRIXS, and SubLAN are accomplished through various contracts.
Procurement and integration efforts for CANES will be accomplished through various contracts.

E. Performance Metrics

The Shipboard LAN/WAN/Integrated Shipboard Network System (ISNS) development efforts are nearing completion and is currently 96.7% completed. The ISNS, CENTRIXS-M and SubLAN programs will transition to CANES in FY14. ISNS development and testing against ISNS variants as well as Early Adopter Common Computing Envrionment (CCE) testing on the Lincoln Strike Group met and exceeded all measures of effectiveness and suitability of the system. Technologies developed for the CENTRIXS-M Increment 1 system included the Multi-Level Thin Client (MLTC) and associated accreditation and testing. SubLAN development efforts included SubLAN End of Life solutions and Early Adopter CANES solutions. Remaining funds in FY11-FY14 or 3.3% of the project will support SubLAN to develop and test upgrades to mitigate End of Life (EOL) issues and the directed CANES Early Adopter architecture for submarine local area networks. These efforts will continue until the program transitions to CANES in FY14. ISNS efforts include Trident Warrior At Sea Demonstrations, annual certification and accreditation efforts and investigate End of Life (EOL)/End of Sale (EOS) technology replacement options. X2307 Shipboard LAN/WAN/Integrated Shipboard Network System funding completes in FY2013.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*

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	Titan Various	1.194	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Integration & Test	WR	SSC PAC San Diego, CA	1.949	0.075	Dec 2009	0.131	Dec 2010	0.000		0.131	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	Various Various	4.143	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC PAC San Diego, CA	2.256	0.344	Dec 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	C/CPAF	SAIC Various	0.383	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC LANT Charleston, SC	2.663	0.201	Dec 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	C/CPIF	TBD TBD	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	12.588	0.620		0.131		0.000		0.131			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*

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/TBD	TBD TBD	0.725	0.173	Dec 2009	0.095	Dec 2010	0.000		0.095	Continuing	Continuing	Continuing
Software Development	C/CPAF	Titan Various	0.069	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	0.794	0.173		0.095		0.000		0.095			

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 Various	8.490	0.233	Dec 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NIOC Various	0.053	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	MIPR	JITC Various	0.309	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	Various/ Various	NSMA Various	0.807	0.125	Dec 2009	0.078	Dec 2010	0.000		0.078	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPAF	NAVSEA/LM Various	0.350	0.000		0.000		0.000		0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*

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	0.583	0.113	Dec 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	COMOPTEVFOR Various	1.162	0.075	Dec 2009	0.160	Dec 2010	0.000		0.160	Continuing	Continuing	Continuing
Developmental Test & Evaluation2	WR	SSC Various	1.181	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	12.935	0.546		0.238		0.000		0.238			

Remarks

FY10/FY11 award dates left blank are 'Various'

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	SSC PAC San Diego, CA	1.639	0.210	Dec 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Program Management Support	Various/ Various	Various Various	3.848	0.170	Dec 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Program Management Support	C/CPAF	Booz Allen Hamilton Various	1.937	0.000		0.000		0.000		0.000	0.000	1.937	Continuing
Acquisition Workforce	C/FP	Not Specified	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
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*

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
		Not Specified											
		Subtotal	7.479	0.380		0.000		0.000		0.000			

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	33.796	1.719		0.464		0.000		0.464			

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 2307: *Shipboard LAN/WAN*

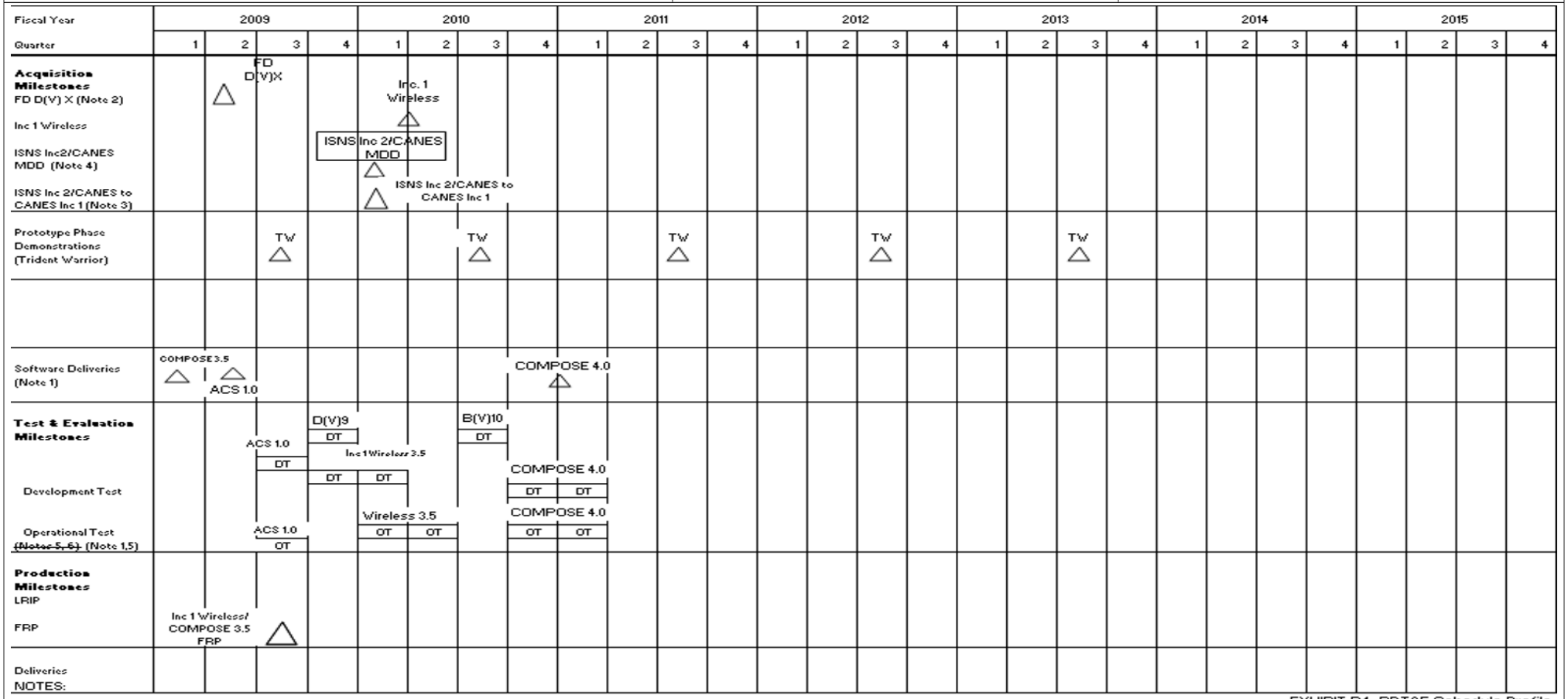


EXHIBIT R4, RDT&E Schedule Profile

1. Common Personal Computer Operating System Environment (COMPOSE) 4.0 Software release versions and delivery dates updated to reflect current software fielding schedule.
2. Acquisition Milestone - Fielding Decision (FD) D(V)X
3. FY10 Program transitions from ISNS Inc 2/CANES to CANES Inc 1.
4. Material Development Decision (MDD) per DoD 5000.2 required prior to MS B.
5. DT/OT event included for FY11.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2307: *Shipboard LAN/WAN*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Acquisition Milestone - FD D(V)X (Note 2: Acquisition Milestone - Fielding Decision D(V)X)	2	2009	2	2009
Acquisition Milestone - Inc 1 Wireless	1	2010	2	2010
Acquisition Milestone - MDD ISNS Inc 2/CANES (Note 3: FY10 Program transitions from ISNS Inc 2/CANES to CANES Inc 1)	1	2010	1	2010
Acquisition Milestone - ISNS Inc 2/CANES to CANES Inc 1(Note 4: Material Development Decision (MDD) per DoD 5000.2 required for MS B)	1	2010	1	2010
Prototype Phase - TW Demonstration	2	2009	3	2013
Software Delivery - 3.5	1	2009	1	2009
Software Delivery - ACS 1.0	2	2009	2	2009
Software Delivery - 4.0 (Note 1: COMPOSE Software release versions and delivery dates updated to reflect current software fielding schedule)	4	2010	1	2011
Development Test - D(V)9	4	2009	4	2009
Development Test - B(V)10	3	2010	3	2010
Development Test - Inc 1/COMPOSE 3.5	2	2009	2	2009
Development Test - ACS 1.0	2	2009	2	2009
Development Test - 4.0	4	2010	1	2011
Operational Test - ACS 1.0	4	2009	4	2009
Operational Test - D(V)9	4	2009	4	2009
Operational Test - B(V)10	3	2010	3	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 2307: *Shipboard LAN/WAN*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Operational Test - 4.0	4	2010	1	2011
Production Milestone - Inc 1/COMPOSE 3.5 FRP	3	2009	3	2009

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2351: *MDA*	

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
2351: *MDA*	0.000	21.111	19.630	0.000	19.630	15.489	7.670	1.061	0.089	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Maritime Domain Awareness is the effective understanding of anything associated with the global maritime domain that could impact the security, safety, economy or environment. MDA objectives include the persistent monitoring of and ability to access and maintain data on vessels, cargo, people, and infrastructure; and the ability to collect, fuse, analyze, and disseminate information to decision makers to facilitate effective understanding. This initiative will identify, develop and transition data fusion and mining, replication, sharing and assessment tools to achieve MDA across the non-classified, unclassified and classified enclaves. Additionally, MDA will ensure capability integration with related activities and sites (both technologies and facilities). This warfighting enhancement is designed to achieve an all-source MDA capability, leveraging existing MDA initiatives in the developmental phase and ensuring the best products transition to strategic, operational and tactical users as well as further development of MDA prototypes. The products will support all-source data fusion, development and replication of MDA related data gathered in various operations such as Expanded-Maritime Intercept Operations (E-MIO), sharing information with allies, and developing subject matter expertise and assessment tools to achieve MDA and enhance operational decision making.

In FY11 funding supports the following efforts: planned enhancements to Spiral One Prototype (SP1P) and fielded capabilities; development of MDA enterprise wide alerting capabilities and integration with C2 decision support systems; Verification and Validation (V&V) testing; development regression and acceptance testing and transition of the E-MIO systems to applicable Programs of Records (PORs); continuation of pre-acquisition activities for the Maritime Fusion and Analysis (MFAS) and End to End MDA (E2E MDA) Increments as they move into the Technology Development phase.

FY09 funding is located in Project Unit 9123. Funds realigned from Project Unit 9123 beginning in FY2010.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MDA	0.000	14.228	13.164	0.000	13.164

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2351: *MDA*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Maritime Domain Awareness (MDA): Spiral 1 Prototype (SP1P): Provides program management support and continued prototype integration for SP1P. Supports corrective and adaptive system engineering activities as the Joint Capability Technology Demonstration (JCTD) prototype transitions to operational capability in FY10. Ensures that issues identified during the Joint and Navy Operational Assessments are resolved, and that SP1P maintains interoperability with Joint and Naval Systems as Joint and Navy Service Oriented Architecture (SOA) frameworks are established. Supports verification and validation (V&V), and developmental regression and acceptance testing for baseline changes required for systems engineering activities. Provides Prototype hardware, software and other technical support for components deployed at Commander: 2nd, 3rd, 4th, 5th (Navy, Central Command), Naval Forces Europe (NAVEUR), Pacific Fleet (PACFLT), U.S. Fleet Forces Command (USFF), National Maritime Intelligence Center (NMIC), Maritime Intelligence Fusion Center (MIFC) MIFC Atlantic (LANT), MIFC Pacific (PAC), Joint Interagency Task Force (JIATF)-South, JIATF- West and the MDA Enterprise Node. Supports the National Maritime Intelligence Center (NMIC) and MIFC LANT/PAC to facilitate data integration with the Intelligence Community systems, Department of Homeland Security (DHS) and Department of Justice (DOJ). MDA will also support the development and replication of ongoing MDA related data gathering activities, such as Expanded-Maritime Intercept Operations (EMIO), as well as ensuring MDA capabilities are projected through non-classified, unclassified and classified networks. Maritime Fusion and Analysis Services (MFAS) Increment and End to End MDA (E2E MDA): The Navy's Resources, Requirements, Review Board (R3B) approved the MDA Capabilities Based Assessment (CBA) as briefed in January 2009. The MDA CBA identified capability gaps that will be resolved through non-materiel and materiel solutions. Continue pre-acquisition activities such as the development of an E2E MDA Initial Capabilities Document (ICD) and the completion of MFAS and					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2351: *MDA*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
E2E MDA Analysis of Alternatives (AoA) which will identify potential materiel solutions and form the requirements basis for follow-on development efforts. *FY 2011 Base Plans:* Maritime Domain Awareness (MDA): Spiral 1 Prototype (SP1P): Provide planned enhancements for SP1P and fielded capabilities. Support development of MDA enterprise wide alerting capabilities and integration with C2 decision support systems. Provide for Verification and Validation (V&V) and development regression and acceptance testing for baseline changes required for Prototype Information Technology (IT) upgrade/refresh activities. Support the transition of the Expanded-Maritime Intercept Operations (EMIO) systems to applicable Programs of Records (PORs). Maritime Fusion and Analysis (MFAS) Increment and End to End MDA (E2E MDA): Continue pre-acquisition activities for MFAS and E2E MDA as these increments move from the Material Solutions Analysis phase into the Technology Development phase of the Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management System. Specific activities will include identifying a Material Solution based on the Analysis of Alternatives (AoA) and Systems Engineering Technical Reviews (SETR), drafting Key Performance Parameters (KPPs) and Key System Attributes (KSAs) followed by the Capability Development Document (CDD), developing a Technology Development strategy to guide prototyping and component development, and determining an appropriate Acquisition and Contracting Strategy. Also includes MFAS prototyping activities for key fusion and analytical technologies IAW SECNAVINST 5000.2D Para 3.4.					
DLB *FY 2010 Plans:* Deep Lightning Bolt / Rapid Capability Development (DLB/RCD): Transformational initiative for the Navy which will focus on the introduction of technologies that will enhance the Navy's Sea Power 21 objectives and support network centric warfare and operations. Will	0.000	6.883	6.466	0.000	6.466

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2351: *MDA*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
provide a low cost initiative to with the ability to react immediately to newly discovered technology(s), enemy threat(s) or to respond to significant and urgent safety situations through special, tailored procedures designed to: - Integrate and demonstrate, hardware / software solutions for either immediate or near term deployment - Expedite technical, programmatic, and financial decisions in order to make emergent technologies available to the Fleet in a timely manner - Expedite, within statutory limitations, the procurement and contracting processes. - Offer disruptive technologies with the intent of leaping technology within traditional programs of record (POR) *FY 2011 Base Plans:* Deep Lightning Bolt / Rapid Capability Development (DLB/RCD): Transformational initiative for the Navy which will focus on the introduction of technologies that will enhance the Navy's Sea Power 21 objectives and support network centric warfare and operations. Will provide a low cost initiative to with the ability to react immediately to newly discovered technology(s), enemy threat(s) or to respond to significant and urgent safety situations through special, tailored procedures designed to: - Integrate and demonstrate, hardware / software solutions for either immediate or near term deployment - Expedite technical, programmatic, and financial decisions in order to make emergent technologies available to the Fleet in a timely manner - Expedite, within statutory limitations, the procurement and contracting processes.					
Accomplishments/Planned Programs Subtotals	0.000	21.111	19.630	0.000	19.630

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 2351: *MDA*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The MDA Fielded Project (also known as Spiral 1 Prototype (SP1P)) entered the sustainment phase based on direction by Assistant Secretary of the Navy, Research, Development and Acquisition (ASN RDA) in 4QFY09. The prototype will be enhanced/modified every six months until it can transition or be replaced by a Program of Record capability, currently targeted for FY-14. Commander Operational Test and Evaluation Force will observe testing during Developmental Testing events.

Pre-acquisition activities for MDA follow-on efforts commenced in FY09. A Maritime Fusion and Analysis Services (MFAS) Initial Capabilities Document (ICD) was staffed for approval in FY10. An approved ICD can support a Material Development Decision (MDD) for purposes of a transition to a Program of Record.

E. Performance Metrics

Maritime Domain Awareness (MDA): SP1P compliance with Net-Centric Enterprise Solutions for Interoperability (NESI) guidance and conform to the Net-Centric Enterprise Services (NCES) standards; fuses multiple disparate data sources, analyzes MDA activity to identify potential threats to security of the United States and US interests and forces around the world. MDA will alert based on a number of simple and complex user defined conditions improving efficiency and effectiveness in monitoring the maritime domain for threats. MDA provides accurate MDA vessel track information to the common operational picture; generate alerts for vessels entering and existing geospatial, user defined, areas of interest; anomaly alerts will be verified at 65% accuracy against ground truth; reduction in the number of manual steps required to find and retrieve MDA relevant data; SP1P material availability will be no less than 85%. MDA provided Extended Maritime Intercept Operations (EMIO) capabilities have reduced the time between data entry by the boarding team and data analysis both in theater and globally. MDA provided EMIO capabilities are improving all elements of the MIO process.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2351: *MDA*

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 DLB/RCD	Various/ Various	Various Various	0.000	1.641	Feb 2010	1.174	Feb 2011	0.000		1.174	0.000	2.815	Continuing
Systems Engineering DLB/RCD	Various/ Various	TBD TBD	0.000	0.721	Feb 2010	0.771	Feb 2011	0.000		0.771	0.000	1.492	Continuing
Systems Engineering - MDA	Various/ Various	Various Various	0.000	2.500	Nov 2009	2.859	Nov 2010	0.000		2.859	0.000	5.359	Continuing
		Subtotal	0.000	4.862		4.804		0.000		4.804	0.000	9.666	

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 DLB/RCD	Various/ TBD	TBD TBD	0.000	0.297	Feb 2010	0.297	Feb 2011	0.000		0.297	0.000	0.594	Continuing
Configuration Mgmt DLB/RCD	Various/ TBD	TBD TBD	0.000	0.196	Feb 2010	0.196	Feb 2011	0.000		0.196	0.000	0.392	Continuing
Development Support DLB/RCD	Various/ TBD	TBD TBD	0.000	0.297	Feb 2010	0.297	Feb 2011	0.000		0.297	0.000	0.594	Continuing
Software Development DLB/RCD	Various/ Various	TBD TBD	0.000	2.669	Feb 2010	2.669	Feb 2011	0.000		2.669	0.000	5.338	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2351: *MDA*	

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 - MDA	Various/ Various	Various Various	0.000	0.705	Jan 2010	1.063	Jan 2011	0.000		1.063	0.000	1.768	Continuing
Integrated Logistics Support - MDA	Various/ Various	Various Various	0.000	1.573	Jan 2010	0.950	Jan 2011	0.000		0.950	0.000	2.523	Continuing
Configuration Management - MDA	Various/ Various	Various Various	0.000	0.368	Jan 2010	0.152	Jan 2011	0.000		0.152	0.000	0.520	Continuing
Sys Req Analysis/Sys Eng - MDA	Various/ Various	Various Various	0.000	2.033	Nov 2009	1.389	Nov 2010	0.000		1.389	0.000	3.422	Continuing
		Subtotal	0.000	8.138		7.013		0.000		7.013	0.000	15.151	

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 DLB/RCD	Various/ TBD	TBD TBD	0.000	0.593	Feb 2010	0.593	Feb 2011	0.000		0.593	0.000	1.186	Continuing
System Test & Evaluation-MDA	Various/ Various	Various Various	0.000	2.058	Feb 2010	2.110	Feb 2011	0.000		2.110	0.000	4.168	Continuing
		Subtotal	0.000	2.651		2.703		0.000		2.703	0.000	5.354	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2351: *MDA*

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 DLB/RCD	C/CPFF	SSC LANT Charleston, SC	0.000	0.297	Feb 2010	0.297	Feb 2011	0.000		0.297	0.000	0.594	Continuing
Travel DLB/RCD	WR	DTS Various	0.000	0.172	Feb 2010	0.172	Feb 2011	0.000		0.172	0.000	0.344	Continuing
Acquisition Management - MDA	Various/ Various	Various Various	0.000	2.213	Nov 2009	2.369	Nov 2010	0.000		2.369	0.000	4.582	Continuing
Program Management Support - MDA	Various/ Various	Various Various	0.000	2.618	Nov 2009	2.122	Nov 2010	0.000		2.122	0.000	4.740	Continuing
Travel - MDA	WR	DTS Various	0.000	0.160	Nov 2009	0.150	Nov 2010	0.000		0.150	0.000	0.310	Continuing
		Subtotal	0.000	5.460		5.110		0.000		5.110	0.000	10.570	

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	21.111		19.630		0.000		19.630	0.000	40.741	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 2351: *MDA*

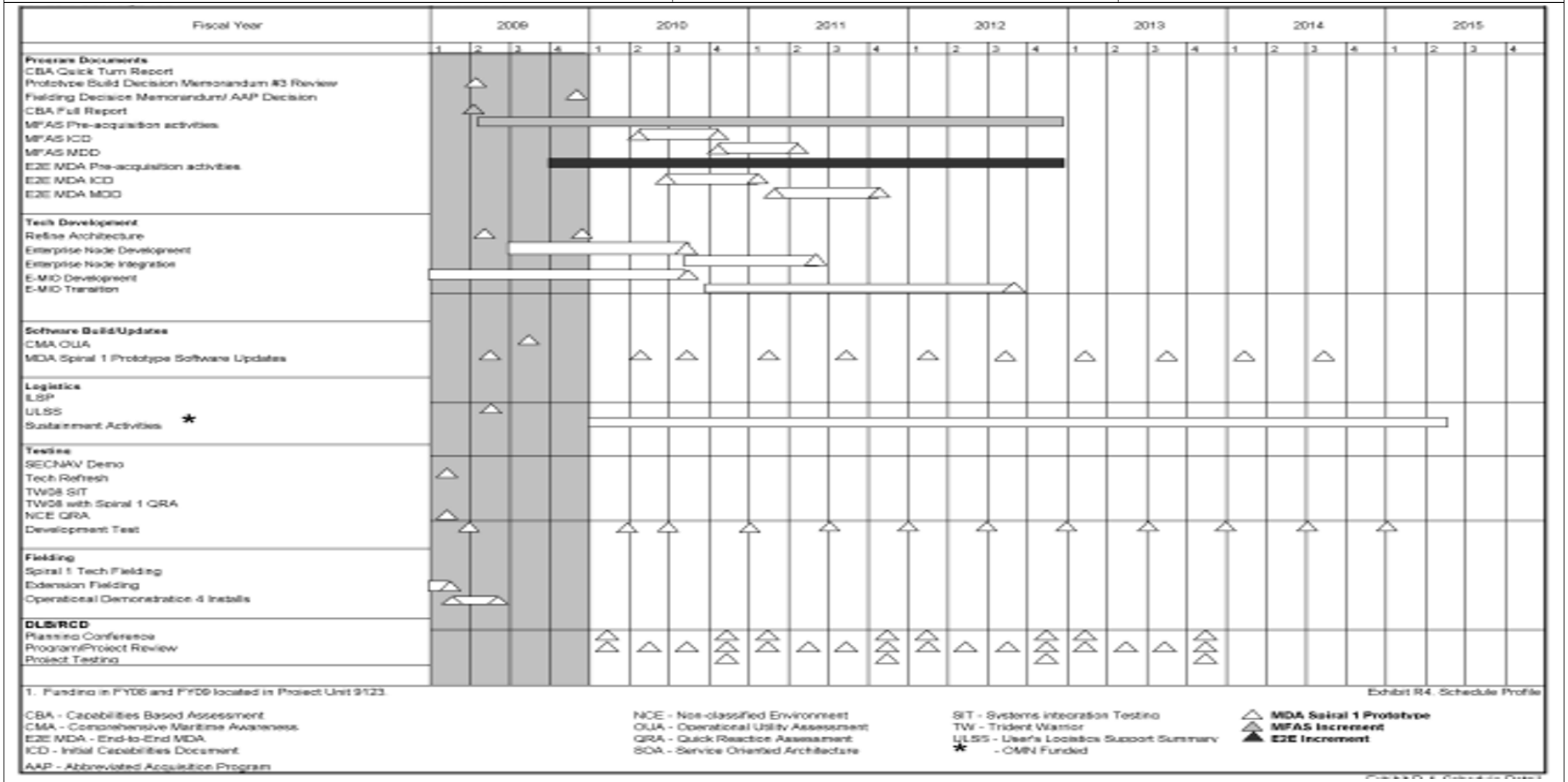


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2351: *MDA*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
DLB/RCD Planning Conference (1st Qtrs only)	1	2010	1	2013
DLB/RCD Planning Conference (4th Qtrs Only)	4	2010	4	2013
DLB/RCD Monthly Program/Project Review	1	2010	4	2013
DLB/RCD Project Testing (4th Qtrs only)	4	2010	4	2013
MFAS Pre-Acquisition Activities	2	2010	4	2012
MFAS ICD	2	2010	4	2010
MFAS MDD	4	2010	2	2011
E2E MDA Pre-Acquisition Activities	4	2009	4	2012
E2E MDA ICD	3	2010	1	2011
E2E MDA MDD	1	2011	4	2011
Enterprise Node Development	3	2009	3	2010
Enterprise Node Integration Transition	3	2010	2	2011
EMIO Development	1	2010	2	2010
EMIO Transition	3	2010	3	2012
MDA Spiral 1 Prototype Software Updates (2nd Qtr FY09 only)	2	2009	2	2009
MDA Spiral 1 Prototype Software Updates (2nd Qtr only)	2	2010	2	2010
MDA Spiral 1 Prototype Software Updates (3rd Qtr only)	3	2010	3	2010
MDA Spiral 1 Prototype Software Updates (1st Qtrs only)	1	2011	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 2351: *MDA*

	Start		End	
Event	Quarter	Year	Quarter	Year
MDA Spiral 1 Prototype Software Updates (3rd Qtrs only)	3	2011	3	2014
Sustainment Activities	1	2010	2	2015
Development Test (2nd Qtrs only)	2	2009	2	2010
Development Test (1st Qtrs only)	1	2011	1	2015
Development Test (3rd Qtrs only)	3	2010	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 3032: *NTCSS (Naval Tactical Command Spt 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
3032: *NTCSS (Naval Tactical Command Spt Sys)*	0.050	6.332	3.661	0.000	3.661	13.114	26.053	0.603	1.065	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 Tactical Command Support System (NTCSS) is a multi-function program designed to provide standard tactical support information systems to various afloat and associated shore-based fleet activities. The mission is to provide the Navy and Marine Corps with an integrated, scalable system that supports the management of logistical information, personnel, material and funds required to maintain and operate ships, submarines, and aircraft. FY2011 funding supports the design, development, and testing of One NALCOMIS (Naval Aviation Logistics Command/Management Information System), which will consolidate organizational and depot level aviation maintenance into a single system. This will provide streamlined maintenance management for Navy and Marine Corps aviation. Funding also supports design, development, and migration of NTCSS into the Maritime Logistics Data Network concept of operations featuring multi-UIC (Unit Identification Code) which will provide a consolidated logistics management system by combining logistics data from multiple fleet operational platforms into a single database management system ashore with bi-directional replication and transactional capabilities. In conjunction with, and to better facilitate the development of One-NALCOMIS and multi-UIC, product improvements are planned to modernize the NTCSS system by migrating from a client-server based architecture to a service-oriented architecture (SOA) and web-based services. This will align with the initiative to bring Navy systems into a common computing environment afloat, interface with Navy ERP ashore, and provide a more flexible system platform with greater responsiveness to security, information assurance, functional, and system requirements and with greater speed to capability.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NTCSS (Naval Tactical Command Spt Sys) Maintenance and Supply Management Capability	0.050	6.332	3.661	0.000	3.661

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 3032: *NTCSS (Naval Tactical Command Spt Sys)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued program management and system engineering efforts for the transition of prior fiscal years' developments in NTCSS enterprise database and MLDN (Maritime Logistics Data Network) technologies to One NALCOMIS (Naval Aviation Logistics Command/Management Information System). *FY 2010 Plans:* Begin design and development efforts for NTCSS One NALCOMIS, multi-UIC (Unit Identification Code), enterprise database, and replication capabilities. Begin product improvement efforts for Service-Oriented Architecture (SOA) and web-based services to leverage multi-UIC and the enterprise system. Integrate NTCSS with CCE/CANES (Common Computing Environment/Consolidated Afloat Networks and Enterprise Services) afloat and NMCI (Navy/Marine Corps Intranet) ashore with required interfaces to Navy systems including ERP (Enterprise Resource Planning). *FY 2011 Base Plans:* Continue design, development, and testing efforts for NTCSS One NALCOMIS, multi-UIC, and enterprise database system. Continue design, development, and testing efforts for NTCSS product improvements of SOA and web-based services.					
Accomplishments/Planned Programs Subtotals	0.050	6.332	3.661	0.000	3.661

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 3032: *NTCSS (Naval Tactical Command Spt 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
• OPN/2611: *Naval Tactical Command Support System*	29.564	35.823	33.358	0.000	33.358	35.859	36.501	33.859	34.462	0.000	660.031

D. Acquisition Strategy

The NTCSS Acquisition Strategy is defined in its Single Acquisition Management Plan (SAMP) dated February 2004. This SAMP provides the acquisition strategy and implementation plans for all NTCSS applications and is based on the following six tenants: Migration to Optimized Software Architecture, Migration to PC Workstations and UNIX/NT Servers, Migration to the Common Operating Environment (COE), Business Process Improvements, Focused Logistics, and Streamlined Acquisition Process. The SAMP provides a single point of focus and presents these efforts in an integrated and coordinated fashion.

E. Performance Metrics

One NALCOMIS reduces NTCSS Aviation software baseline configuration management support by 50%. Additionally, the NTCSS Aviation system hardware requirement realizes a 50% reduction at Fleet Readiness Centers (ashore) and Aircraft Intermediate Maintenance Departments (afloat).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 3032: *NTCSS (Naval Tactical Command Spt 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
Primary Hardware Development	Various/ Various	Various Various	0.668	0.000		0.000		0.000		0.000	0.000	0.668	0.668
Systems Engineering	Various/ Various	Various Various	1.050	0.150	Feb 2010	0.251	Nov 2010	0.000		0.251	0.000	1.451	Continuing
Licenses	Various/ Various	Various Various	0.700	0.000		0.000		0.000		0.000	0.000	0.700	0.700
		Subtotal	2.418	0.150		0.251		0.000		0.251	0.000	2.819	1.368

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	10.716	6.008	Feb 2010	2.352	Nov 2010	0.000		2.352	0.000	19.076	Continuing
Integrated Logistics Support	Various/ Various	Various Various	0.000	0.100	Feb 2010	0.100	Nov 2010	0.000		0.100	0.000	0.200	Continuing
Configuration Management	Various/ Various	Various Various	0.460	0.000		0.000		0.000		0.000	0.000	0.460	0.460
Technical Data	Various/ Various	Various Various	0.200	0.000		0.000		0.000		0.000	0.000	0.200	0.200

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 3032: *NTCSS (Naval Tactical Command Spt 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
		Subtotal	11.376	6.108		2.452		0.000		2.452	0.000	19.936	0.660

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	0.000	0.000		0.400	Nov 2010	0.000		0.400	0.000	0.400	Continuing
Operational Test & Evaluation	Various/ Various	Various Various	0.585	0.000		0.200	Nov 2010	0.000		0.200	0.000	0.785	Continuing
		Subtotal	0.585	0.000		0.600		0.000		0.600	0.000	1.185	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 3032: *NTCSS (Naval Tactical Command Spt 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
Contractor Engineering Support	Various/ Various	Various Various	0.896	0.000		0.000		0.000		0.000	0.000	0.896	0.896
Government Engineering Support	Various/ Various	Various Various	0.279	0.000		0.000		0.000		0.000	0.000	0.279	0.279
Program Management Support	Various/ Various	Various Various	0.000	0.074	Feb 2010	0.358	Nov 2010	0.000		0.358	0.000	0.432	Continuing
		Subtotal	1.175	0.074		0.358		0.000		0.358	0.000	1.607	1.175

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	15.554	6.332		3.661		0.000		3.661	0.000	25.547	3.203

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 3032: *NTCSS (Naval Tactical Command Spt Sys)*

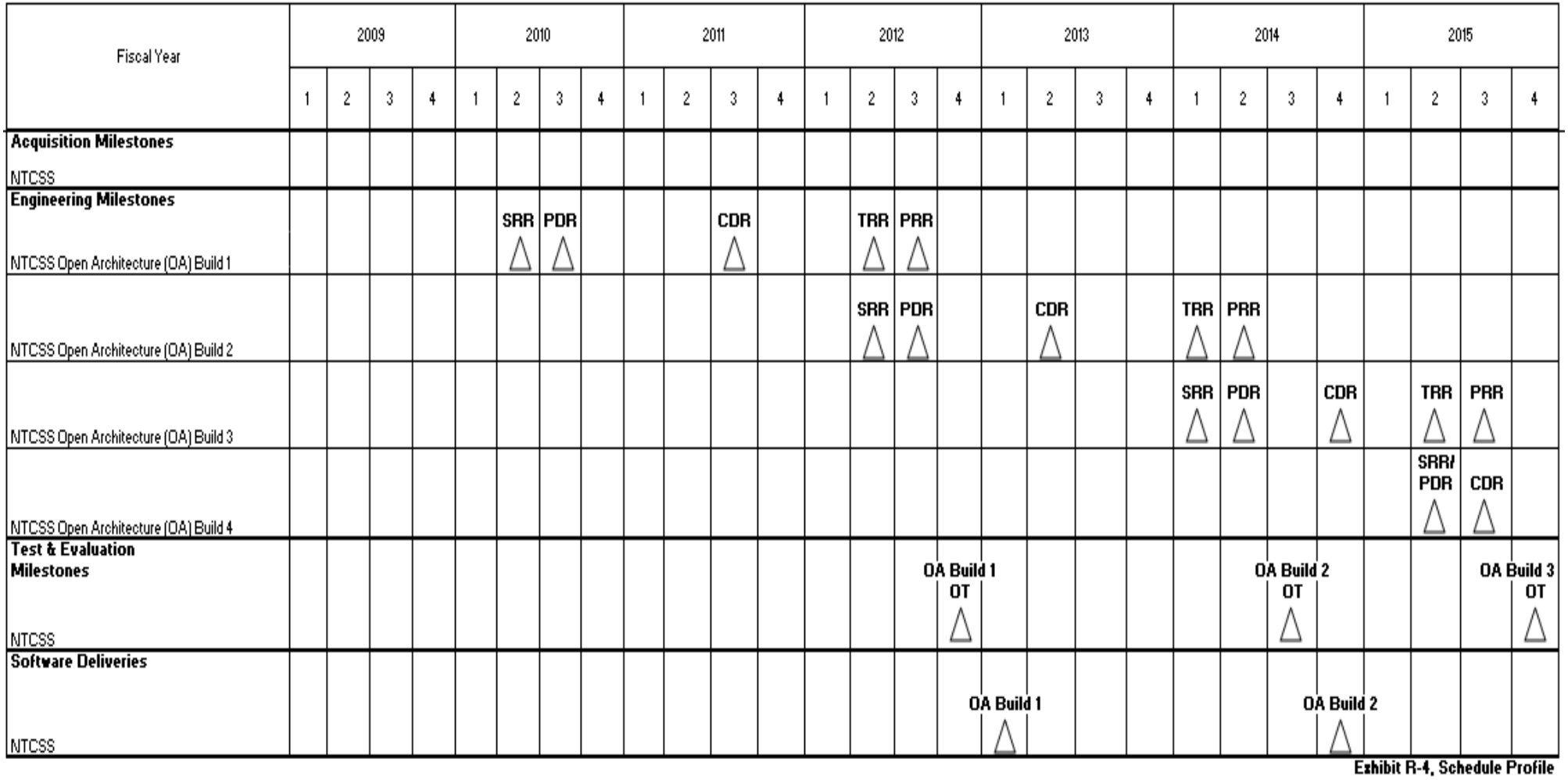


Exhibit R-4, Schedule Profile

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 3032: *NTCSS (Naval Tactical Command Spt Sys)*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
NTCSS Open Architecture Build 1- System Requirements Review (SRR)	2	2010	2	2010
NTCSS Open Architecture Build 1- Preliminary Design Review (PDR)	3	2010	3	2010
NTCSS Open Architecture Build 1- Critical Design Review (CDR)	3	2011	3	2011
NTCSS Open Architecture Build 1- Test Readiness Review (TRR)	2	2012	2	2012
NTCSS Open Architecture Build 1- Production Readiness Review (PRR)	3	2012	3	2012
NTCSS Open Architecture Build 1- Operational Test (OT)	4	2012	4	2012
NTCSS Open Architecture Build 1- Delivery	1	2013	1	2013
NTCSS Open Architecture Build 2- System Requirements Review (SRR)	2	2012	2	2012
NTCSS Open Architecture Build 2- Preliminary Design Review (PDR)	3	2012	3	2012
NTCSS Open Architecture Build 2- Critical Design Review (CDR)	2	2013	2	2013
NTCSS Open Architecture Build 2- Test Readiness Review (TRR)	1	2014	1	2014
NTCSS Open Architecture Build 2- Production Readiness Review (PRR)	2	2014	2	2014
NTCSS Open Architecture Build 2- Operational Test (OT)	3	2014	3	2014
NTCSS Open Architecture Build 2- Delivery	4	2014	4	2014
NTCSS Open Architecture Build 3- System Requirements Review (SRR)	1	2014	1	2014
NTCSS Open Architecture Build 3- Preliminary Design Review (PDR)	2	2014	2	2014
NTCSS Open Architecture Build 3- Critical Design Review (CDR)	4	2014	4	2014
NTCSS Open Architecture Build 3- Test Readiness Review (TRR)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 3032: *NTCSS (Naval Tactical Command Spt Sys)*

	Start		End	
Event	Quarter	Year	Quarter	Year
NTCSS Open Architecture Build 3- Production Readiness Review (PRR)	3	2015	3	2015
NTCSS Open Architecture Build 3- Operational Test (OT)	4	2015	4	2015
NTCSS Open Architecture Build 4- System Requirements Review (SRR)	2	2015	2	2015
NTCSS Open Architecture Build 4- Preliminary Design Review (PDR)	2	2015	2	2015
NTCSS Open Architecture Build 4- Critical Design Review (CDR)	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*	

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
9123: *FORCEnet*	42.321	6.707	5.667	0.000	5.667	11.325	10.739	17.625	17.884	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

FORCEnet is the Navy and Marine Corps initiative to achieve Department of Navy (DoN)/Department of Defense (DoD) Transformation, Joint/Allied/Coalition Interoperability, implementing Maritime Domain Awareness (MDA), and Net-Centric Operations/Warfare (NCO/W). FORCEnet is the driver of Sea Power 21, Naval Power 21, the Naval Operating Concept for Joint Operations, and the Department of the Navy's Naval Transformation Roadmap.

The FORCEnet project line funds the following efforts:

(1) DoN C4ISR Transformation/Strategic Planning within DoN/Joint/DoD Framework: Assesses existing and emerging capabilities, develops and evaluates Navy-wide policies, plans, requirements, and compliance; develops integration and investment strategies; and accelerates innovation, testing, assessment and fielding of material and non-material solutions for enhanced operational capability, Joint/Allied/Coalition interoperability and application/enforcement of enterprise requirements/ architectures/standards toward greater NCO/W capability. Supports Navy implementation of MDA capability, Maritime Operations Centers (MOC), and enterprise network efforts.

(2) Accelerating Joint Warfighting Capability (Trident Warrior): Enables early delivery of NCO/W capabilities to the warfighter via Fleet-directed Trident Warrior operational events with a strong emphasis on delivering MDA with MOC capability. Integrates stand-alone systems and efforts to achieve substantially enhanced capability, demonstrates/tests these capabilities in both laboratory and operational environments, and evaluates their effectiveness. Develops supporting concepts/ Concept of Operations to improve warfighting effectiveness. Coordinates FORCEnet efforts with other Service/Joint/DoD/National efforts to ensure Joint/Interagency/ Allied/Coalition applicability and interoperability.

(3) Implementing Sea Power-21 /FORCEnet Requirements: Implements and assesses FORCEnet requirements in DoN acquisition programs. Develops supporting architectures/standards and data strategies. Develops FORCEnet Implementation Tool Suite. Develops FORCEnet compliance services. Develops FORCEnet compliance test procedures and test methodologies. Refines FORCEnet compliance and defines levels of compliance. Conducts compliance testing reviews and reports on compliance adherence to Office of the Chief of Naval Operations, Naval Network Warfare Command, Assistant Secretary of the Navy Research, Development and Acquisition and the FORCEnet Coordination Council. Execute Systems Engineering Technical Authority and process implementation including execution of Systems Engineering Technical Reviews throughout all Navy POR lifecycles in the FORCEnet domain.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

(4) Systems Requirements Analysis / Systems Engineering (formerly Osprey Hawksbill): Supports requirements analysis and systems engineering of systems under development by DoN/DoD. Funding supports the technical and systems engineering expertise required for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems technical requirements generation, requirements tracking, architecture development, and detailed analyses on various warfare systems under development to determine if the required Command, Control, Communications, and Computers infrastructure, resources, and other capabilities are aligned and synchronized. The funding also supports the systems engineering for the synthesis of current network-centric, C4ISR programs of record with existing/emerging capabilities.

(5) MDA: MDA is the effective understanding of anything associated with the global maritime domain that could impact the security, safety, economy or environment. MDA objectives include the persistent monitoring of and ability to access and maintain data on vessels, cargo, people, and infrastructure; and the ability to collect, fuse, analyze, and disseminate information to decision makers to facilitate effective understanding. This initiative will identify, develop and transition data fusion, replication, sharing and assessment tools to achieve MDA. The initiative extends the reach of MDA tools and capabilities to include the Atlantic approaches to the United States and the European Area of Responsibility.

This MDA focused Deep Lightning Bolt warfighting enhancements are designed to achieve an all-source distributed MDA capability, leveraging existing MDA Navy and Non-Navy initiatives in the developmental phase and ensuring the best products transition to strategic, operational and tactical users as well as further development of MDA prototypes. The products will support all-source data fusion and mining, replication of MDA related data gathered in various operations such as expanded-maritime interdiction operations, sharing information with allies, and developing subject matter expertise and assessment tools to achieve MDA and enhance operational decision making.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FORCEnet	18.308	6.707	5.667	0.000	5.667
FY 2009 Accomplishments: 1) Department of Navy (DoN) Transformation within Joint/Department of Defense (DoD) Framework (Strategic Planning): Refined expanded Joint/Interagency/Allied/Coalition coordination/policy/ planning. Convened the fifth annual FRCC Review Board and FRCC Flag Board. Validated FORCEnet Requirements/Architectures/Standards Spiral/Iteration. Updated integrated FORCEnet					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Consolidated Compliance Checklist (FCCC) and continued to refine/expand DoN-wide implementation of FORCEnet/FCCC compliance under SECNAVINST 5000.2D . 2) Accelerating Joint Warfighting Capability (Trident Warrior): Conducted Trident Warrior 09 (TW09) in Commander Second Fleet/Commander Sixth Fleet Area of Responsibility using Expeditionary Strike Group (CSG/ESG) units with continued Coalition presence. Successfully performed experimentation on approximately 100 technologies. Investigated operational level implementation of Maritime Domain Awareness (MDA), Maritime Operations Center (MOC), Coalition, Global Information Grid (GIG) and Network Centric Enterprise Services (NCES) technologies and associated Tactics, Techniques, and Procedures (TTPs) and Concept of Operations (CONOPS). Provided support for the spiral development of programs of record (PORs). Planned and executed TW09 operational events to accelerate transition of FORCEnet capability to the Fleet. Provided leave behind capability for one deployment cycle of successful technologies for extended operational assessment. Completed analysis of TW09 experiment results and delivered Military Utility Assessment (MUA) to Naval Network Warfare Command (NETWARCOM), Commander Fleet Forces Command (CFFC) and the Sea Trial ESG. Began planning for Trident Warrior 10. Developed FY 10-11 FORCEnet Sea Trial Plan. 3) Implementing FORCEnet Requirements: Performed POR compliance reviews using validated assessment tools, compliance test procedures/methodologies. Reported POR level of FORCEnet compliance to OPNAV, NETWARCOM, ASN(RD&A) and the FORCEnet Coordination Council. Delivered two FORCEnet Implementation Tool Suite Spirals. Continued to refine/expand the FORCEnet Capabilities Development Process, integrating FORCEnet Compliance into the DoN Planning/Programming/Budgeting/Execution (PPBE) and JCIDS processes. Implemented Netcentric Data Strategy across all Navy led Communities of Interest. 4) Systems Requirements Analysis / Systems Engineering (formerly Osprey Hawksbill): Conducted requirements analysis and systems engineering of systems under development by DoN/DoD. Provided technical and systems engineering expertise required for C4ISR systems technical					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
requirements generation and tracking, architecture development, systems analysis to evaluate alignment and synchronization of infrastructure, resources and other existing/developing systems. Funding also supported the systems engineering for the synthesis of current net-centric C4ISR systems with existing and emerging C4ISR systems. 5) Deep Lightning Bolt/Rapid Capability Development (DLB/RCD): Based on current critical needs identified by the Fleet, DLB bridged gaps between Science & Technology efforts and Warfighter requirements, focused on developing technology for: Active / Passive Radio Frequency Exploitation Systems, Visualized Service Oriented Architecture Applications extended from Maritime Operations Center to Ship, Navy Tactical Networks communications applications allowing full access by disadvantaged users and the improvement of communications support for distributed operations to allow tactical and reachback networks over low bandwidth, Rapidly deployable reachback communication alternatives for use in the event of Satellite Communications (SATCOM) loss, Innovative Information Assurance solutions, Enhanced fusion of tactical data with National Technical Means. FY 2009 OCO: N/A *FY 2010 Plans:* 1) Department of the Navy (DON) C4ISR Transformation: Within the Department of Defense (DOD), Joint Staff (JS), and Combatant Commander management of Joint Capability Portfolios, assesses existing and emerging capabilities in selected operating environments, develops integration plans, execute systems engineering reviews and investment strategies, and accelerates innovation, technology insertion and incorporation of material and non-material solutions for enhanced, Joint operational capabilities in Net-Centric Operations Warfare (NCOW). Supports Navy implementation of MDA, Standing Joint Force Headquarters, MOC and coalition/Allied operations.*					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
2) Accelerating Joint Warfighting Capability (Trident Warrior): Finalize analysis of Trident Warrior 09 (TW09) experiment to result in delivery of MUA to NETWARCOM, CFFC and the Sea Trial Expeditionary Strike Group (ESG). Explore ident Warrior 10 (TW10) in Commander Third Fleet (C3F)/ Commander Seventh Fleet (C7F) AOR using CSG/ESG units with continued Coalition presence. For TW10, direct, coordinate, assist and supervise participant compliance with specific goal identification, risk identification, and experiment plan including data requirements and collection on schedule and in accordance with standardized procedures derived from experimentation best practices. Assist participants to achieve required installation and security certifications, accreditations and approvals. Conduct Risk Reduction Limited Objective Experiment (RR LOE) in a lab environment to ensure systems will have no negative impact on operational unit readiness and that systems provide valid data to support analysis and subsequent decisions. Assist in installation of experimental systems including conduct of a groom of ship operational systems to ensure they are operating as designed to support acquisition of valid data, providing subject matter experts (SMEs) to maintain core ship services during the experiment period. Provide independent experts in experimentation to coordinate the establishment and compliance with experiment plans and to lead analysis effort and provide unbiased assessment to decision makers. Provide results to government sponsors to support the program's Planning, Programming, Budgeting, and Execution System (PPBES) and engineering decisions. Anticipate some areas of investigation to be operational level implementation of MDA, Maritime Operations Center (MOC), Coalition, GIG and NCES technologies and associated TTPs and CONOPS. Plan and execute TW10 operational events to accelerate transition of FORCEnet capability to the Fleet. Provide leave-behind capability for one deployment cycle of successful technologies for extended operational assessment. Begin planning for Trident Warrior 11: Solicit participation of government sponsored and industry sponsored technologies responsive to identified Naval capability gaps. Select technologies for participation in numbers supportable within resources, approximately 100 initiatives. Develop FY 11-12 FORCEnet Sea Trial Plan. 3) Implementing FORCEnet Requirements: *					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
4) Systems Requirements Analysis / Systems Engineering (formerly Osprey Hawksbill): Conducts requirements analysis and systems engineering of systems under development by DoN/DoD. Provides technical and systems engineering expertise required for C4ISR systems technical requirements generation and tracking, architecture development, systems analysis to evaluate alignment and synchronization of infrastructure, resources and other existing/developing systems. Funding also supports the systems engineering for the synthesis of current net-centric C4ISR systems with existing and emerging C4ISR systems. *Efforts realigned to Program Element 0604707N, Project 2144 Space and Electronic Warfare Engineering starting in FY10. FY 2010 OCO: N/A *FY 2011 Base Plans:* 1) Department of the Navy (DON) C4ISR Transformation: Within the Department of Defense (DOD), Joint Staff (JS), and Combatant Commander management of Joint Capability Portfolios, assesses existing and emerging capabilities in selected operating environments, develops integration plans, execute systems engineering reviews and investment strategies, and accelerates innovation, technology insertion and incorporation of material and non-material solutions for enhanced, Joint operational capabilities in NCOW. Supports Navy implementation of Maritime Domain Awareness (MDA), Standing Joint Force Headquarters, Maritime Operations Centers (MOC) and coalition/Allied operations.* 2) Accelerating Joint Warfighting Capability (Trident Warrior): Funds At-Sea experiment venue focused on improving Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) operational capabilities across all Naval and Joint platforms across a range of Technology Readiness Levels (TRLs), representing both Next Step Science and Technology (S&T) Innovations and higher TRL POR-hosted technologies. Finalize analysis of Trident Warrior 10					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(TW10) experiment and deliver a MUA to NETWARCOM, CFFC and the Sea Trial Expeditionary Strike Group (ESG). Conduct and execute TW11 in Commander Second Fleet (C2F)/Commander Sixth Fleet (C6F) Area of Responsibility (AOR) using Carrier Strike Group/CSG/ESG units with continued Coalition presence. Direct, coordinate, assist and supervise technology provider compliance with specific goal identification, risk identification, and experiment planning to include data collection requirements. Direct and ensure required installation and security certification, accreditation, and approvals for all technologies. Conduct Risk Reduction Limited Objective Experiment (RR LOE) in a lab environment to ensure systems will not have a negative impact on operational unit readiness and provide value-added data to support analysis and subsequent acquisition decisions. Engineer and install experimental C4ISR systems, including a groom of existing onboard ship operational C4ISR systems to ensure that they are operating as designed and support the acquisition of Net Ready Key Performance Parameters (NR KPPs). Provide subject matter experts (SMEs) to maintain core ship services during the experiment period and troubleshoot system failures and interoperability issues. In addition, provide independent experts in experimentation best practices to coordinate experiment and test plans; lead the Data Collection and Analysis Plan (DCAP) effort, and provide unbiased assessment to Fleet and Acquisition key decision makers. Provide results to government sponsors to support the program's Planning, Programming, Budgeting, and Execution System (PPBES) and engineering decisions. Areas of investigation anticipated to be in the following categories: Range of Operational Warfare Command and Control (ROWC2), operational level implementation of Maritime Domain Awareness (MDA), Maritime Operations Center (MOC), Coalition, GIG and NCES technologies and associated TTPs and CONOPS. Plan and execute TW11 operational events to accelerate transition of FORCEnet capability to the Fleet. Provide leave-behind capability for one deployment cycle of successful technologies for extended operational assessment. Begin planning for Trident Warrior 12: Solicit participation of government sponsored and industry sponsored technologies responsive to identified Naval capability gaps. Select technologies for participation in numbers supportable within resources, approximately 90 initiatives. Develop FY 12-13 FORCEnet Sea Trial Plan.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
3) Implementing FORCEnet Requirements: * 4) Systems Requirements Analysis/Systems Engineering: Conducts requirements analysis and systems engineering of systems under development by DoN/DoD. Provides technical and systems engineering expertise required for C4ISR systems technical requirements generation and tracking, architecture development, systems analysis to evaluate alignment and synchronization of infrastructure, resources and other existing/developing systems. Funding also supports the systems engineering for the synthesis of current net-centric C4ISR systems with existing and emerging C4ISR systems. *Efforts realigned to Program Element 0604707N, Project 2144 Space and Electronic Warfare Engineering starting in FY10. FY 2011 OCO: N/A					
Acquistion Workforce Fund *FY 2009 Accomplishments:* N/A	0.165	0.000	0.000	0.000	0.000
Maritime Domain Awareness (MDA) *FY 2009 Accomplishments:* Maritime Domain Awareness (MDA) The MDA Prototype, including the Non-Classified Enclave (NCE), delivered enhanced vessel tracking, anomaly detection (Track Assessment and Anomaly Detection - Maritime (TAANDEM)), threat detection, expanded maritime interdiction capabilities and improved access to national databases for Naval and Coast Guard activities supporting National Maritime Security. Specific planned	23.848	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
activities for FY09 that support the MDA prototype included: implementing the FY08 Quick Reaction Assessment (QRA) findings and recommendations, systems engineering and test and evaluation activities, deploying Forward System Engineering Teams (FSETS) to maintain prototype capabilities at fielded sites; delivering enhanced training materials, refresher training and long-term training development, logistics support and other program management support. Conducted Comprehensive Maritime Awareness (CMA) Joint Capabilities Technology Demonstrations (JCTD) Operational Utility Assessment (OUA), MDA Capabilities Based Assessment (CBA) Resources and Requirements Review Board (R3B), approval of Gate 1 Review; approval to proceed with MDA Enterprise Node. Based on OUA findings, technology maturity, adaptability and expansion potential, Assistant Secretary of the Navy for Research Development and Acquisition (ASNRDA) will determine final Fielding Decision. Conducted successful Quick Reaction Assessment (QRA) on the Operational Demonstration 4 (OD4) and NCE. Deployed NCE to Africa Partnership Station onboard USS Nashville. Relocated NCE hosting facility to SOUTHCOM.					
Accomplishments/Planned Programs Subtotals	42.321	6.707	5.667	0.000	5.667

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

FORCEnet Performance Metrics: Goal: CNO strategic planning and supporting acquisition of N89 classified efforts. Metric: Echelon 1 response to emergent strategic needs and classified warfighting capability.

Accelerating Joint Warfighting Capability (Trident Warrior) Performance Metrics: Confirmation of Fleet and Joint Interoperability with technology candidates, Information Assurance certification and accreditation, and alignment with current Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Technology Roadmaps as well as related Program Executive Office (PEO) Objectives and projected architectures. Metrics for individual technologies are

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

independently determined and validated by Naval Post Graduate School (NPS). Metrics are chosen to ensure that the experiment results in the accurate assessment of the technology to either address a capability gap or support Program of Record (POR) programmatic decisions.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*	

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 DLB/RCD	Various/ Various	Various Various	1.196	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering-DLB/RCD	Various/ Various	Various Various	0.600	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Ship Integration	Various/ Various	Various Various	0.935	0.000		0.000		0.000		0.000	0.000	0.935	Continuing
Systems Engineering	Various/ Various	Various Various	1.600	0.000		0.000		0.000		0.000	0.000	1.600	Continuing
		Subtotal	4.331	0.000		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
Integrated Logistics Support DLB/RCD	Various/ Various	Various Various	0.250	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Configuration Management DLB/RCD	Various/ Various	Various Various	0.115	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Development Support DLB/RCD	Various/ Various	Various Various	0.250	0.000		0.000		0.000		0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

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 DLB/RCD	Various/ Various	Various Various	1.971	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Development Support	Various/ Various	Various Various	2.700	0.000		0.000		0.000		0.000	0.000	2.700	Continuing
Software Support	Various/ Various	Various Various	2.900	0.000		0.000		0.000		0.000	0.000	2.900	Continuing
Sys Req Analysis/Sys Eng	Various/ Various	Various Various	14.010	1.093	Feb 2010	0.818	Feb 2011	0.000		0.818	Continuing	Continuing	Continuing
S/W Develop,Integ,Demo, Field - MDA Prototypes	Various/ Various	Various Various	108.910	0.000		0.000		0.000		0.000	0.000	108.910	Continuing
		Subtotal	131.106	1.093		0.818		0.000		0.818			

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	1.300	0.000		0.000		0.000		0.000	0.000	1.300	Continuing
Accelerating Joint Warfighting Capability	Various/ Various	Various Various	26.195	4.580	Feb 2010	4.076	Feb 2011	0.000		4.076	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

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
Imp FORCEnet Req (Fn Comp)	Various/ Various	Various Various	17.144	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
DoN Transformation (Strategic Planning)	Various/ Various	Various Various	19.496	1.034	Feb 2010	0.773	Feb 2011	0.000		0.773	Continuing	Continuing	Continuing
Developmental Test & Evaluation DLB/RCD	Various/ Various	Various Various	0.500	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	64.635	5.614		4.849		0.000		4.849			

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
Technical Support	Various/ Various	Various Various	2.124	0.000		0.000		0.000		0.000	0.000	2.124	Continuing
Government Engineering Support	Various/ Various	Various Various	3.899	0.000		0.000		0.000		0.000	0.000	3.899	Continuing
Program Management Support DLB/RCD	Various/ Various	Various Various	0.250	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Travel DLB/RCD	Various/ Various	Various Various	0.145	0.000		0.000		0.000		0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

Management Services ($ in Millions)

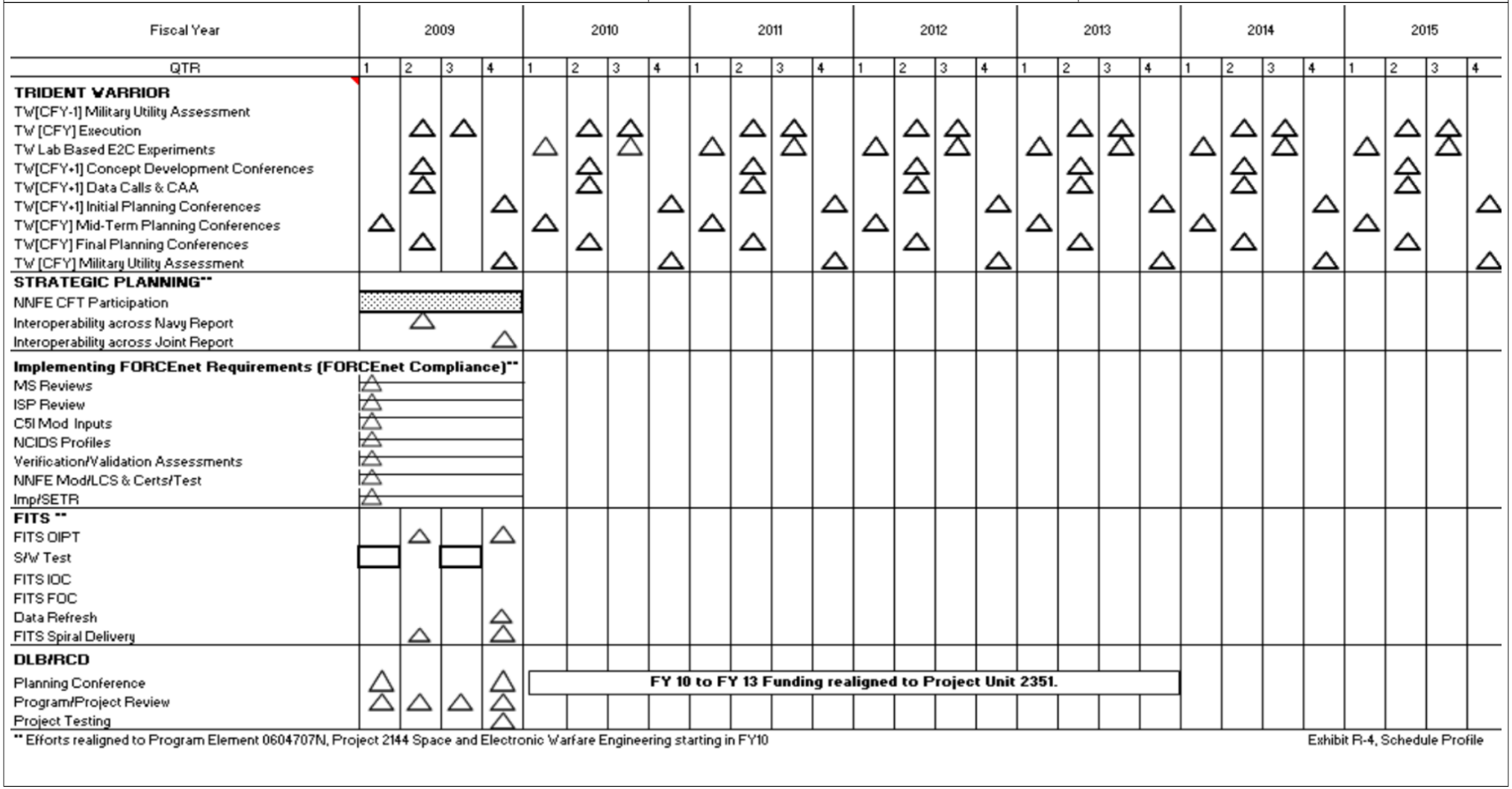
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various/ Various	Various Various	0.800	0.000		0.000		0.000		0.000	0.000	0.800	Continuing
Travel	Various/ Various	Various Various	0.299	0.000		0.000		0.000		0.000	0.000	0.299	Continuing
Acquisition Workforce	Various/ Various	Various Various	0.165	0.000		0.000		0.000		0.000	0.000	0.165	Continuing
		Subtotal	7.682	0.000		0.000		0.000		0.000			

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	207.754	6.707		5.667		0.000		5.667			

Remarks

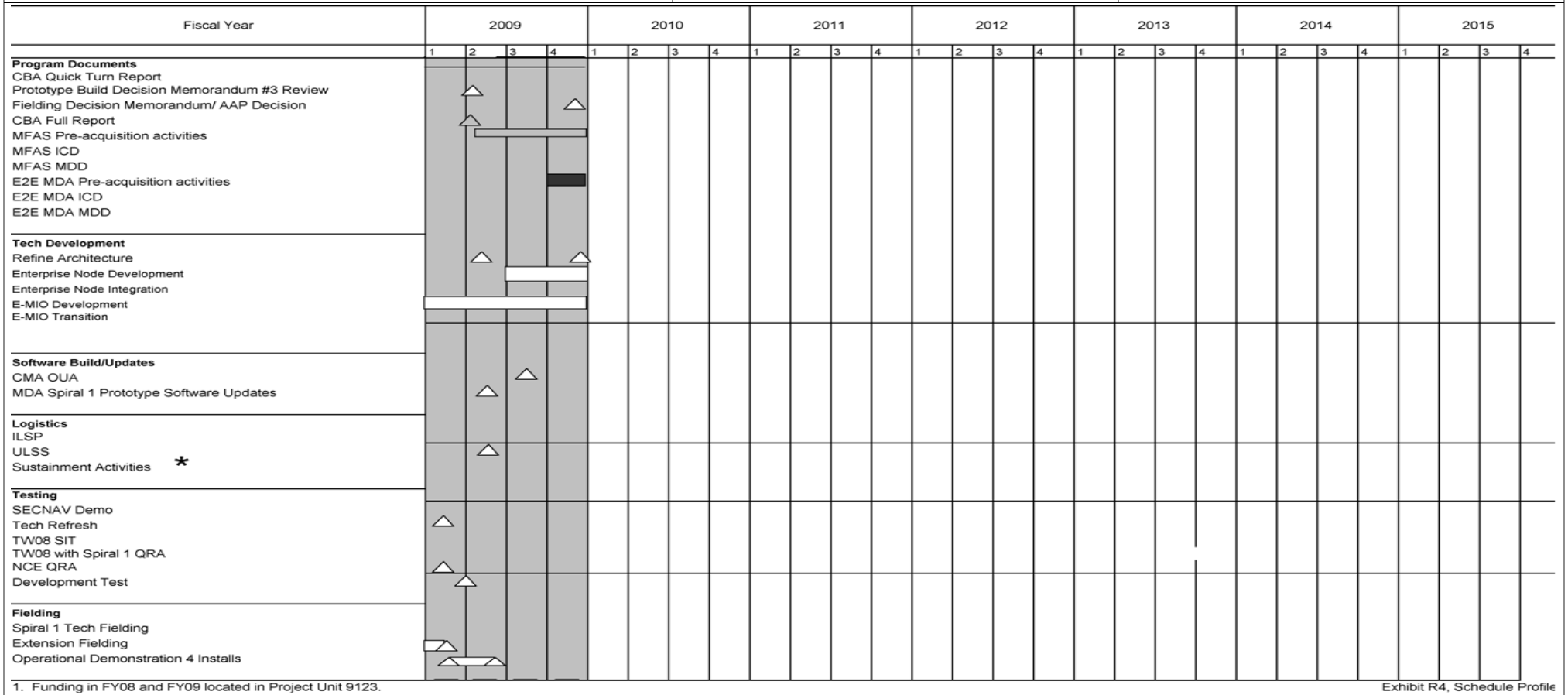
Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 9123: *FORCEnet*



** Efforts realigned to Program Element 0604707N, Project 2144 Space and Electronic Warfare Engineering starting in FY10

Exhibit R-4, 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604231N: *Tactical Command System*	**PROJECT** 9123: *FORCEnet*



1. Funding in FY08 and FY09 located in Project Unit 9123.

Exhibit R4, Schedule Profile

CBA - Capabilities Based Assessment
CMA - Comprehensive Maritime Awareness
E2E MDA - End-to-End MDA
ICD - Initial Capabilities Document
AAP - Abbreviated Acquisition Program

NCE - Non-classified Environment
OUA - Operational Utility Assessment
QRA - Quick Reaction Assessment
SOA - Service Oriented Architecture

SIT - Systems integration Testing
TW - Trident Warrior
ULSS - User's Logistics Support Summary
* - OMN Funded

MDA Spiral 1 Prototype
MFAS Increment
E2E Increment

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Trident Warrior (TW) Execution	2	2009	3	2015
TW Lab Based E2C Experiments	1	2010	3	2015
TW Concept Development Conferences	2	2009	2	2015
TW Data Calls & CAA	2	2009	2	2015
TW Initial Planning Conferences	4	2009	4	2015
TW Mid-Term Planning Conferences	1	2009	1	2015
TW Final Planning Conferences	2	2009	2	2015
TW Military Utility Assessment	4	2009	4	2015
Strategic Planning (SP) NNFE CFT Participation	1	2009	4	2009
SP Interoperability across Navy Report	2	2009	2	2009
SP Interoperability across Joint Report	4	2009	4	2009
FORCEnet Compliance (Fn Comp) MS Reviews	1	2009	4	2009
Fn Comp ISP Review	1	2009	4	2009
Fn Comp C5I Mod Inputs	1	2009	4	2009
Fn Comp NCIDS Profiles	1	2009	4	2009
Fn Comp Verification/Validation Assessments	1	2009	4	2009
Fn Comp NNFE Mod/LCS & Certs/Test	1	2009	4	2009
Fn Comp Imp/SETR	1	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

	Start		End	
Event	Quarter	Year	Quarter	Year
FORCEnet Implementation Tool Suite (FITS) OIPT	2	2009	4	2009
FORCEnet Implementation Tool Suite (FITS) S/W Test	1	2009	3	2009
FORCEnet Implementation Tool Suite (FITS) Data Refresh	4	2009	4	2009
FORCEnet Implementation Tool Suite (FITS) Spiral Delivery	2	2009	4	2009
DLB/RCD Planning Conference	1	2009	4	2009
DLB/RCD Program/Project Review	1	2009	4	2009
DLB/RCD Project Testing	4	2009	4	2009
Prototype Build Decision Memorandum #3	2	2009	2	2009
Fielding Decision Memorandum	4	2009	4	2009
CBA Full Report	2	2009	2	2009
MFAS Pre-acquisition activities	2	2009	4	2009
E2E MDA Pre-acquisition activities	4	2009	4	2009
Refine Architecture	2	2009	4	2009
Enterprise Node Development	3	2009	4	2009
EMIO Development	1	2009	4	2009
CMA OUA	3	2009	3	2009
MDA Spiral 1 Prototype Software Updates	2	2009	2	2009
ULSS	2	2009	2	2009
Tech Refresh	1	2009	1	2009
NCE QRA	1	2009	1	2009

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9123: *FORCEnet*

	Start		End	
Event	Quarter	Year	Quarter	Year
Development Test	1	2009	1	2009
Extension Fielding	1	2009	1	2009
Operational Demonstration 4 Installs	1	2009	2	2009

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command 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*	3.989	6.373	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.949
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: Shipboard Wireless Network *FY 2010 Plans:* Initiate hardware development of 60 GHz VI-FI technology from NAVSEA SBIR to work in a shipboard environment. Begin systems engineering efforts to modify design and interfaces to be interoperable wtih current and planned wireless network implementations, as well as client devices provided by NAVSEA and NAVAIR programs. Conduct modeling and simulation, network integration and electromagnetic testing to verify interoperability with existing shipboard systems.	0.000	2.390
Congressional Add: ISR Enhancements *FY 2009 Accomplishments:* Funded requirements analysis, development of architectural alternatives, use case generation, CONOPS development and system engineering activities necessary to incorporate multiple security enclaves (projected Objective requirement for Increment 2.1 and Threshold requirement for Increment 3.0) into Tactical Support Centers (TSCs) and Mobile Operations Control Centers (MOCCs) to support	3.989	3.983

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604231N: *Tactical Command System*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
the enhanced ISR capabilities of new and upgraded Maritime Patrol and Reconnaissance Aircraft (MPRA). *FY 2010 Plans:* Continue to fund requirements analysis, development of architectural alternatives, use case generation, CONOPS development and system engineering activities necessary to incorporate multiple security enclaves (projected Objective requirement for Increment 2.1 and Threshold requirement for Increment 3.0) into Tactical Support Centers (TSCs) and Mobile Operations Control Centers (MOCCs) to support the enhanced ISR capabilities of new and upgraded Maritime Patrol and Reconnaissance Aircraft (MPRA).		
Congressional Adds Subtotals	3.989	6.373

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy											DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*							
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	468.027	361.053	171.132	0.000	171.132	77.067	31.612	2.461	0.000	0.000	4,029.566
3051: *E-2C RMP*	468.027	361.053	171.132	0.000	171.132	77.067	31.612	2.461	0.000	0.000	4,029.566

A. Mission Description and Budget Item Justification

The E-2D Advanced Hawkeye (AHE) program develops, demonstrates, tests, and procures the replacement of the AN/APS-145 radar system and other aircraft system components including Cooperative Engagement Capability Pre-Planned Product Improvement (CEC P3I) and Dual Transmit Satellite Communications (SATCOM) that modernize the E-2 weapon system to maintain open ocean mission capability while providing the United States Navy (USN) with an effective littoral surveillance, battle management, and Theater Air and Missile Defense (TAMD) capability. Key radar technologies are Space-Time Adaptive Processing (STAP), Electronically Scanning Array (ESA), solid state transmitter, high dynamic range digital receivers and Identification Friend or Foe (IFF)/radar aperture integration. The resultant detection system will provide a substantially improved overland performance by correcting current sensor shortfalls and enhancing all current required mission areas, while simultaneously contributing to the emerging TAMD mission requirements. Mode 5/S is an upgrade to the existing IFF System providing the warfighter positive, secure and reliable identification of friendly aircraft, surface and sub-surface platforms. Mode 5/S replaces the National Security Administration (NSA) de-certified Mode 4 IFF capability, which is no longer effective or suitable for modern military operations. Mode 5/S will support the Joint Initial Operational Capability (IOC) as defined by the Joint Requirements Oversight Council (JROC).

This program element was utilized for AHE (Radar Modernization Program (RMP)) pre-System Development and Demonstration (Pre-SD&D), followed by SD&D. Major activities in FY 2009 included continued subsystem and weapon system verification testing, discrepancy report and yellow sheet resolution and on-going risk reduction efforts on the two SDD aircraft. The three pilot production aircraft continue being manufactured on the production line, and Milestone C approval gave authority to enter the production and deployment phase and to procure Low Rate Initial Production lot aircraft. A second Operational Assessment on SDD aircraft will be conducted in FY 2010, with Initial Operational Test and Evaluation scheduled for FY 2012. IOC is planned for FY 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604234N: *Advanced Hawkeye*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	482.355	364.557	0.000	0.000	0.000
Current President's Budget	468.027	361.053	171.132	0.000	171.132
Total Adjustments	-14.328	-3.504	171.132	0.000	171.132
• Congressional General Reductions		-1.504			
• Congressional Directed Reductions		-2.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-14.328	0.000			
• Program Adjustments	0.000	0.000	171.132	0.000	171.132

Change Summary Explanation

Technical: Not applicable.

Schedule: Updated Pilot Production (PP), LRIP II and LRIP IV production quantities. Updated LRIP II, LRIP III, LRIP IV production delivery schedule. Added FRP Lot II and III contract awards and FRP aircraft deliveries.

Added a new DAB decision for approval of LRIP III and IV.

Due a redefinition of IOC as "Readiness for the First Operational Deployment" (the first E-2D Advanced Hawkeye squadron is manned, trained, and is ready to begin deployment preparations), IOC is now in FY 2015.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*	

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
3051: *E-2C RMP*	468.027	361.053	171.132	0.000	171.132	77.067	31.612	2.461	0.000	0.000	4,029.566
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The E-2D Advanced Hawkeye (AHE) program develops, demonstrates, tests, and procures the replacement of the AN/APS-145 radar system and other aircraft system components including Cooperative Engagement Capability Pre-Planned Product Improvement (CEC P3I) and Dual Transmit Satellite Communications (SATCOM) that modernize the E-2 weapon system to maintain open ocean mission capability while providing the United States Navy (USN) with an effective littoral surveillance, battle management, and Theater Air and Missile Defense (TAMD) capability. Key radar technologies are Space-Time Adaptive Processing (STAP), Electronically Scanning Array (ESA), solid state transmitter, high dynamic range digital receivers and Identification Friend or Foe (IFF)/radar aperture integration. The resultant detection system will provide a substantially improved overland performance by correcting current sensor shortfalls and enhancing all current required mission areas, while simultaneously contributing to the emerging TAMD mission requirements. Mode 5/S is an upgrade to the existing IFF System providing the warfighter positive, secure and reliable identification of friendly aircraft, surface and sub-surface platforms. Mode 5/S replaces the National Security Administration (NSA) de-certified Mode 4 IFF capability, which is no longer effective or suitable for modern military operations. Mode 5/S will support the Joint Initial Operational Capability (IOC) as defined by the Joint Requirements Oversight Council (JROC).

The AHE program also upgrades or replaces aircraft system components that are either obsolete or becoming unsupportable, upgrades or replaces other aircraft systems as required and improves the operational availability and producibility of the weapons system. The AHE is a key pillar of the Naval Integrated Fire Control - Counter Air capability. The AHE is intended to meet battle management and TAMD needs as the United States Navy develops its "Sea Power 21" concepts in support of Joint Vision 2020.

This program element was utilized for AHE (Radar Modernization Program (RMP)) pre-System Development and Demonstration (Pre-SD&D), followed by SD&D. Major activities in FY 2009 include continued subsystem and weapon system verification testing, discrepancy report and yellow sheet resolution and on-going risk reduction efforts on the two SDD aircraft. The three pilot production aircraft continue being manufactured on the production line, and Milestone C approval gave authority to enter the production and deployment phase and to procure Low Rate Initial Production lot aircraft. A second Operational Assessment on SDD aircraft will be conducted in FY 2010, with Initial Operational Test and Evaluation scheduled for FY 2012. IOC is planned for FY 2015.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
System Development and Demonstration	334.230	210.019	70.723	0.000	70.723
System Development and Demonstration (SD&D) contract with Northrop Grumman Corporation for SD&D and Pilot Production efforts for the E-2D Advanced Hawkeye Program. *FY 2009 Accomplishments:* Continued SD&D efforts for E-2D AHE program. Conducted engineering and development efforts for weapon system and SD&D pilot production. *FY 2010 Plans:* Continue SD&D, Pilot Production, Cooperative Engagement Capability Pre-Planned Product Improvement (CEC P3I), and Dual Transmit SATCOM efforts. *FY 2011 Base Plans:* Conduct System Functional Qualification Testing, Phase D Testing and Production Validation, Weapon System functional and physical configuration audits of Pilot Production aircraft.					
Government Furnished Equipment	1.966	0.000	4.400	0.000	4.400
Government Furnished Equipment (GFE) for the Pilot Production aircraft and other Advanced Hawkeye efforts. *FY 2009 Accomplishments:* Funded GFE for Pilot Production aircraft. *FY 2011 Base Plans:* Funding is for GFE for the Naval Integrated Fire Control-Counter Air Test and Evaluation effort.					
NAWCAD Engineering and Test Support	64.497	35.749	40.785	0.000	40.785

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Fund Government Engineering, Contractor Engineering, and Classified Engineering Support. Perform Government oversight. Execute test program risk reduction efforts. *FY 2009 Accomplishments:* Funded flight test activities in St. Augustine, FL, and Patuxent River, MD, development of CEC P3I and Dual Transmit SATCOM capabilities, and provide engineering oversight for production related activities for pilot production aircraft. *FY 2010 Plans:* Funds the continuation of developmental testing including radar performance testing, remaining full system integration testing. Continue Weapon System Specification Verification for resolution of deficiencies prior to Operational Evaluation (OPEVAL). *FY 2011 Base Plans:* Funding is for the continuation of developmental testing including radar performance testing, remaining full system integration testing, and Naval Integrated Fire Control - Counter Air AHE efforts. Continue Weapon System Specification Verification for resolution of deficiencies prior to Operational Evaluation (OPEVAL).					
NC-130H/E-2D Classified Programs Provides support for the E-2D Classified Development efforts. *FY 2009 Accomplishments:* Funded E-2D Classified Development efforts. *FY 2010 Plans:* Funds E-2D Classified Development efforts.	43.221	45.312	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Funding is for the continuation of E-2D Classified Development efforts.					
Trainers Funds the design, development and delivery of the trainers in support of the E-2D Advanced Hawkeye program. *FY 2009 Accomplishments:* Funded the design of the Weapons System Trainer and the Operational Flight Trainer. *FY 2010 Plans:* Funds the development of the Weapons System Trainer and the Operational Flight Trainer, also funds the design of the Simulated Maintenance Trainer. *FY 2011 Base Plans:* Funding is for the development of the Weapons System Trainer and the Simulated Maintenance Trainer, also funds the delivery of the Operational Flight Trainer.	24.113	45.528	25.193	0.000	25.193
Mode 5/S Mode 5/S is the replacement/upgrade to the existing identification Friend or Foe (IFF) system. *FY 2010 Plans:* Funds the system development of Identification Friend or Foe (IFF) Mode 5/S technology into the E-2D IFF Interrogator mission equipment. Emphasis will be on software development for both the IFF Enclosure and the Mission Computer.	0.000	24.445	26.781	0.000	26.781

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Funding is for system development, integration and testing to support the incorporation of Identification Friend or Foe (IFF) Mode 5/S technology into the E-2D IFF Interrogator mission equipment. Integration testing will include laboratory, ground and flight tests.					
Accomplishments/Planned Programs Subtotals	468.027	361.053	171.132	0.000	171.132

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
• APN/0544: *E-2 Series (Includes OSIPs 001-13 Dual Transmit SATCOM and 002-13 Mode 5/S)*	0.000	0.000	0.000	0.000	0.000	0.000	3.755	4.626	4.757	0.449	13.587

D. Acquisition Strategy

Acquisition Strategy was signed by Milestone Decision Authority (MDA), USD (AT&L) on 29 Dec 2008. Milestone C approval to proceed into Production and Deployment was given 11 June 2009 by the Defense Acquisition Board (DAB).

E. Performance Metrics

Successfully receive a DAB decision for approval to procure LRIP lot III and IV. Successfully conduct an Operational Test Readiness Review (OTRR) for entrance into 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*	

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	NGC NY	2,618.174	174.474	Oct 2009	66.784	Oct 2010	0.000		66.784	21.539	2,880.971	2,880.971
Primary Hardware Development	SS/FFP	Stichting D Netherlands	4.482	0.000		0.000		0.000		0.000	0.000	4.482	4.482
Primary Hardware Development	SS/FFP	Rolls-Royce IN	0.016	0.000		0.000		0.000		0.000	0.000	0.016	0.016
Training Development	Various/ Various	Various Various	7.167	0.000		0.000		0.000		0.000	0.000	7.167	Continuing
Training Development	C/CPIF	Rockwell Collins IA	35.441	33.500	May 2010	13.088	May 2011	0.000		13.088	2.704	84.733	84.733
Training Development	C/CPIF	Lockheed Martin Liverpool	5.042	9.219	May 2010	10.913	May 2011	0.000		10.913	8.783	33.957	33.957
Training Development	SS/CPAF	NGC NY	10.036	0.000		0.000		0.000		0.000	0.000	10.036	10.036
Systems Engineering	PO	Navy Syst Mgt Activity VA	134.839	45.312	Mar 2010	3.250	Mar 2011	0.000		3.250	1.302	184.703	Continuing
GFE	C/CPIF	NAVSEA WNY, DC	12.371	0.000		0.000		0.000		0.000	0.000	12.371	12.371
GFE	Various/ Various	Various Various	29.335	0.000		4.400	Jan 2011	0.000		4.400	0.000	33.735	Continuing
Award Fees	SS/CPAF	NGC NY	101.631	34.358	Aug 2010	0.000		0.000		0.000	0.000	135.989	135.989
All Product Dev cost from program	Various/ Various	Various Various	128.796	0.000		0.000		0.000		0.000	0.000	128.796	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*	

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
implementation thru FY04													
		Subtotal	3,087.330	296.863		98.435		0.000		98.435	34.328	3,516.956	3,162.555

Remarks

Award Fee:

Period 1 FY04 - 90%	Period 5 FY06 - 100%
Period 2 FY04 - 91%	Period 6 FY07 - 95%
Period 3 FY05 - 80%	Period 7 FY08 - 94%
Period 4 FY06 - 94%	Period 8 FY09 - 93%
Period 9 FY09 - 95%	

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	PO	Navy Syst Mgt Activity VA	8.904	0.000		0.000		0.000		0.000	0.000	8.904	Continuing
Development Support	Various/ Various	Various Various	9.025	0.375		0.257		0.000		0.257	0.000	9.657	Continuing
Software Development	WR	NAWCAD Pax River, MD	1.087	0.000		0.000		0.000		0.000	0.000	1.087	Continuing
Software Development	SS/CPIF	NGC	0.000	16.167	May 2010	18.003	Apr 2011	0.000		18.003	7.752	41.922	41.922

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*

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
		NY											
Integrated Logistics Support	Various/ Various	Various Various	6.372	1.759		1.694		0.000		1.694	0.525	10.350	Continuing
Government Engineering Sup	WR	NAWCAD Pax River, MD	72.972	9.169	Nov 2009	8.876	Nov 2010	0.000		8.876	7.037	98.054	Continuing
Government Engineering Sup	WR	NAWCTSD Orlando, FL	6.102	1.908	Nov 2009	1.394	Nov 2010	0.000		1.394	0.200	9.604	Continuing
Government Engineering Sup	Various/ Various	Various Various	8.557	3.149		1.023		0.000		1.023	0.632	13.361	Continuing
Government Engineering Sup	WR	NAWCAD Lakehurst, NJ	2.981	0.856	Nov 2009	0.617	Nov 2010	0.000		0.617	0.000	4.454	Continuing
Contractor Engineering Supt ETS	Various/ Various	Various Various	7.965	1.503	Dec 2009	1.339	Dec 2010	0.000		1.339	0.000	10.807	Continuing
Contractor Engineering Supt ETS	C/CPFF	Wyle Labs AL	17.617	3.256	Dec 2009	2.441	Dec 2010	0.000		2.441	1.191	24.505	24.505
Contractor Engineering Supt ETS	C/CPFF	Bearing Point MD	2.500	0.856	Dec 2009	0.834	Dec 2010	0.000		0.834	0.456	4.646	4.646
Studies & Analyses	PO	Navy Syst Mgt Activity VA	2.518	0.000		0.000		0.000		0.000	0.000	2.518	Continuing
Technical Data	Various/ Various	Various Various	0.133	0.000		0.000		0.000		0.000	0.000	0.133	Continuing
All Support costs from program implementation thru FY04	Various/ Various	Various Various	5.806	0.000		0.000		0.000		0.000	0.000	5.806	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*

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	152.539	38.998		36.478		0.000		36.478	17.793	245.808	71.073

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	36.413	11.250	Nov 2009	12.879	Nov 2010	0.000		12.879	13.523	74.065	Continuing
Developmental Test & Evaluation	Various/ Various	Various Various	17.455	7.019	Dec 2009	14.055	Dec 2010	0.000		14.055	15.661	54.190	Continuing
Developmental Test & Evaluation	SS/FFP	Stichting D Netherlands	4.657	0.000		0.000		0.000		0.000	0.000	4.657	4.657
Developmental T&E ETS	C/CPFF	Wyle Labs AL	4.208	1.985	Dec 2009	2.384	Dec 2010	0.000		2.384	3.256	11.833	11.833
Developmental T&E ETS	Various/ Various	Various Various	0.748	0.000		0.000		0.000		0.000	0.000	0.748	Continuing
Developmental T&E ETS	C/FFP	L-3 Communications VA	2.088	0.423	Dec 2009	0.654	Dec 2010	0.000		0.654	0.850	4.015	4.015
Operational Test & Evaluation	WR	NAWCAD Pax River, MD	0.146	0.000		0.000		0.000		0.000	8.169	8.315	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*

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	Various/ Various	Various Various	1.567	0.350		2.356		0.000		2.356	16.000	20.273	Continuing
Test Assets	SS/CPAF	NGC NY	3.900	0.000		0.000		0.000		0.000	0.000	3.900	3.900
All T&E cost from program implementation thru FY04	Various/ Various	Various Various	3.208	0.000		0.000		0.000		0.000	0.000	3.208	Continuing
		Subtotal	74.390	21.027		32.328		0.000		32.328	57.459	185.204	24.405

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	12.188	0.000		0.000		0.000		0.000	0.000	12.188	Continuing
Contractor Engineering Support	PO	Navy Syst Mgt Activity VA	3.327	0.000		0.000		0.000		0.000	0.000	3.327	Continuing
Contractor Engineering Support MSS	Various/ Various	Various Various	1.496	0.209	Dec 2009	0.215	Dec 2010	0.000		0.215	0.000	1.920	Continuing
	C/CPFF	Wyle Labs	8.921	0.858	Dec 2009	0.425	Dec 2010	0.000		0.425	0.225	10.429	10.429

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*

Management Services ($ in Millions)

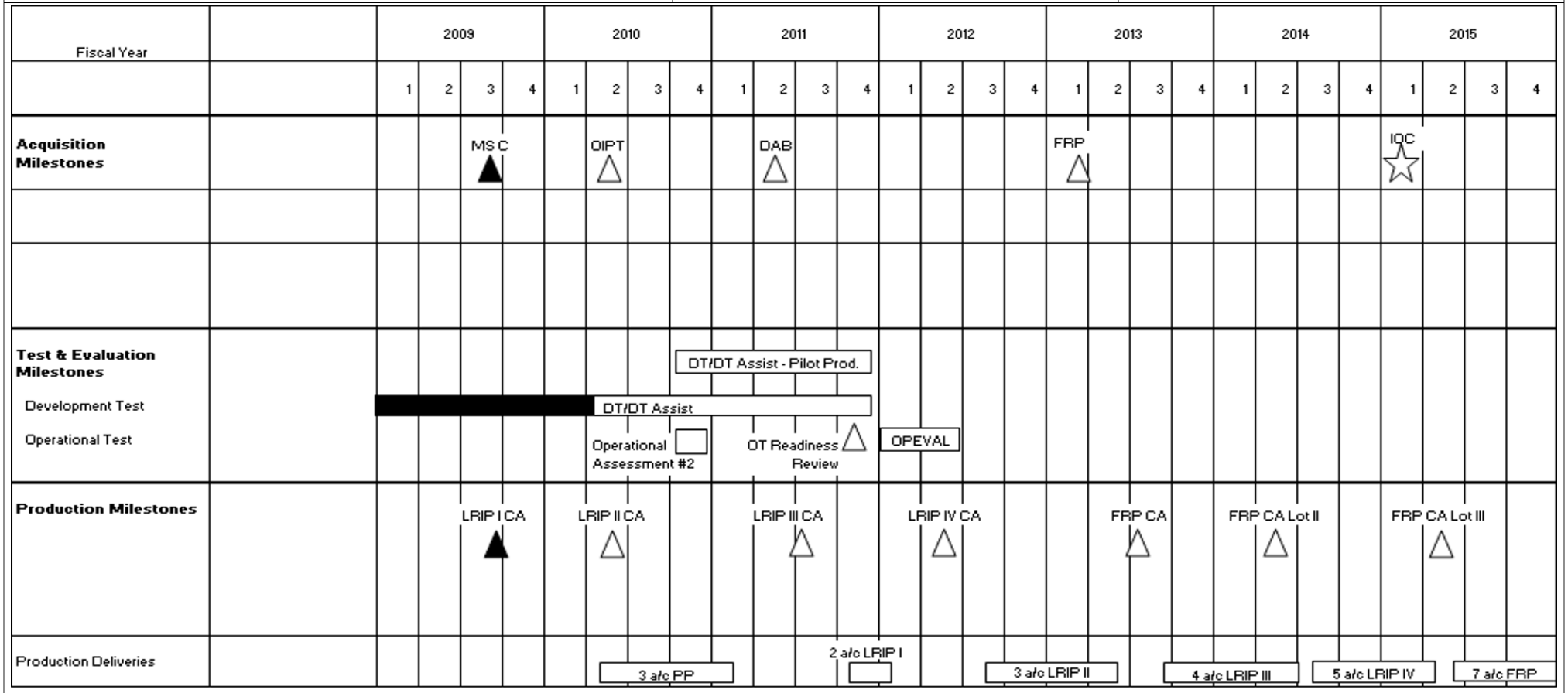
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support MSS		AL											
Government Engineering Support	WR	NAWCAD Pax River, MD	9.221	1.532	Nov 2009	2.082	Nov 2010	0.000		2.082	1.050	13.885	Continuing
Government Engineering Support	Various/ Various	Various Various	14.242	0.416	Nov 2009	0.317	Nov 2010	0.000		0.317	0.000	14.975	Continuing
Program Management Support	Various/ Various	Various Various	1.060	0.860	Nov 2009	0.752	Nov 2010	0.000		0.752	0.185	2.857	Continuing
Travel	Various/ Various	Various Various	1.854	0.290	Oct 2009	0.100	Oct 2010	0.000		0.100	0.100	2.344	Continuing
All Mgmt cost from program implementation thru FY04	Various/ Various	Various Various	10.659	0.000		0.000		0.000		0.000	0.000	10.659	Continuing
		Subtotal	62.968	4.165		3.891		0.000		3.891	1.560	72.584	10.429

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	3,377.227	361.053		171.132		0.000		171.132	111.140	4,020.552	3,268.462

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*



- DT/DT Assist in FY09 included efforts for weapon system development and air vehicle testing on SD&D #1 and SD&D #2 aircraft.
- Due to the redefinition of IOC as "Readiness for the First Operational Deployment" (the first E-2D Advanced Hawkeye squadron is manned, trained, and is ready to begin deployment preparations), IOC has moved to FY 2015.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Acquistion Milestones - Milestone C	3	2009	3	2009
Acquistion Milestones - Overarching Integrated Product Team (OIPT)	2	2010	2	2010
Acquistion Milestones - Defense Acquisition Board (DAB)	2	2011	2	2011
Acquistion Milestones - Full Rate Production (FRP)	1	2013	1	2013
Acquistion Milestones - Initial Operational Capabilities (IOC)	1	2015	1	2015
Test & Evaluation Milestones - Development Test - SD&D #1 & 2	1	2009	4	2011
Test & Evaluation Milestones - Operational Assessment #2	4	2010	4	2010
Test & Evaluation Milestones - DT/DT Assist - Pilot Production	4	2010	4	2011
Test & Evaluation Milestones - Operational Test - Readiness Review	4	2011	4	2011
Test & Evaluation Milestones - Operational Evaluation	1	2012	2	2012
Production Milestones - LRIP I Contract Award (CA)	3	2009	3	2009
Production Milestones - LRIP II Contract Award (CA)	2	2010	2	2010
Production Milestones - LRIP III Contract Award (CA)	3	2011	3	2011
Production Milestones - LRIP IV Contract Award (CA)	2	2012	2	2012
Production Milestones - FRP Contract Award (CA)	3	2013	3	2013
Production Milestones - FRP Lot II Contract Award (CA)	2	2014	2	2014
Production Milestones - FRP Lot III Contract Award (CA)	2	2015	2	2015
Production Deliveries - Pilot Production (3 A/C)	2	2010	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604234N: *Advanced Hawkeye*	PROJECT 3051: *E-2C RMP*

	Start		End	
Event	Quarter	Year	Quarter	Year
Production Deliveries - LRIP I (2 A/C)	4	2011	1	2012
Production Deliveries - LRIP II (3 A/C)	3	2012	2	2013
Production Deliveries - LRIP III (4 A/C)	3	2013	2	2014
Production Deliveries - LRIP IV (5 A/C)	3	2014	2	2015
Production Deliveries - FRP (7 A/C)	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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604245N: *H-1 Upgrades*							
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	4.044	32.694	60.498	0.000	60.498	71.512	25.285	38.805	47.002	Continuing	Continuing
2279: *4BW/4BN Upgrade*	4.044	32.694	60.498	0.000	60.498	71.512	25.285	38.805	47.002	Continuing	Continuing

A. Mission Description and Budget Item Justification

The mission of the AH-1W attack helicopter is to provide rotary wing close air support, anti-armor, armed escort, armed/visual reconnaissance, survivability enhancements, and fire support coordination capabilities under day/night and adverse weather conditions. The mission of the UH-1N utility helicopter is to provide command and control and combat assault support under day/night and adverse weather conditions and special operations support; supporting arms coordination and aeromedical evacuation. Major modifications for both aircraft include 168 AH-1W's converted to AH-1Z's, build 58 new AH-1Z's, remanufacture ten (10) H-1N helicopters and build 113 new UH-1Y models. Upgrades include: a new 4-bladed, composite rotor system with semi-automatic bladefold, new performance matched transmissions, T700 Engine Digital Electronic Control Units (DECUs), new 4-bladed tail rotors and drive systems, more effective stabilizers, upgraded landing gear, tail pylon structural modifications, and common, fully integrated cockpits and avionics systems. This upgrade will add 10,000 flight hours to AH-1Z/UH-1Y airframes. The fully integrated cockpits will reduce operator workload and improve situational awareness, thus increasing safety and reducing the rate of aircraft attrition. They will provide considerable growth potential for future weapon systems and avionics, which will significantly increase mission effectiveness and survivability. The cockpits will also include integration of onboard mission planning, communications, digital fire control, self-navigation, night navigation/targeting, and weapon systems management in nearly identical crew stations, which significantly reduces training requirements. This upgrade maximizes commonality between the two aircraft and provides needed improvements in crew and passenger survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604245N: *H-1 Upgrades*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	3.772	32.830	0.000	0.000	0.000
Current President's Budget	4.044	32.694	60.498	0.000	60.498
Total Adjustments	0.272	-0.136	60.498	0.000	60.498
• Congressional General Reductions		-0.136			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.360	0.000			
• SBIR/STTR Transfer	-0.088	0.000			
• Program Adjustments	0.000	0.000	60.498	0.000	60.498
• Rate/Misc Adjustments	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: Bi-annual System Configuration Set (SCS) releases are planned to specifically address software upgrades & correction of deficiencies identified during OT. Schedule correction made to reflect LRIP IV Y (FY07) and FRP Y/LRIP Z (FY08/Lot 5) deliveries in 3Q FY2009 and 2Q FY2010, respectively.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604245N: *H-1 Upgrades*	PROJECT 2279: *4BW/4BN 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
2279: *4BW/4BN Upgrade*	4.044	32.694	60.498	0.000	60.498	71.512	25.285	38.805	47.002	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 AH-1W attack helicopter is to provide rotary wing close air support, anti-armor, armed escort, armed/visual reconnaissance, survivability enhancements, and fire support coordination capabilities under day/night and adverse weather conditions. The mission of the UH-1N utility helicopter is to provide command and control and combat assault support under day/night and adverse weather conditions and special operations support; supporting arms coordination and aeromedical evacuation. Major modifications for both aircraft include 168 AH-1W's converted to AH-1Z's, build 58 new AH-1Z's, remanufacture ten (10) H-1N helicopters and build 113 new UH-1Y models. Upgrades include: a new 4-bladed, composite rotor system with semi-automatic bladefold, new performance matched transmissions, T700 Engine Digital Electronic Control Units (DECUs), new 4-bladed tail rotors and drive systems, more effective stabilizers, upgraded landing gear, tail pylon structural modifications, and common, fully integrated cockpits and avionics systems. This upgrade will add 10,000 flight hours to AH-1Z/UH-1Y airframes. The fully integrated cockpits will reduce operator workload and improve situational awareness, thus increasing safety and reducing the rate of aircraft attrition. They will provide considerable growth potential for future weapon systems and avionics, which will significantly increase mission effectiveness and survivability. The cockpits will also include integration of onboard mission planning, communications, digital fire control, self-navigation, night navigation/targeting, and weapon systems management in nearly identical crew stations, which significantly reduces training requirements. This upgrade maximizes commonality between the two aircraft and provides needed improvements in crew and passenger survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Product Development	0.000	18.466	42.386	0.000	42.386
FY 2010 Plans: FY10: funding is for improvements to cuff/yoke, bladefold improvements, and avionics upgrades. Prime contractor will perform product development efforts including survivability enhancements, avionics upgrades, component testing, and fatigue testing.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604245N: *H-1 Upgrades*	PROJECT 2279: *4BW/4BN Upgrade*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY11: funding is for tail rotor blade improvements, fuel system upgrades, main rotor gear box run dry analysis, avionics upgrades, digital map development, and development of a Hellfire Joint Air to Ground Missile (JAGM) Launcher for the H-1. Prime contractor will perform product development efforts including survivability enhancements, avionics upgrades, component testing, and fatigue testing.					
Support Development *FY 2009 Accomplishments:* FY09 through FY11: Conduct development and test efforts to address operational testing results on both the UH-1Y and AH-1Z. *FY 2010 Plans:* FY10: UH-1Y and AH-1Z software development and test will correct deficiencies from prior test and allow incorporation of new weapons capabilities. *FY 2011 Base Plans:* FY11: Base: address AH-1Z phase III operational test results and conduct test to support additional Follow-on Operational Test and Evaluation (FOT&E).	1.324	5.991	3.462	0.000	3.462
Test and Evaluation *FY 2009 Accomplishments:* FY09: Conduct integrated test and the first FOT&E period for the UH-1Y to evaluate corrections of deficiencies discovered during OPEVAL phase II-C-2. *FY 2010 Plans:* FY10: Conduct integrated test events supporting preparations for AH-1Z OPEVAL Phase III and conduct phase III. Conduct Verification of Correction of Deficiencies on UH-1Y. Conduct integrated	0.100	2.928	4.073	0.000	4.073

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604245N: *H-1 Upgrades*	PROJECT 2279: *4BW/4BN Upgrade*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
test and the first FOT&E period for the UH-1Y to evaluate corrections of deficiencies discovered during OPEVAL phase II-C-2. *FY 2011 Base Plans:* FY11: Support integrated test of mission system enhancements and additional weapons capabilities, conduct FOT&E on both platforms.					
Program Management Support *FY 2009 Accomplishments:* FY09: Perform engineering analysis and technical support including risk analysis in support of test activities. *FY 2010 Plans:* FY10: Perform engineering analysis and technical support including risk analysis in support of development and operational test activities. *FY 2011 Base Plans:* FY11: Perform engineering analysis and technical support including risk analysis in support of development and operational test activities.	0.650	2.159	2.626	0.000	2.626
Software Support *FY 2009 Accomplishments:* FY09: Develop software solutions which correct deficiencies resulting from development and operational testing, technical data analysis, and system configuration set system development. *FY 2010 Plans:* FY10: Develop software solutions which correct deficiencies resulting from development and operational testing, technical data analysis, and system configuration set system development.	1.970	3.150	7.951	0.000	7.951

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604245N: *H-1 Upgrades*	PROJECT 2279: *4BW/4BN Upgrade*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY11: Develop software solutions which correct deficiencies resulting from development and operational testing, technical data analysis, and system configuration set system development.					
Accomplishments/Planned Programs Subtotals	4.044	32.694	60.498	0.000	60.498

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/017800: *UH-1Y/AH-1Z APN-1*	634.299	747.399	808.069	88.500	896.569	833.095	859.507	866.593	829.165	282.005	5,948.632

D. Acquisition Strategy

The USMC H-1 Upgrades is an ACAT 1D program which encompasses Engineering and Manufacturing Development of the new end-items prior to a production approval decision. The prime contract is a sole source to Bell Helicopter Textron, Inc.

E. Performance Metrics

Cuff/Yoke Step 2 funds the portion of the Cuff/Yoke to address fatigue life projections; this is part of the overall redesign effort that strives to achieve a minimum 1500 hour fatigue life for cuff/yoke and increases in static strength to restore maneuverability performance to the UH-1Y.

OPEVAL phase IIC3 on the AH-1Z will be completed in FY2010 to achieve a successful Milestone III Decision for the AH-1Z to proceed to Full Rate Production.

Complete design and development of H-1 Software Configuration Set 6.0 (SCS-6.0) provides several upgrades to H-1 capabilities including: Navigation non-editable reference point (NERP) data, Critical AFCS fixes, Aircraft Survivability Equipment (ASE) improvements, Joint Mission Planning System (JMPS) functionality, and critical Ground Proximity Warning system functionality to reduce incidents of Controlled Flight Into Terrain (CFIT). Conduct verification and validation lab, ground, and flight test of these functions with SCS-6.0 software.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604245N: *H-1 Upgrades*	**PROJECT** 2279: *4BW/4BN Upgrade*

Main Rotor Gear Box (MRGB) loss of lube prototype development and testing is an effort to meet the survivability requirement of 30-minutes of operation following a total loss of lubrication. The redesign, development, testing, qualification and deployment of the MRGB will allow the UH-1Y and AH-1Z to reduce their vulnerable area, and greatly improve upon the current 17-minute limitation. This improvement will increase the survival rate of the aircrew and aircraft, thereby improving operational availability and effectiveness of the platform to deployed aircraft.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604245N: *H-1 Upgrades*	PROJECT 2279: *4BW/4BN 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 Development	SS/CPFF	BHTI Amarillo, TX	1,110.307	18.466	Dec 2009	37.937	Jan 2011	0.000		37.937	72.306	1,239.016	1,239.118
Primary Hardware Development	SS/CPFF	Various Various	0.000	0.000		3.703	Mar 2011	0.000		3.703	60.900	64.603	64.603
Systems Engineering1	Various/ Various	Various Various	3.810	0.000		0.000		0.000		0.000	0.000	3.810	Continuing
Systems Engineering2	WR	Various Various	74.674	0.000		0.000		0.000		0.000	0.000	74.674	Continuing
GFE	SS/CPFF	BHTI Amarillo, TX	24.708	0.000		0.000		0.000		0.000	0.000	24.708	24.708
		Subtotal	1,213.499	18.466		41.640		0.000		41.640	133.206	1,406.811	1,328.429

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 Support1	WR	Various Various	1.787	1.010	Dec 2009	1.200	Dec 2010	0.000		1.200	6.252	10.249	Continuing
Development Support2	WR	Various Various	14.487	0.000		0.000		0.000		0.000	0.000	14.487	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604245N: *H-1 Upgrades*	PROJECT 2279: *4BW/4BN 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
Software Development	WR	NAWCAD Pax River, MD	0.000	0.900	Dec 2009	1.500	Dec 2010	0.000		1.500	8.399	10.799	Continuing
Software Development	WR	NAWCWD China Lake, CA	7.742	3.014	Dec 2009	7.939	Dec 2010	0.000		7.939	11.974	30.669	Continuing
Integrated Logistics Support	WR	Various Various	27.653	0.000		0.000		0.000		0.000	0.000	27.653	Continuing
		Subtotal	51.669	4.924		10.639		0.000		10.639	26.625	93.857	

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 and Evaluation	WR	NAWCAD Pax River, MD	35.322	2.928	Dec 2009	1.250	Nov 2010	0.000		1.250	15.193	54.693	Continuing
Developmental Test and Evaluation	Various/ Various	Various Various	14.906	0.000		0.000		0.000		0.000	0.000	14.906	Continuing
Operational Test and Evaluation1	WR	Various Various	19.744	4.081	Dec 2009	4.073	Nov 2010	0.000		4.073	6.267	34.165	Continuing
Operational Test and Evaluation2	WR	Various Various	2.406	0.000		0.000		0.000		0.000	0.000	2.406	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604245N: *H-1 Upgrades*	PROJECT 2279: *4BW/4BN Upgrade*

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	72.378	7.009		5.323		0.000		5.323	21.460	106.170	

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 Supt	C/FFP	Various Various	6.172	1.180	Oct 2009	1.430	Oct 2010	0.000		1.430	5.678	14.460	14.460
Procurement Fees	Various/ Various	Various Various	0.005	0.000		0.000		0.000		0.000	0.000	0.005	Continuing
Program Management Supt	C/CPFF	Various Various	9.649	0.775	Oct 2009	1.091	Dec 2010	0.000		1.091	5.212	16.727	16.727
Travel	WR	Various Various	3.920	0.340	Oct 2009	0.375	Oct 2010	0.000		0.375	1.889	6.524	Continuing
SBIR Assessment	WR	DEF Contractor Mgt CMD Various	0.072	0.000		0.000		0.000		0.000	0.000	0.072	Continuing
		Subtotal	19.818	2.295		2.896		0.000		2.896	12.779	37.788	31.187

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604245N: *H-1 Upgrades*	PROJECT 2279: *4BW/4BN 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
Project Cost Totals	1,357.364	32.694		60.498		0.000		60.498	194.070	1,644.626	1,359.616

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604245N: *H-1 Upgrades*	**PROJECT** 2279: *4BW/4BN Upgrade*

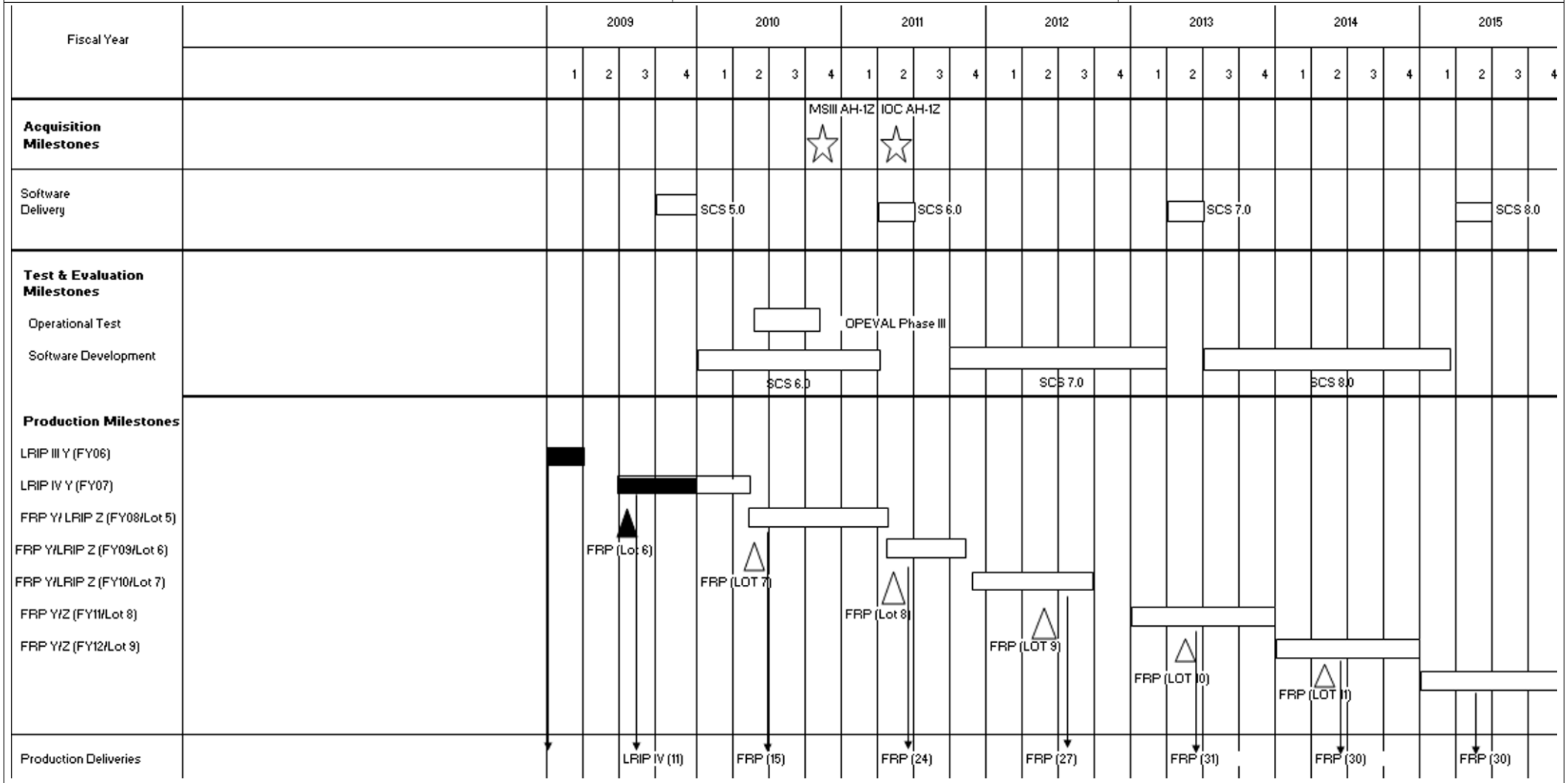


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604245N: *H-1 Upgrades*	**PROJECT** 2279: *4BW/4BN Upgrade*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Full Rate Production (FRP) Milestone III AH-1Z	4	2010	4	2010
IOC - AH-1Z	2	2011	2	2011
Operational Evaluation	2	2010	4	2010
SCS 5.0 Software Deliveries	4	2009	4	2009
SCS 6.0 Software Deliveries	2	2011	2	2011
SCS 7.0 Software Deliveries	2	2013	2	2013
SCS 8.0 Software Deliveries	2	2015	2	2015
SCS 6.0 Software Development	1	2010	1	2011
SCS 7.0 Software Development	4	2011	1	2013
SCS 8.0 Software Development	3	2013	1	2015
Low Rate Initial Production III Delivery	1	2009	1	2009
Low Rate Initial Production IV Delivery	3	2009	2	2010
Full Rate Production	3	2009	2	2014
Full Rate Production (FRP) Delivery	2	2010	4	2015

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*

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	38.418	56.086	64.834	0.000	64.834	57.853	23.770	18.556	15.278	Continuing	Continuing
0480: *ASW Sensors & Proc*	38.418	40.881	31.412	0.000	31.412	25.029	12.029	15.226	15.278	Continuing	Continuing
3224: *High Altitude ASW*	0.000	15.205	33.422	0.000	33.422	32.824	11.741	3.330	0.000	0.000	96.522

A. Mission Description and Budget Item Justification

Includes RDT&E funds for engineering development and operational test and evaluation of acoustic search sensors and complementary equipment for ASW aircraft.

Excludes civilian and military manpower and their related costs and military construction costs which are included in appropriate management and support elements in this program.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	39.345	56.369	0.000	0.000	0.000
Current President's Budget	38.418	56.086	64.834	0.000	64.834
Total Adjustments	-0.927	-0.283	64.834	0.000	64.834
• Congressional General Reductions		-0.233			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.050			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.008	0.000			
• SBIR/STTR Transfer	-0.919	0.000			
• Program Adjustments	0.000	0.000	64.834	0.000	64.834

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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604261N: *Acoustic Search Sensors*

Multi-Static Active Coherent. Moved MS B from 1Q/09 to 2Q/09, CDR from 4Q/09 to 1Q/10, and MS C from 4Q/10 to 1Q/11 due to a delay in completing required documentation.

Communications at Speed and Depth (CSD) - A2RF - Air. Removed DT in 2Q/10. Removed OT in 3Q/10. Added P-3 Air Certification testing for A2RF in 2Q/10-3Q/10. Added A2RF Air Certification for P-3 in 3Q/10. Added Flight support for CSD-A2RF At-Sea test in 3Q/10-4Q/10.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 0480: *ASW Sensors & Proc*	

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
0480: *ASW Sensors & Proc*	38.418	40.881	31.412	0.000	31.412	25.029	12.029	15.226	15.278	Continuing	Continuing
Quantity of RDT&E Articles	0	1500	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The ASW Sensors and Processing project provides the tools and methods necessary to maintain naval superiority by preventing threat submarines from disrupting the U.S. Navy's ability to control the sea lines of communication and completing their hostile missions. This project encompasses the Engineering & Manufacturing Development (EMD) phase and the follow on increments of sensor systems to improve the mission effectiveness of airborne Anti-Submarine Warfare (ASW) platforms in cueing, searching, localizing, tracking, and attacking subsurface targets. Smaller and quieter threat submarines drive the requirement for continued advancement in ASW sensor capabilities for both blue water and littoral environments. The littoral regions of the world create an additional ASW challenge to overcome the increase in background clutter caused by the shallow water depth, high volume of shipping, and commercial radio frequency interference. Project 0480 provides funding to the Extended Echo Ranging (EER) family of multi-static active ASW systems for the engineering development of solutions that detect, classify, and track threat submarines. Multi-static Active Coherent (MAC) and Advanced Processing Builds (APB) are efforts funded during the period identified. The MAC program, which started in FY08, encompasses the development of an active coherent (electronic) source sonobuoy, modifications to the existing Air Deployable Active Receiver (ADAR) sonobuoy, development, integration, and test of aircraft avionics software and MAC system, as well as, upgrades to the Multi-static mission planning tool, the Tactical Operational Readiness Trainer (TORT) and the Tactical Ground Replay System as well as complete system testing. MAC provides a large area search capability in all water environments and will eliminate current impulsive source safety, training, and Rules of Engagement restrictions. Project 0480 also provides funding for the Advanced Processing Builds (APB) program which provides software enhancements for signal processing improvements, clutter reduction, automation, improved displays and controls, as well as improved communication links for reduced operator workload resulting in increased target detection and classification capabilities and interoperability. APB also includes an Air ASW Engineering Measurement Program (AAEMP) that collects ASW system data and identifies areas where beneficial improvements can be made and provides common software and hardware solutions across all Air ASW platforms. The 1500 sonobuoy test articles in FY10/12 will support software and hardware integration flight tests and Technical Evaluation (TECHEVAL)/Operational Evaluation (OPEVAL) for MAC Increment I and Increment II respectively.

Also included in this project is funding to conduct testing for safe carriage and release to obtain P-3 flight certification of the Acoustic to RF (A2RF) Air variant communications buoy in support of the PMW-770 Communications at Speed and Depth (CSD) program for underwater communications with a submerged submarine.

This project unit includes $.868M for the Defense Acquisition Workforce Development Fund.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 0480: *ASW Sensors & Proc*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Complete APB SQT/Fleet Release	0.265	8.829	1.579	0.000	1.579
FY 2009 Accomplishments: APB funds for software development, integration, and test for Multi-Static ASW (MSA) sensor systems. Provided P-3C and P-8A platform integration of multi-static technology improvements allowing increased weapon system efficiency and decreased fleet operator workload in the littoral ASW mission.					
FY 2010 Plans: APB funds for software development, integration, and test for Multi-Static ASW (MSA) sensor systems. Provides P-3C and P-8A platform integration of multi-static technology improvements allowing increased weapon system efficiency and decreased fleet operator workload in the littoral ASW mission.					
FY 2011 Base Plans: APB funds for software development, integration, and test for Multi-Static ASW (MSA) sensor systems. Provides P-3C and P-8A platform integration of multi-static technology improvements allowing increased weapon system efficiency and decreased fleet operator workload in the littoral ASW mission.					
MAC Increment I	37.285	29.052	29.833	0.000	29.833
FY 2009 Accomplishments: Continued to develop a coherent source that will satisfy the large area search requirement in the harsh, shallow water littorals.					
FY 2010 Plans: Continue to develop a coherent source that will satisfy the large area search requirement in the harsh, shallow water littorals.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 0480: *ASW Sensors & Proc*

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 develop a coherent source that will satisfy the large area search requirement in the harsh, shallow water littorals.					
Comms at Speed and Depth/At-Sea Test support *FY 2010 Plans:* P-3 flight certification for safe carriage and release of A2RF buoy.	0.000	3.000	0.000	0.000	0.000
ACQUISITION WORKFORCE FUND *FY 2009 Accomplishments:* Funded DoD Acquisition Workforce Fund.	0.868	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	38.418	40.881	31.412	0.000	31.412

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/4048: *Sonobuoys - All Types*	0.000	0.000	10.906	0.000	10.906	11.849	6.550	26.033	13.192	Continuing	Continuing

D. Acquisition Strategy

The development and integration of Multi-Static Active Coherent (MAC) using coherent source technology into the P-3C Aircraft. Sole source contracts will be awarded for Sensor Development (ERAPSCO) and for Displays and Control and Integration on P-3C aircraft (Lockheed Martin Manassas).

E. Performance Metrics

Continued development of a coherent source that will satisfy the large area search requirement in the harsh, shallow water littorals.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 0480: *ASW Sensors & Proc*

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	Various/ Various	VARIOUS VARIOUS	13.605	4.900	Oct 2009	3.350	Oct 2010	0.000		3.350	6.850	28.705	28.705
		Subtotal	13.605	4.900		3.350		0.000		3.350	6.850	28.705	28.705

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 (Increment II)	WR	NAWCAD PATUXENT RIVER, MD	11.432	3.315	Oct 2009	4.457	Oct 2010	0.000		4.457	9.026	28.230	Continuing
Software Development (Increment II)	Various/ Various	VARIOUS VARIOUS	1.000	6.302	Oct 2009	3.500	Oct 2010	0.000		3.500	4.250	15.052	15.052
Studies & Analysis	WR	NAWCAD PATUXENT RIVER, MD	5.921	3.919	Oct 2009	2.500	Oct 2010	0.000		2.500	0.000	12.340	Continuing
Technical Data	WR	NAWCAD PATUXENT RIVER, MD	12.559	1.000	Oct 2009	1.800	Oct 2010	0.000		1.800	5.750	21.109	Continuing
		Subtotal	30.912	14.536		12.257		0.000		12.257	19.026	76.731	15.052

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 0480: *ASW Sensors & Proc*	

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
Dev Test & Eval	WR	NAWCAD PATUXENT RIVER, MD	9.700	5.000	Nov 2009	3.000	Nov 2010	0.000		3.000	6.300	24.000	Continuing
		Subtotal	9.700	5.000		3.000		0.000		3.000	6.300	24.000	

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
Contractor Eng Spt (APB)	Various/ Various	VARIOUS VARIOUS	25.481	4.908	Nov 2009	4.654	Nov 2010	0.000		4.654	16.387	51.430	51.430
		VARIOUS	44.720	1.074	Nov 2009	1.059	Nov 2010	0.000		1.059	2.066	48.919	48.919

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 0480: *ASW Sensors & Proc*

Management Services ($ in Millions)

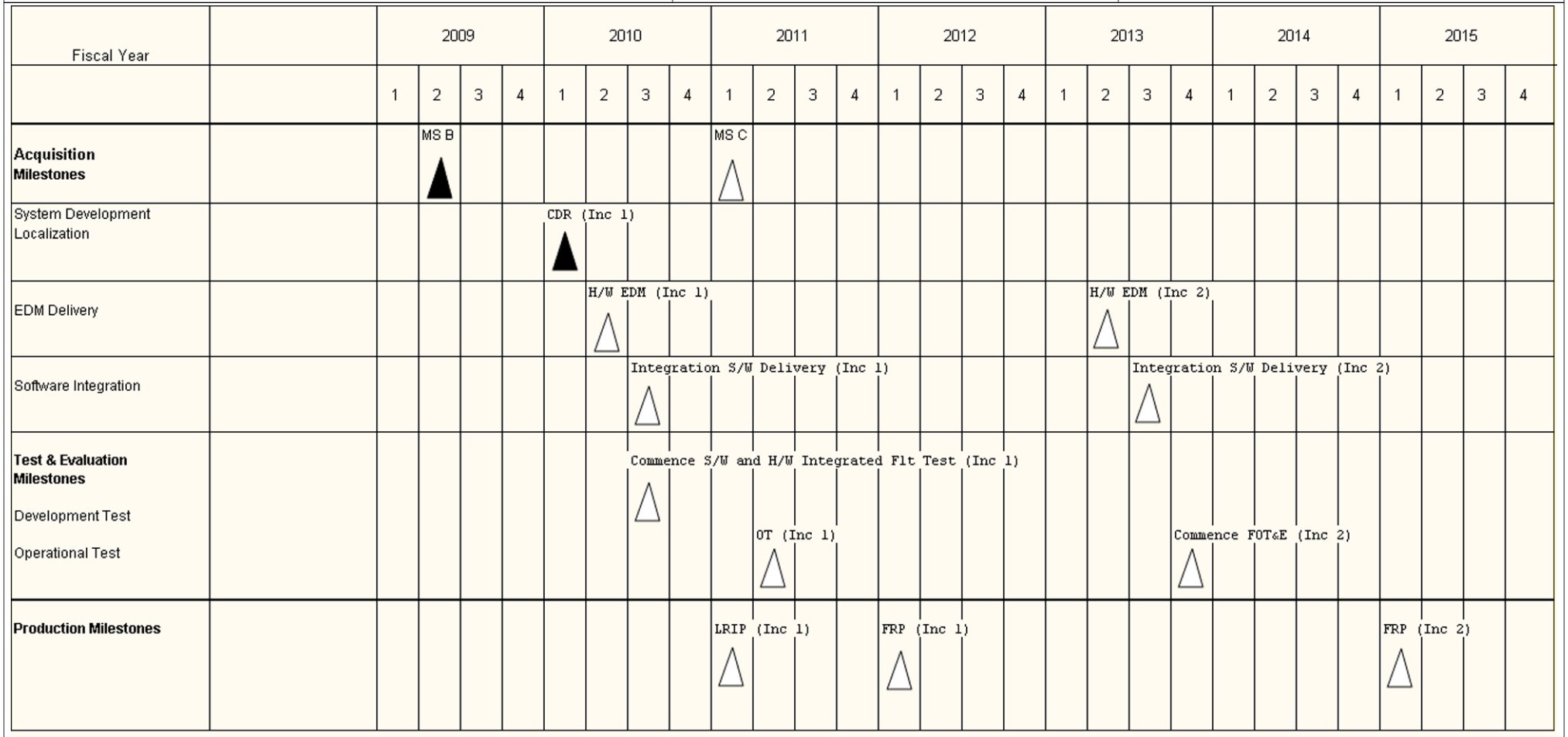
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ENG & TECH SPT SRVC (NON-FFRDC)	Various/ Various	VARIOUS											
Government Eng Spt	WR	NAWCAD PATUXENT RIVER, MD	71.452	10.363	Oct 2009	6.992	Oct 2010	0.000		6.992	16.533	105.340	Continuing
MGT & PROF SPT SRVC (FFRDC)	Various/ Various	VARIOUS VARIOUS	9.566	0.100	Nov 2009	0.100	Nov 2010	0.000		0.100	0.400	10.166	10.166
Acquisition Workforce Fund	Various/ Various	VARIOUS VARIOUS	0.868	0.000		0.000		0.000		0.000	0.000	0.868	Continuing
		Subtotal	152.087	16.445		12.805		0.000		12.805	35.386	216.723	110.515

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	206.304	40.881		31.412		0.000		31.412	67.562	346.159	154.272

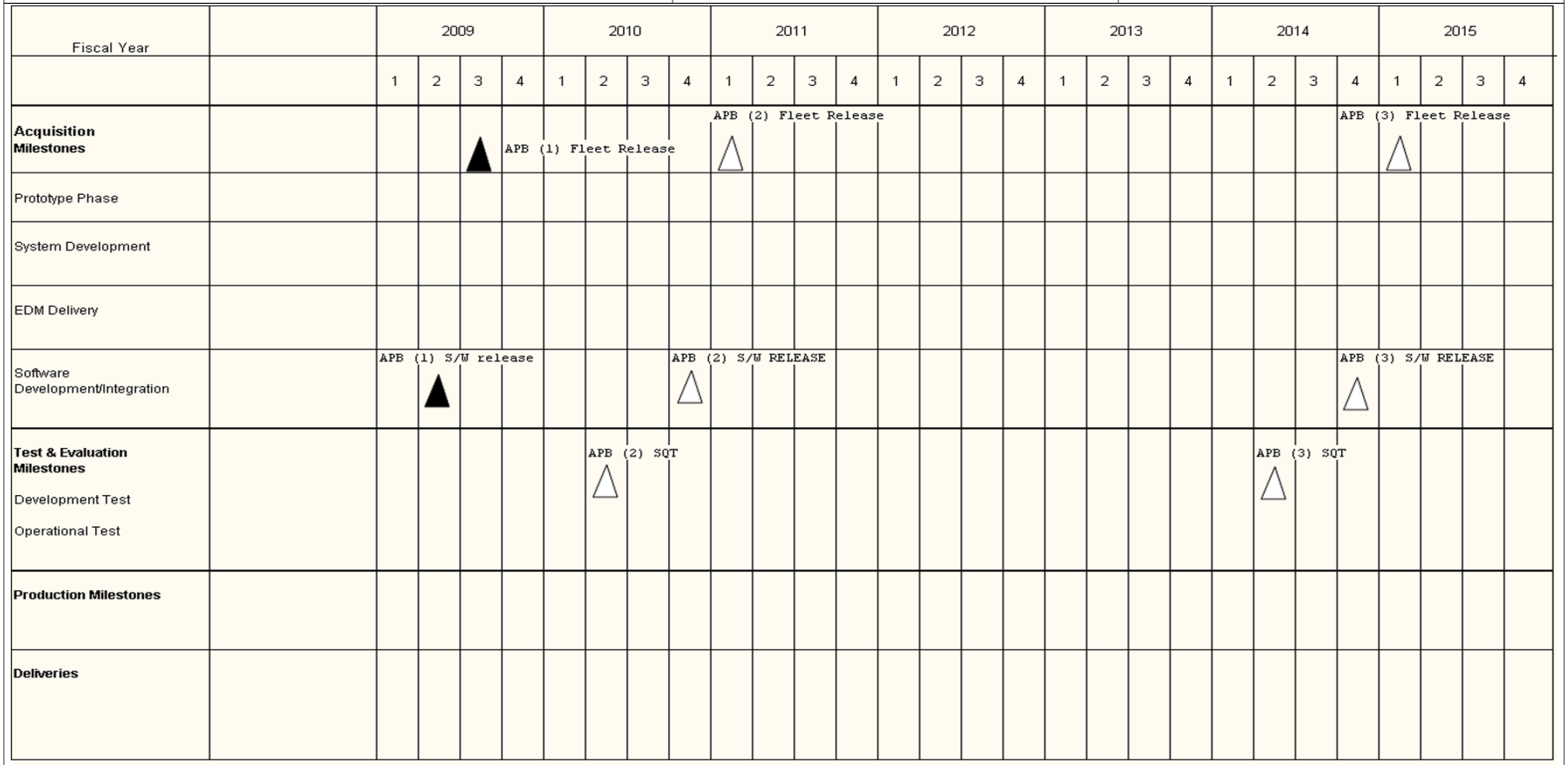
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604261N: *Acoustic Search Sensors*	**PROJECT** 0480: *ASW Sensors & Proc*



Note: MAC, is a spiral upgrade development effort that commenced in 1Q/08 consisting of two incremental builds. Increment 1 is to develop and produce a Coherent Source buoy to provide a multi-static active large area search capability in shallow water environments. Increment 2 will increase the source level and provide a large area search capability in all environments.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604261N: *Acoustic Search Sensors*	**PROJECT** 0480: *ASW Sensors & Proc*



Note: Software released without IEER Development or SQT in FY09 due to Program Growth reduction (Issue 74056). PR-11 offset reductions results in no APB Development, test or releases in FY12 or FY13.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604261N: *Acoustic Search Sensors*	**PROJECT** 0480: *ASW Sensors & Proc*

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
Test & Evaluation A2RF - Air							P-3 Air Certification Testing for A2RF A2RF Air Certification for P-3 Flight support for CSD-A2RF At-Sea test																									

Note: A2RF-Air Variant flight certification and support during At-Sea test.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 0480: *ASW Sensors & Proc*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
0480 Schedule 1	1	2010	1	2010
- Milestone B	2	2009	2	2009
- Critical Design Review (CDR) Increment 1	1	2010	1	2010
- Eng Dev Model (H/W EDM) Increment 1	2	2010	2	2010
- Eng Dev Model (H/W EDM) Increment 2	2	2013	2	2013
- Integration Software Delivery Increment 1	3	2010	3	2010
- Development Test Increment 1	3	2010	3	2010
- Operational Test Increment 1	2	2011	2	2011
- Milestone C (MS C)	1	2011	1	2011
- Low Rate Initial Production (LRIP) Inc 1	1	2011	1	2011
- Full Rate Production (FRP) Increment 1	1	2012	1	2012
- Integration Software Delivery Increment 2	3	2013	3	2013
- Follow On Operational Test Increment 2	4	2013	4	2013
- Full Rate Production (FRP) Increment 2	1	2015	1	2015
0480 Schedule 2	1	2009	1	2009
- APB (1) Fleet Release	3	2009	3	2009
- APB (2) Fleet Release	1	2011	1	2011
- APB (3) Fleet Release	1	2015	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 0480: *ASW Sensors & Proc*

	Start		End	
Event	Quarter	Year	Quarter	Year
- Software Delivery APB (1)	2	2009	2	2009
- Software Delivery APB (2)	4	2010	4	2010
- Software Delivery APB (3)	4	2014	4	2014
- Software Qualification Test (SQT) APB (2)	2	2010	2	2010
- Software Qualification Test (SQT) APB (3)	2	2014	2	2014
0480 Schedule 3	1	2010	1	2010
- Air Certification Testing	2	2010	3	2010
- Air Certification	3	2010	3	2010
- At-Sea Test support	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 3224: *High Altitude ASW*	

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
3224: *High Altitude ASW*	0.000	15.205	33.422	0.000	33.422	32.824	11.741	3.330	0.000	0.000	96.522
Quantity of RDT&E Articles	0	0	200	0	200	0	0	0	0		

A. Mission Description and Budget Item Justification

The P-8A High Altitude ASW (HAASW) program objective is to ensure greater ASW aircraft operational flexibility and effectiveness at high altitudes. FY10-FY14 R&D monies fund necessary engineering changes to ASW sonobuoys, in addition to developing and integrating a meteorological sensing device (Dropsonde). Sonobuoys will be modified with a Global Positioning System (GPS) and a NATO standard Digital Uplink. GPS integration will provide precise sonobuoy location regardless of aircraft altitude/location to enhance wide area ASW search, localization, tracking, and targeting. The Digital Uplink will improve sonobuoy communications performance in high Radio Frequency Interference (RFI) littoral environments, increase ADAR channel availability, and provide NATO compatibility. The Dropsonde provides the capability to conduct in-situ meteorological (temperature, pressure, humidity, and winds) data measurement. The P-8A will use this real time data to update tactical decision aids, refine sonobuoy "release points", and for in-flight mission planning for optimization of Radar, Electo-Optical, Infra-Red, and other non-acoustic sensors. The FY11 test article quantities reflect 200 sonobuoys/dropsondes. Reduced test article quantities to reflect a more realistic schedule.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Provide precision delivery of sonobuoys	0.000	15.205	33.422	0.000	33.422
FY 2010 Plans: HAASW is an FY10 new start. The program will support engineering changes to sonobuoys employed during all stages of the ASW kill chain, from wide area search to attack. Efforts also include Dropsonde development/integration and the GPS and Dropsonde in-situ meteorological data for tactical decision aids and mission planning. FY10/11 is for HAASW Requirements Development, technology development and prototyping. Reduced test articles to reflect a more realistic schedule. The test schedule and test article deliveries are aligned with Integrated Test.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 3224: *High Altitude ASW*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: HAASW is an FY10 new start. The program will support engineering changes to sonobuoys employed during all stages of the ASW kill chain, from wide area search to attack. Efforts also include Dropsonde development/integration and the GPS and Dropsonde in-situ meteorological data for tactical decision aids and mission planning. FY10/11 is for HAASW Requirements Development, technology development and prototyping. Reduced test articles to reflect a more realistic schedule. The test schedule and test article deliveries are aligned with Integrated Test.					
Accomplishments/Planned Programs Subtotals	0.000	15.205	33.422	0.000	33.422

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/4048: *Sonobuoys - All Types*	0.000	0.000	0.000	0.000	0.000	0.000	0.734	3.304	2.700	Continuing	Continuing

D. Acquisition Strategy

HAASW acquisition strategy includes three varied contract approaches. A sole source contract will be awarded for sonobuoy GPS and Digital Uplink engineering changes. Dropsonde meteorological sensing device development and integration will be open competition. The P-8A software development for the GPS and Digital Uplink signal processing and for the Dropsonde meta data in the tactical decision aids and the in-flight mission planning tools will be performed by the P-8A prime integrator.

E. Performance Metrics

Support engineering changes to sonobuoys during all stages of the ASW kill chain, from wide area search to attack.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 3224: *High Altitude ASW*

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	Various/ Various	VARIOUS VARIOUS	0.000	9.035	Mar 2010	19.009	Nov 2010	0.000		19.009	22.299	50.343	50.343
		Subtotal	0.000	9.035		19.009		0.000		19.009	22.299	50.343	50.343

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 Documentation	Various/ Various	VARIOUS VARIOUS	0.000	0.295	Mar 2010	0.450	Nov 2010	0.000		0.450	0.500	1.245	1.245
Studies & Analysis	Various/ Various	VARIOUS VARIOUS	0.000	1.150	Mar 2010	0.200	Nov 2010	0.000		0.200	0.200	1.550	1.550
A/C Software Integration	Various/ Various	VARIOUS VARIOUS	0.000	3.000	Mar 2010	11.119	Nov 2010	0.000		11.119	12.613	26.732	26.732
Tech Data	WR	NAWCAD PATUXENT RIVER, MD	0.000	0.000		0.100	Nov 2010	0.000		0.100	0.450	0.550	Continuing
		Subtotal	0.000	4.445		11.869		0.000		11.869	13.763	30.077	29.527

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 3224: *High Altitude ASW*

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	Various/ Various	VARIOUS VARIOUS	0.000	0.100	Mar 2010	0.350	Nov 2010	0.000		0.350	6.700	7.150	7.150
		Subtotal	0.000	0.100		0.350		0.000		0.350	6.700	7.150	7.150

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 Eng Spt	Various/ Various	VARIOUS VARIOUS	0.000	0.500	Jan 2010	0.500	Oct 2010	0.000		0.500	1.100	2.100	2.100
ENG & TECH SVCS (NON-FFRDC)	Various/ Various	VARIOUS VARIOUS	0.000	0.140	Jan 2010	0.140	Oct 2010	0.000		0.140	0.390	0.670	0.670
Government Eng Spt	WR	NAWCAD PATUXENT RIVER, MD	0.000	0.755	Jan 2010	1.144	Oct 2010	0.000		1.144	2.618	4.517	Continuing
Travel	TM	VARIOUS VARIOUS	0.000	0.230	Jan 2010	0.410	Oct 2010	0.000		0.410	1.025	1.665	Continuing
		Subtotal	0.000	1.625		2.194		0.000		2.194	5.133	8.952	2.770

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 3224: *High Altitude ASW*	

	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	15.205		33.422		0.000		33.422	47.895	96.522	89.790

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604261N: *Acoustic Search Sensors*	**PROJECT** 3224: *High Altitude ASW*

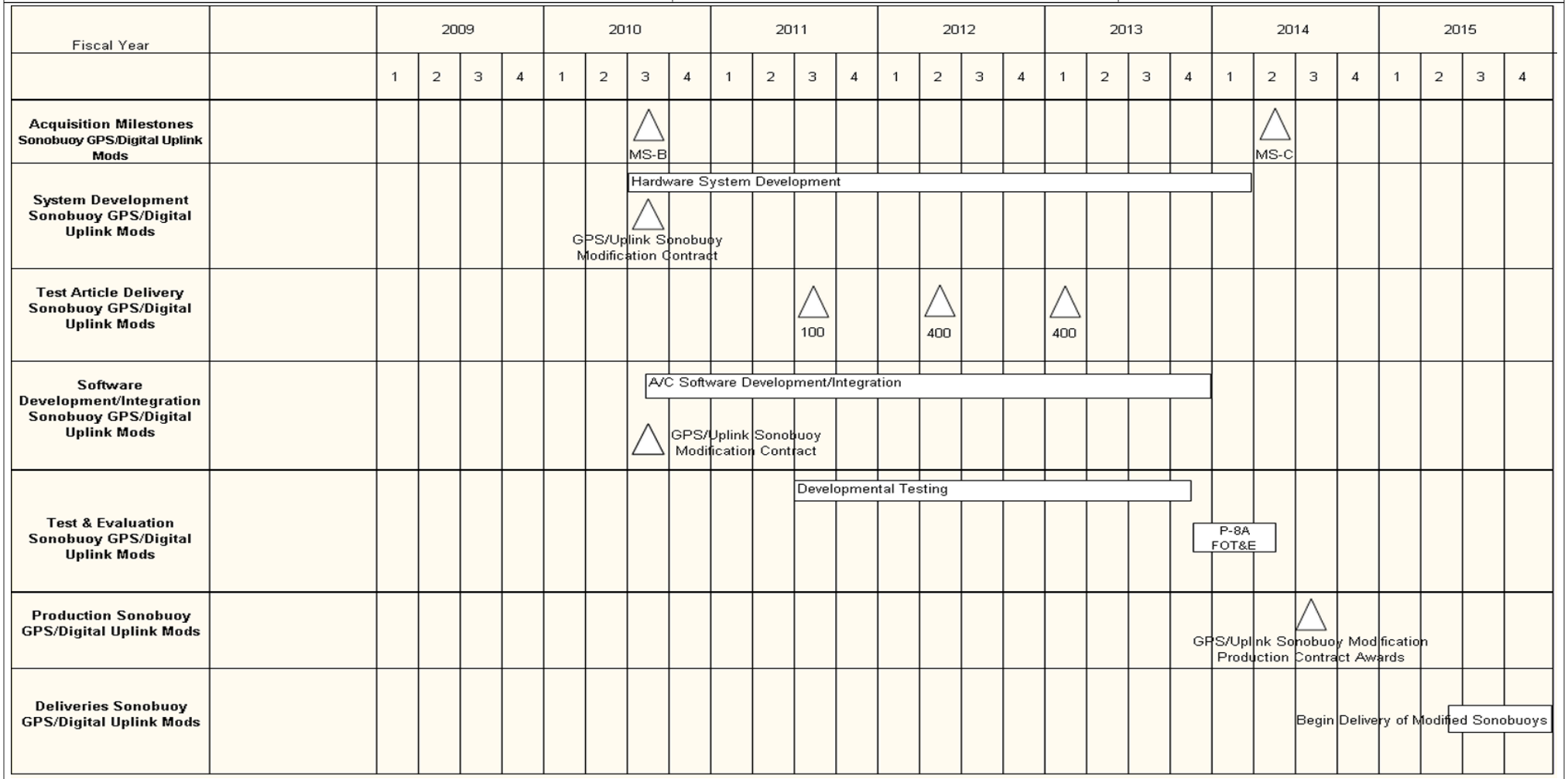


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 3224: *High Altitude ASW*

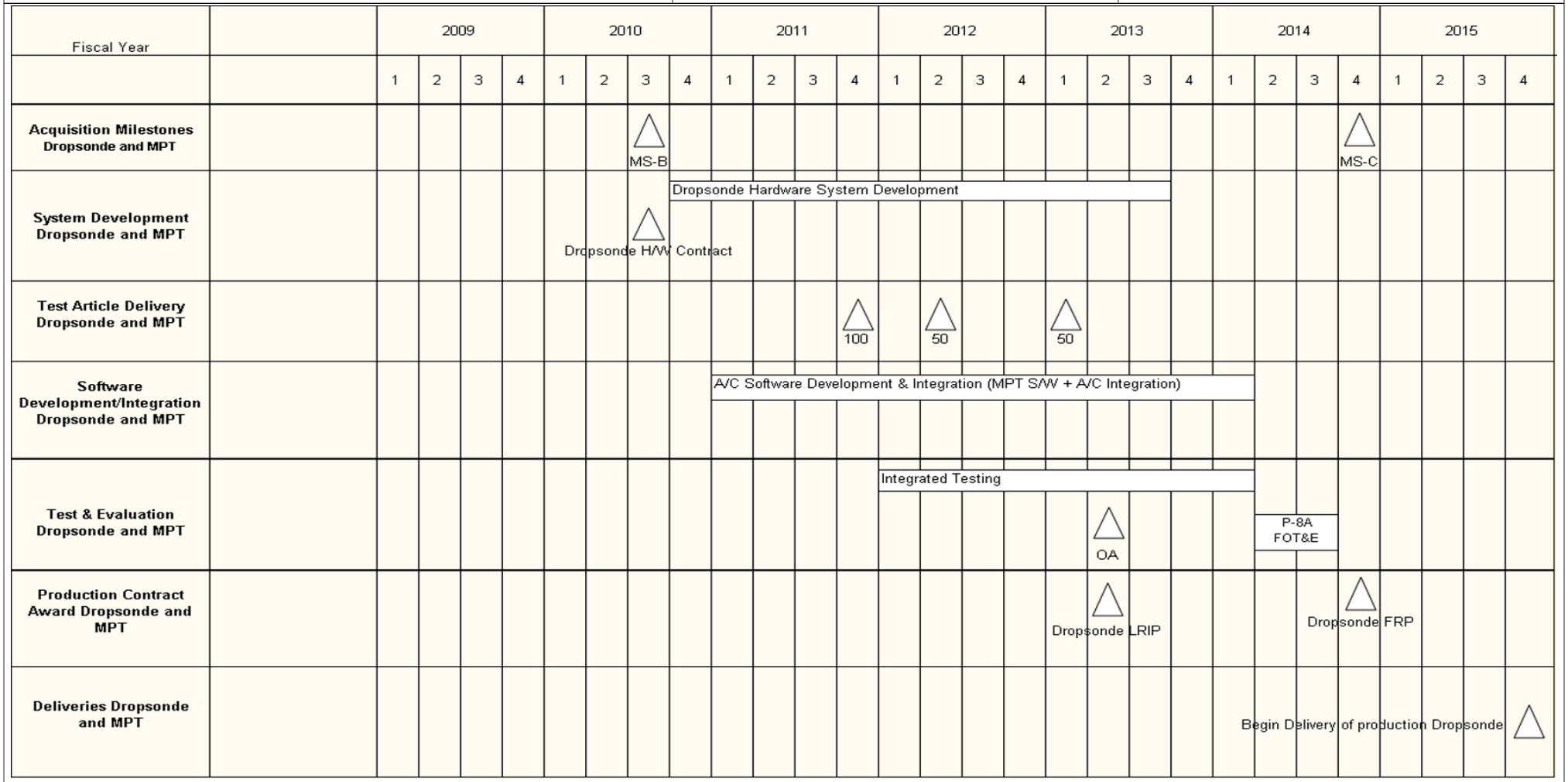


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604261N: *Acoustic Search Sensors*	**PROJECT** 3224: *High Altitude ASW*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
3224 Schedule 1	1	2010	1	2010
- Milestone B	3	2010	3	2010
- Development Contract Award	3	2010	3	2010
- Hardware System Development	3	2010	1	2014
- Test Article Delivery (100)	3	2011	3	2011
- Test Article Delivery (400)	2	2012	2	2012
-- Test Article Delivery (400) 2	1	2013	1	2013
-- GPS/Uplink Sonobuoy Modification Contract	3	2010	3	2010
- Software Development/Integration	3	2010	4	2013
- Developmental Testing	3	2011	4	2013
- Begin P-8A FOT&E	4	2013	2	2014
- Milestone C	2	2014	2	2014
- Production Contract Award	3	2014	3	2014
- Begin Delivery of Modified Sonobuoys	2	2015	4	2015
3224 Schedule 2	1	2009	1	2009
- Milestone B (2)	3	2010	3	2010
- Hardware System Development (2)	4	2010	3	2013
- Hardware Contract Award	3	2010	3	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604261N: *Acoustic Search Sensors*	PROJECT 3224: *High Altitude ASW*

	Start		End	
Event	Quarter	Year	Quarter	Year
- Test Article Delivery (100) (2)	4	2011	4	2011
- Test Article Delivery (50) (2)	2	2012	2	2012
- Test Article Delivery (50) (2.1)	1	2013	1	2013
- Software Development/Integration (2)	1	2011	1	2014
- Integrated Testing	1	2012	1	2014
- LRIP Decision	2	2013	2	2013
- Begin P-8A FOT&E (2)	2	2014	3	2014
- Milestone C (2)	4	2014	4	2014
- Production Contract Award (2)	4	2014	4	2014
- Operational Assessment	2	2013	2	2013
- Begin Delivery of production Dropsonde	4	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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604262N: *V-22A*							
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	66.041	78.338	46.070	0.000	46.070	42.849	37.654	35.075	49.905	Continuing	Continuing
1425: *V-22*	66.041	78.338	46.070	0.000	46.070	42.849	37.654	35.075	49.905	Continuing	Continuing

A. Mission Description and Budget Item Justification

The V-22 Osprey is an ACAT-ID Joint Program led by the Department of the Navy for the purpose of developing, testing, evaluating, procuring and fielding a tilt rotor, vertical takeoff and landing aircraft for Joint Service application. The V-22 program is designed to provide an aircraft to meet the amphibious/vertical assault needs of the Marine Corps, the strike rescue needs of the Navy, and the special operations needs of the Air Force and the United States Special Operations Command (USSOCOM). The V-22 will replace the CH-46E and CH53A/D in the Marine Corps with the MV-22; supplement the H-60 in the Navy with the HV-22; and replace the MH-53J and MH-53M as well as augment the C-130 in the Air Force and USSOCOM with the CV-22. The V-22 will be capable of flying over 2100 nautical miles with a single refueling, giving the services the advantage of a Vertical/Short Take-off, and Landing (VSTOL) aircraft that can rapidly self-deploy to any location in the world. This program is funded under Engineering Manufacturing and Development (EMD) for correction of deficiencies and includes Block A and Block B upgrades which encompassed engineering and manufacturing development of new end-items prior to the production incorporation decision. Block C suitability and effectiveness development upgrades began in FY06 and continue through FY12. Overseas Contingency Operations (OCO) funding provided in FY10 is for the development of the Main Landing Gear Bay Fire Suppression system. Funding presented in FY11 addresses Capability Development Document (CDD) interoperability requirements through a spiral upgrade acquisition strategy. These funds are the first spiral that provides Key Enabling DoD mandated open systems architecture (MOSA) upgrades for the mission computer hardware and software while simultaneously addressing required interoperability common avionics upgrades and current avionics obsolescence issues. Development efforts include Block C Upgrade, Mission System Upgrade, Mid-Wing Process Unit, and ARC 210 Generation 5 Radio.

Basis for FY2010 OEF Supplemental Budget Request: $1,645K is requested due to increased fuel costs.
This program element includes $.331M for the Defense Acquisition Workforce Development Fund (DAWDF) in FY09.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604262N: *V-22A*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	68.048	89.512	0.000	0.000	0.000
Current President's Budget	66.041	78.338	46.070	0.000	46.070
Total Adjustments	-2.007	-11.174	46.070	0.000	46.070
• Congressional General Reductions		-0.319			
• Congressional Directed Reductions		-12.500			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-2.007	0.000			
• Program Adjustments	0.000	0.000	46.070	0.000	46.070
• Rate/Misc Adjustments	0.000	1.645	0.000	0.000	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: The R-4 reflects updates made to the Integrated Master Schedule as a result of adjustments to contract award dates for the Block C development efforts. Technical evaluations and flight test periods for this effort were also annotated. The following events have been included: V22 In-Process Program Review (IPR) scheduled for 4Q FY09, Block C Increment III Critical Design Review (CDR) occurred 3Q FY09. Operational Test (OT) IIIE occurred 3Q FY09. Block C Increments I and II Functional Configuration Audit (FCA) scheduled for 1Q FY11. Block C Increments I and II Physical Configuration Audit (PCA) scheduled for 2Q FY11. Block C Increment III Functional Configuration Audit (FCA) scheduled for 3Q FY11, Block C Increment III Physical Configuration Audit (PCA) scheduled for 2Q FY12. Block C and Block 20 Increments I, II, and III Developmental Flight Test and Block C and Block 20 Integrated Test (IT) IT-IIID beginning 1Q FY10 thru 4Q FY15. OT-IIIG scheduled for 3Q FY11. OT-IIIH scheduled for 2Q FY12.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604262N: *V-22A*	PROJECT 1425: *V-22*	

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
1425: *V-22*	66.041	78.338	46.070	0.000	46.070	42.849	37.654	35.075	49.905	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The V-22 Osprey is an ACAT-ID Joint Program led by the Department of the Navy for the purpose of developing, testing, evaluating, procuring and fielding a tilt rotor, vertical takeoff and landing aircraft for Joint Service application. The V-22 program is designed to provide an aircraft to meet the amphibious/vertical assault needs of the Marine Corps, the strike rescue needs of the Navy, and the special operations needs of the Air Force and the United States Special Operations Command (USSOCOM). The V-22 will replace the CH-46E and CH53A/D in the Marine Corps with the MV-22; supplement the H-60 in the Navy with the HV-22; and replace the MH-53J and MH-53M as well as augment the C-130 in the Air Force and USSOCOM with the CV-22. The V-22 will be capable of flying over 2100 nautical miles with a single refueling, giving the services the advantage of a Vertical/Short Take-off, and Landing (VSTOL) aircraft that can rapidly self-deploy to any location in the world. This program is funded under Engineering Manufacturing and Development (EMD) for correction of deficiencies and includes Block A and Block B upgrades which encompassed engineering and manufacturing development of new end-items prior to the production incorporation decision. Block C suitability and effectiveness development upgrades began in FY06 and continue through FY12. Overseas Contingency Operations (OCO) funding provided in FY10 is for the development of the Main Landing Gear Bay Fire Suppression system. Funding presented in FY11 addresses Capability Development Document (CDD) interoperability requirements through a spiral upgrade acquisition strategy. These funds are the first spiral that provides Key Enabling DoD mandated open systems architecture (MOSA) upgrades for the mission computer hardware and software while simultaneously addressing required interoperability common avionics upgrades and current avionics obsolescence issues. Development efforts include Block C Upgrade, Mission System Upgrade, Mid-Wing Process Unit, and ARC 210 Generation 5 Radio.

Basis for FY2010 OEF Supplemental Budget Request: $1,645K is requested due to increased fuel costs.
This project includes $.331M for the Defense Acquisition Workforce Development Fund (DAWDF) in FY09.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continued development of V-22 Block C	39.273	71.040	42.326	0.000	42.326

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604262N: *V-22A*	PROJECT 1425: *V-22*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued MV-22 development efforts by Bell-Boeing. Rolls-Royce continues to provide engine support for MV-22 flight testing. Continued MV-22 software development efforts. Continued development in support of MV-22 Block upgrades. Continued engineering, logistics, flight test, flight test support, address correction of deficiencies. Continued contracted development efforts on test aircraft. Block C suitability and effectiveness upgrades began in FY06 and continue thru FY12. The major components of Block C development are Forward Firing ALE-47 (Increment I), Environmental Control System (ECS) Upgrade (Increment II), and Weather Radar (Increment III). *FY 2010 Plans:* Plannned development efforts for the provided interoperability funding includes Mid-Wing Process Unit (MPU), Mission System Upgrade to Advanced Mission Computer with a common Integrated Core Avionics Processor (ICAP), and the ARC-210 Generation 5 Radio. These development efforts address V-22 Net-Ready Key Performance Parameters (KPP) and CDD interoperability requirements while simultaneously addressing current avionics obsolescence issues. OCO funding for the development of the Main Landing Gear Bay Fire Suppression system. *FY 2011 Base Plans:* Continue development efforts for the provided interoperability funding includes Mid-Wing Process Unit (MPU), Mission System Upgrade to Advanced Mission Computer with a common Integrated Core Avionics Processor (ICAP), and the ARC-210 Generation 5 Radio. These development efforts address V-22 Net-Ready Key Performance Parameters (KPP) and CDD interoperability requirements while simultaneously addressing current avionics obsolescence issues.					
Continued support of V-22 Block C *FY 2009 Accomplishments:* Continued in-house field activity support of Integrated Test Team (ITT), Integrated Product Teams (IPT), engineering and logistics. Continued development in support of MV-22 Block upgrades.	26.437	7.298	3.744	0.000	3.744

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604262N: *V-22A*	PROJECT 1425: *V-22*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continued field development efforts on test aircraft. Provided R&D support in the areas of Reliability and Maintainability (R&M) data analysis, loads and dynamics, electromagnetic environmental effects, V-22 flight controls, survivability, subsystems, shipboard compatibility, power and propulsion, V-22 avionics, facilities management, structures, communications, etc. Continued engineering, logistics, flight test, and flight test support, and address correction of deficiencies as required in support of the Flight Test Program, Block C and the overall V-22 development program. R&D support and planning for the Block C suitability and effectiveness upgrade which began in FY 06 and continue thru FY12. *FY 2010 Plans:* Provide continued support as described in FY09. In addition, provide R&D support and planning for the Defensive Weapon System (DWS) development. *FY 2011 Base Plans:* Provide continued support as described above in FY09 and FY10.					
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded DoD Acquisition Workforce Fund.	0.331	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	66.041	78.338	46.070	0.000	46.070

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 0164: *V-22*	2,213.551	2,293.085	2,202.911	0.000	2,202.911	2,422.819	1,819.753	1,859.629	1,902.218	11,417.136	38,729.470
• APN 0590: *V-22 Series*	41.339	77.927	21.985	36.420	58.405	31.641	85.225	96.202	55.578	1,105.000	1,938.501
• APN 0605: *V-22 Inital Spares*	28.549	35.366	18.888	0.000	18.888	8.424	19.123	25.551	25.772	Continuing	Continuing
• RDTE 0401318F : *CV-22 USAF*	17.992	19.640	18.270	0.000	18.270	21.983	18.277	18.237	37.891	Continuing	Continuing
	30.970	12.687	14.476	0.000	14.476	9.589	0.000	0.000	0.000	0.000	518.719

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604262N: *V-22A*	PROJECT 1425: *V-22*

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 1160421BB: *CV-22 SOCOM*											

D. Acquisition Strategy

The MV-22 is currently in a post Milestone III ACAT-ID program. As a result of mishaps during and subsequent to MV-22 OPEVAL (Apr and Dec 00), the program was restructured employing a phased approach to return to flight and tactical introduction. The Contractor and Government defined deficient areas within the program/ aircraft requiring correction prior to return to flight. A Block Upgrade approach has been planned, with required efforts being identified in Block "A", "B", and "C". Block "A" includes those efforts necessary to return the V-22 to safe and operational fleet operations. Block "B" includes those efforts necessary to improve the effectiveness and suitability of the aircraft. Block "C" includes mission enhancements like weather radar cabin effectiveness suitability improvements, i.e., ECS and Forward Firing ALE-47. Non-recurring development activities are to be initiated and completed for all efforts identified to be in Block "A", "B", and "C". The Contractor will develop specific Statements of Work and Preliminary Specification Change Notices required to integrate the Block Upgrade efforts into the baseline Program. A Systems Requirements Review, Initial Design Review, and Final Design Review will be held for each of the Block efforts so the design maturity can be reviewed and the Government can redirect activities as appropriate. The CV-22 EMD program is structured in Blocks to define an evolutionary approach to achieving full operational capability. Block "0" is the initial baseline CV-22 variant. Block "10" enhances mission capability with the addition of terrain following radar, additional fuel tanks, additional radios, and Block 20 includes capabilities such as radio frequency and infrared countermeasures improvements. Additional Blocks are in the planning stages to continue the growth process throughout the operational life of the weapon system.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604262N: *V-22A*	PROJECT 1425: *V-22*	

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
CV-22 Develop Support Equipment	Various/ Various	Various Various	13.563	0.000		0.000		0.000		0.000	0.000	13.563	Continuing
CV-22 Hardware Dev Airframe	SS/CPAF	Boeing Co. Ridley Park, PA	916.978	0.000		0.000		0.000		0.000	0.000	916.978	916.978
CV-22 Hardware Dev Propulsion	C/CPIF	Rolls-Royce Corp. Indy, IN	12.391	0.000		0.000		0.000		0.000	0.000	12.391	12.391
MV-22 Develop Support Equipment	Various/ Various	NAWCAD Lakehurst, NJ	5.691	0.000		0.000		0.000		0.000	0.000	5.691	Continuing
MV-22 Develop Support Equipment	C/CPIF	Boeing Co. Ridley Park, PA	43.924	0.000		0.000		0.000		0.000	0.000	43.924	43.924
MV-22 Hardware Dev Airframe	SS/CPAF	Boeing Co. Ridley Park, PA	3,937.798	68.719	Feb 2010	40.127	Jan 2011	0.000		40.127	150.580	4,197.224	4,197.224
MV-22 Hardware Dev Propulsion	SS/CPIF	Rolls-Royce Corp. Indy, IN	193.356	2.320	Jan 2010	2.199	Jan 2011	0.000		2.199	2.154	200.029	200.029
MV-22 Training Development	Various/ Various	Various Various	23.538	0.000		0.000		0.000		0.000	0.000	23.538	Continuing
		Subtotal	5,147.239	71.039		42.326		0.000		42.326	152.734	5,413.338	5,370.546

Remarks

Total award fee pool available for MV and CV combined is $231,581,626. To date, $209,053,038 has been awarded for a percentage of 90.3 percent. Award Fee included in MV-22 Primary Hardware Development Airframe line.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604262N: *V-22A*	PROJECT 1425: *V-22*

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
CV-22 Govt Engineering Sppt	WR	NAWCAD Pax River, MD	21.803	0.000		0.000		0.000		0.000	0.000	21.803	Continuing
CV-22 Integrated Log Sppt	Various/ Various	Various Various	8.395	0.000		0.000		0.000		0.000	0.000	8.395	Continuing
CV-22 Technical Data	C/CPIF	Boeing Co. Ridley Park, PA	8.035	0.000		0.000		0.000		0.000	0.000	8.035	8.035
CV-22 Technical Data	WR	NATEC San Diego, CA	6.131	0.000		0.000		0.000		0.000	0.000	6.131	Continuing
MV-22 Govt Engineering Sppt	WR	NAWCAD Pax River, MD	1,099.611	0.092	Jan 2010	0.003	Nov 2010	0.000		0.003	0.010	1,099.716	Continuing
MV-22 Integrated Log Sppt	Various/ Various	Various Various	28.818	0.000		0.000		0.000		0.000	0.000	28.818	Continuing
MV-22 Technical Data	C/CPIF	Boeing Co. Ridley Park, PA	116.536	0.000		0.000		0.000		0.000	0.000	116.536	116.536
		Subtotal	1,289.329	0.092		0.003		0.000		0.003	0.010	1,289.434	124.571

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604262N: *V-22A*	PROJECT 1425: *V-22*	

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
CV-22 Dev Test & Evaluation	MIPR	Edwards AFB Edwards AFB, CA	46.564	0.000		0.000		0.000		0.000	0.000	46.564	Continuing
MV-22 Dev Test & Evaluation	WR	NAWCAD Pax River, MD	979.083	5.395	Jan 2010	2.100	Nov 2010	0.000		2.100	11.219	997.797	Continuing
MV-22 Live Fire Test & Evaluation	WR	NAWCWD China Lake, CA	1.636	0.000		0.000		0.000		0.000	0.000	1.636	Continuing
MV-22 Operational Test & Evaluation	WR	OT&E Force Norfolk, VA	43.042	0.517	Jan 2010	0.000		0.000		0.000	0.000	43.559	Continuing
		Subtotal	1,070.325	5.912		2.100		0.000		2.100	11.219	1,089.556	

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
CV-22 Engineering Tech Sppt	Various/ Various	Various Various	12.489	0.000		0.000		0.000		0.000	0.000	12.489	Continuing
CV-22 Management Sppt Serv	Various/ Various	Various Various	12.511	0.000		0.000		0.000		0.000	0.000	12.511	Continuing
CV-22 Program Mgmt Support	WR	NAWCAD Pax River, MD	9.830	0.000		0.000		0.000		0.000	0.000	9.830	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604262N: *V-22A*	PROJECT 1425: *V-22*

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
CV-22 Travel	WR	NAWCAD Pax River, MD	4.682	0.000		0.000		0.000		0.000	0.000	4.682	Continuing
MV-22 Engineering Tech Sppt	Various/ Various	Various Various	1,045.179	0.736	Dec 2009	0.276	Nov 2010	0.000		0.276	0.000	1,046.191	Continuing
MV-22 Management Sppt Serv	Various/ Various	Various Various	153.775	0.325	Dec 2009	0.225	Nov 2010	0.000		0.225	0.000	154.325	Continuing
MV-22 Studies and Analysis	Various/ Various	Various Various	1.244	0.000		0.000		0.000		0.000	0.000	1.244	Continuing
MV-22 Program Mgmt Support	WR	NAWCAD Pax River, MD	54.671	0.010	Jan 2010	0.890	Nov 2010	0.000		0.890	1.000	56.571	Continuing
MV-22 Travel	WR	NAWCAD Pax River, MD	15.001	0.224	Jan 2010	0.250	Dec 2010	0.000		0.250	0.520	15.995	Continuing
Acquisition Workforce Fund	Various/ Various	Various Various	0.331	0.000		0.000		0.000		0.000	0.000	0.331	Continuing
		Subtotal	1,309.713	1.295		1.641		0.000		1.641	1.520	1,314.169	

Remarks

This project includes $.331M for the Defense Acquisition Workforce Development Fund (DAWDF) in FY09.

	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	8,816.606	78.338		46.070		0.000		46.070	165.483	9,106.497	5,495.117

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604262N: *V-22A*	PROJECT 1425: *V-22*

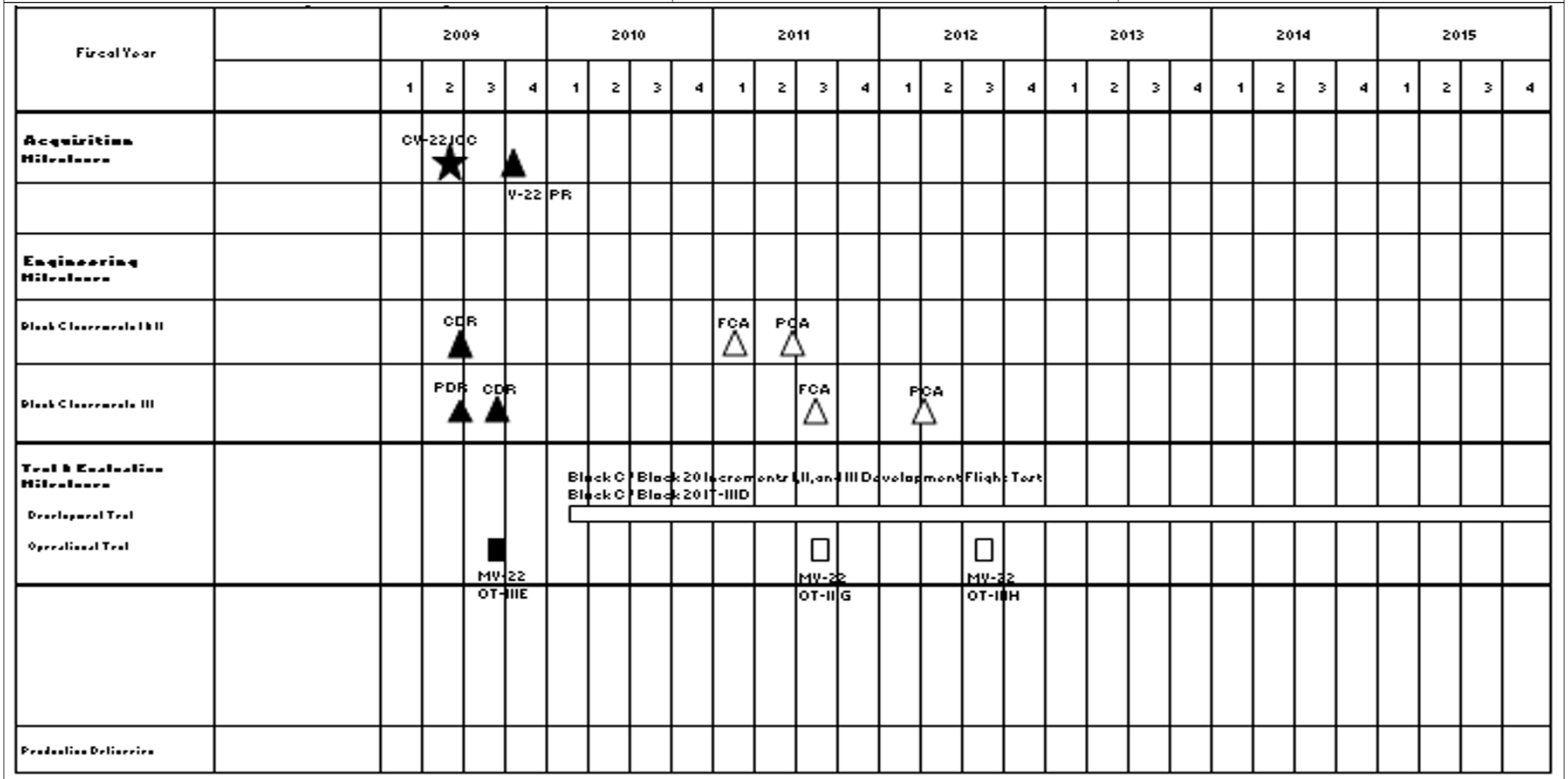


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604262N: *V-22A*	PROJECT 1425: *V-22*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
CV-22 Initial Operational Capability (IOC)	2	2009	2	2009
V-22 In-Process Review (IPR)	4	2009	4	2009
Block-C Inc I&IICritical Design Review (CDR)	2	2009	2	2009
Block C Inc I&II Functional Configuration Audit	1	2011	1	2011
Block C Inc I&II Physical Congfiguration Audit	2	2011	2	2011
Block C Inc III Preliminary Design Review (PDR)	2	2009	2	2009
Block C Inc III Critical Design Review (CDR)	3	2009	3	2009
Block C Inc III Functional Configuration Audit	3	2011	3	2011
Block C Inc III Physical Configuration Audit	2	2012	2	2012
Development Flight Test / Integrated Test (IT-IIID)	1	2010	4	2015
Operational Testing (OT-IIIE)	3	2009	3	2009
Operational Testing (OT-IIIG)	3	2011	3	2011
Operational Testing (OT-IIIH)	3	2012	3	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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604264N: *Air Crew Systems 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	15.675	12.513	8.689	0.000	8.689	3.786	3.410	8.306	13.956	Continuing	Continuing
0606: *Aircrew System Development*	15.675	12.513	8.689	0.000	8.689	3.786	3.410	8.306	13.956	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Aircrew Systems Development program provides Engineering and Manufacturing Development (EMD) of Aviation Life Support Systems to protect aircrews from current and future threats including: directed energy weapons, chemical/biological/radiological agents/fallout, ballistic projectiles, temperature extremes, heat/fire, low concentration oxygen environments, high dynamic forces during emergency egress, and high "G" forces. The program also provides development for the following capabilities: night vision capability, head protection, communications, clothing, in flight restraint and stability emergency egress and descent, escape and evasion, survival and rescue, crash protection, and anthropometric sizing for small aircrew. Acquisition initiatives include: competition, the application of streamlining initiatives, use of non-developmental items (NDI), joint and tri-service developments, and the pursuit of NATO/allied cooperative ventures, which expedite introduction of new products into Navy and Marine Corps fixed and rotary wing aircraft, reduce costs, and promote commonality.

FY11-FY15 Wide Field of View (WFOV) - Night Vision program realigns from Other Procurement Navy (OPN) to Research Development Test & Evaluation (RDT&E) due to the program being placed back into Science & Technology (S&T) development. Procurement will not begin until FY18. This resulted in a reduction of $2.686M in FY11 which was transferred to the lab for additional S& T efforts, and increases in FY12-15 taken from the WFOV Other Procurement Navy (OPN) line.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604264N: *Air Crew Systems Development*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	15.985	14.265	0.000	0.000	0.000
Current President's Budget	15.675	12.513	8.689	0.000	8.689
Total Adjustments	-0.310	-1.752	8.689	0.000	8.689
• Congressional General Reductions		-0.052			
• Congressional Directed Reductions		-1.700			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.310	0.000			
• Program Adjustments	0.000	0.000	8.689	0.000	8.689

Change Summary Explanation

Schedule:

1. Acquisition Milestones:

A. CMARS Milestone B changed from 3Q09 to 4Q09. Aligned to coincide with current acquisition strategy.

B. CMARS PDR changed from 1Q10 to 3Q10. Aligned to coincide with current acquisition strategy.

C. CMARS CDR changed from 1Q10 to 4Q10. Aligned to coincide with current acquisition strategy.

2. Test and Evaluation:

A. JHMCS NVCD-DT/OT changed from 1Q07-2Q11 to 1Q07-1Q11. Aligned JHMCS NVCD with JHMCS JPO Program.

B. LEP-DT changed from 3Q09-1Q10 to 3Q10-2Q11. Delay in Acquisition Decision for contract award.

C. FDC-DT changed from 4Q08-4Q09 to 4Q08-3Q10. Realigned component & system level test requirements.

D. CMARS-DT/OT changed from 3Q10-4Q10 to 4Q10-1Q11. Delay in RDT&E contract award.

E. AE-DT changed from 3Q08-3Q10 to 1Q09-1Q11. Realigned component & system level test requirements.

3. Production Milestones:

A. CMARS-DEL changed from 3Q09-4Q15 to 1Q11-4Q15. Realigned with multiple platforms mod 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604264N: *Air Crew Systems Development*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604264N: *Air Crew Systems Development*	PROJECT 0606: *Aircrew System 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
0606: *Aircrew System Development*	15.675	12.513	8.689	0.000	8.689	3.786	3.410	8.306	13.956	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

AIRCREW SYSTEMS: Aircrew Endurance (AE), Laser Eye Protection (LEP), Flight Deck Cranial (FDC), Joint Helment Mounted Cueing System (JHMCS), Night Vision Cueing and Display (NVCD), Wide Field of View (WFOV) and Aircrew Systems (AS).

AIRCREW SYSTEMS: AE includes Survival Vests & Armor, Waste Management, Hydration and Universal Camouflage. LEP includes Joint Service Advanced Aircrew Laser Eye Protection Visor (JALEPV) and Laser Eye Protection Improvement Program (LEPIP). FDC includes Improved Hearing Protection. JHMCS NVCD includes JHMCS Night Attack. WFOV includes Non-Ejection WFOV Night Vision Goggles (NVG), and future Ejection (Non-JHMCS) WFOV NVG. AS includes State of the Art (SOA), Common Helmet, Advanced Helmet Vision System, Waste Management, Hydration and Hypoxia Awareness.

AIRCRAFT SYSTEMS: Ejection Seat Endurance (ESE) includes aircrew endurance modifications for F/A-18 aircraft. CMARS includes a retractor system for rotary wing aircraft. Aircraft systems include studies for Advanced Crash Protection (ACP), Crashworthy Troop Seats (CWTS), Oxygen Systems and Seat Endurance (NESE) for non-ejection seat aircraft.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Aircrew System Development	12.008	11.620	7.188	0.000	7.188
AIRCREW SYSTEMS: AE includes Survival Vests & Armor, Waste Management, Hydration and Universal Camouflage. LEP includes Joint Service Advanced Aircrew Laser Eye Protection Visor (JALEPV) and Laser Eye Protection Improvement Program (LEPIP). FDC includes Improved Hearing Protection. JHMCS NVCD includes JHMCS Night Attack. WFOV includes Non-Ejection WFOV Night Vision Goggles (NVG), and future Ejection (Non-JHMCS) WFOV NVG. AS includes State of the Art					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604264N: *Air Crew Systems Development*	PROJECT 0606: *Aircrew System Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(SOA), Common Helmet, Advanced Helmet Vision System, Waste Management, Hydration and Hypoxia Awareness. *FY 2009 Accomplishments:* AE: Developed design and initial prototypes for survival vest and armor and conducted component qualification testing, Preliminary Design Review (PDR) and Critical Design Review (CDR). Developed new universal camouflage color in fire retardant materials. Contract awarded for waste management kits for fleet assessment. LEP: Began development of self and self/threat protection LEP Spectacles and Step-in Visors. FDC: Continued development of an integrated modular FDC that provides improved impact protection, hearing, communications, and speech intelligibility to be used in Developmental Testing/ Operational Testing (DT/OT). JHMCS NVCD: Completed Navy DT/OT events including final F/A-18 flight tests and 2 ejection seat sled tests. WFOV: Initiated program, formed team and began planning for execution. AS: SOA: Continued evaluation and authorization of state of the art survival and clothing items. *FY 2010 Plans:* AE: Test survival vest and armor system for integration, compatibility and performance to meet program KPP's and KSA's. Establish universal camouflage shade standards of new color in multiple materials for use in ALSS products. LEP: Award contract for fixed wavelength self/hazard and/or threat protection LEP Visors. Procure Engineering Development Models & First Article Test units to conduct testing to include optical, environmental, and laser saturation as part of Developmental Test. LEP: LEPIP: Procure Advanced Engineering & Development models (AE&D) and S & T units. Conduct testing to include optical, environmental, and laser saturation. FDC: Integrated modular FDC system fleet verification and system evaluation. JHMCS NVCD: Complete testing and logistics planning.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604264N: *Air Crew Systems Development*	PROJECT 0606: *Aircrew System Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
WFOV: Conduct studies on digital technology development and monitor S & T to determine technology suitability for non-ejection seat NVG platforms. AS: SOA: Continue evaluation and authorization of state of the art survival and clothing items. *FY 2011 Base Plans:* AE: Complete fleet assessment for survival vest and armor and conduct Full Rate Production (FRP) Acquisition Decision Review (ADR). LEP: Finish Developmental Test to include cockpit compatibility, flight tests and system validation/ verification for spectacles and visor. FDC: Complete modifications to the FDC system based on fleet assessment results. JHMCS NVCD: Complete final systems integration and work any required engineering changes discovered during OT. WFOV: Conduct studies on digital technology development and monitor S & T determine technology suitability for non-ejection seat NVG platforms. AS: SOA: Continue evaluation and authorization of state of the art survival and clothing items.					
Aircraft Systems	3.667	0.893	1.501	0.000	1.501
AIRCRAFT SYSTEMS: Ejection Seat Endurance (ESE) includes aircrew endurance modifications for F/A-18 aircraft. CMARS includes a retractor system for rotary wing aircraft. Aircraft systems include studies for Advanced Crash Protection (ACP), Crashworthy Troop Seats (CWTS), Oxygen Systems and Seat Endurance (NESE) for non-ejection seat aircraft. *FY 2009 Accomplishments:* CMARS: Began development of the CMARS retractor system. ESE: Awarded two contracts for GRU-7 and SJU-5/6 seat cushions to be used for fleet assessment. ACS: Continued studies and development of advanced crash protection systems. Awarded FY08/09 contract for for Non-Ejection Seat cushions to be used in fleet assessments.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604264N: *Air Crew Systems Development*	PROJECT 0606: *Aircrew System Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: CMARS: Continue system development. Conduct developmental testing and installation of system into test platform for Operational Tests. ESE: Continuing fleet assessment of aircrew endurance modifications for F/A-18, T-45, EA-6B and AV-8B aircraft and develop ECP. Award first production contract. ACS: Continue feasibility study and development of improved crash worthy troop seats. Conduct improvements on onboard Oxygen systems. *FY 2011 Base Plans:* CMARS: Complete DT/OT and systems integration testing. Award initial procurement contract. ESE: Complete fleet assessments on remaining platforms and conduct engineering change proposals as necessary based upon fleet assessment results.					
Accomplishments/Planned Programs Subtotals	15.675	12.513	8.689	0.000	8.689

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/4244: *Aviation Life Support*	21.609	48.157	40.696	26.024	66.720	65.841	48.871	45.561	43.957	Continuing	Continuing
• APN/0575: *Aviation Life Support Mods*	1.984	5.577	8.084	0.000	8.084	5.261	5.439	6.813	6.794	77.886	124.968

D. Acquisition Strategy

Commercial Off-The-Shelf (COTS)/NDI where possible, cost plus award fee contracts. Majority of programs non-ACAT programs.

E. Performance Metrics

AIRCREW ENDURANCE (AE) - CRICITAL DESIGN REVIEW - 4Q09
AIRCREW ENDURANCE - MILESTONE C - 1Q11

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604264N: *Air Crew Systems Development*	**PROJECT** 0606: *Aircrew System Development*

AIRCREW ENDURANCE - IOC - 1Q12
CMARS - MILESTONE B - 4Q09
CMARS - PROGRAM DESIGN REVIEW (PDR) - 3Q10
CMARS - CRITICAL DESIGN REVIW (CDR) - 4Q10
CMARS - MILESTONE C - 2Q11
CMARS - INITIAL OPERATION CAPABILITY - 3Q12

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604264N: *Air Crew Systems Development*	PROJECT 0606: *Aircrew System 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
Systems Eng Aircrew Endurance	WR	Various Various	3.746	1.920	Mar 2010	1.063	Dec 2010	0.000		1.063	2.572	9.301	Continuing
Systems Eng LEP	WR	NAWCAD Patuxent River, MD	2.700	1.157	Mar 2010	1.096	Dec 2010	0.000		1.096	2.120	7.073	Continuing
Systems Eng LEP	Various/FP	Various Various	1.547	0.575	Mar 2010	0.658	Dec 2010	0.000		0.658	0.000	2.780	2.780
Systems Eng Flight Deck Cranial	WR	NAWCAD Patuxent River, MD	1.700	1.000	Mar 2010	0.514	Dec 2010	0.000		0.514	0.946	4.160	Continuing
Systems Eng Flight Deck Cranial	Various/ CPFF	Various Various	2.050	2.112	Mar 2010	0.791	Dec 2010	0.000		0.791	0.000	4.953	4.953
Systems Eng JHMCS NVCD	Various/ Various	Various Various	6.553	1.105	Mar 2010	0.071	Dec 2010	0.000		0.071	0.227	7.956	Continuing
Systems Eng WFOV	Various/ TBD	Various Various	0.470	0.916	Mar 2010	0.464	Dec 2010	0.000		0.464	19.800	21.650	Continuing
Systems Eng Aircrew Systems	WR	Various Various	3.225	1.560	Mar 2010	1.546	Dec 2010	0.000		1.546	17.775	24.106	Continuing
Systems Eng CMARS	Various/ Various	Various Various	10.317	0.020	Mar 2010	0.705	Dec 2010	0.000		0.705	0.000	11.042	Continuing
Systems Eng Aircraft Sys	WR	Various Various	38.327	0.873	Mar 2010	0.796	Dec 2010	0.000		0.796	2.732	42.728	Continuing
		Subtotal	70.635	11.238		7.704		0.000		7.704	46.172	135.749	7.733

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604264N: *Air Crew Systems Development*	PROJECT 0606: *Aircrew System Development*

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 ETS	C/CPFF	Various Various	7.866	1.000	Dec 2009	0.710	Dec 2010	0.000		0.710	1.744	11.320	11.010
Contractor MSS	C/CPFF	MCR Federal McLean, VA	0.750	0.150	Dec 2009	0.150	Dec 2010	0.000		0.150	0.300	1.350	1.350
Travel	WR	Various Various	0.740	0.125	Dec 2009	0.125	Dec 2010	0.000		0.125	0.490	1.480	Continuing
		Subtotal	9.356	1.275		0.985		0.000		0.985	2.534	14.150	12.360

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	79.991	12.513		8.689		0.000		8.689	48.706	149.899	20.093

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604264N: *Air Crew Systems Development*	**PROJECT** 0606: *Aircrew System Development*

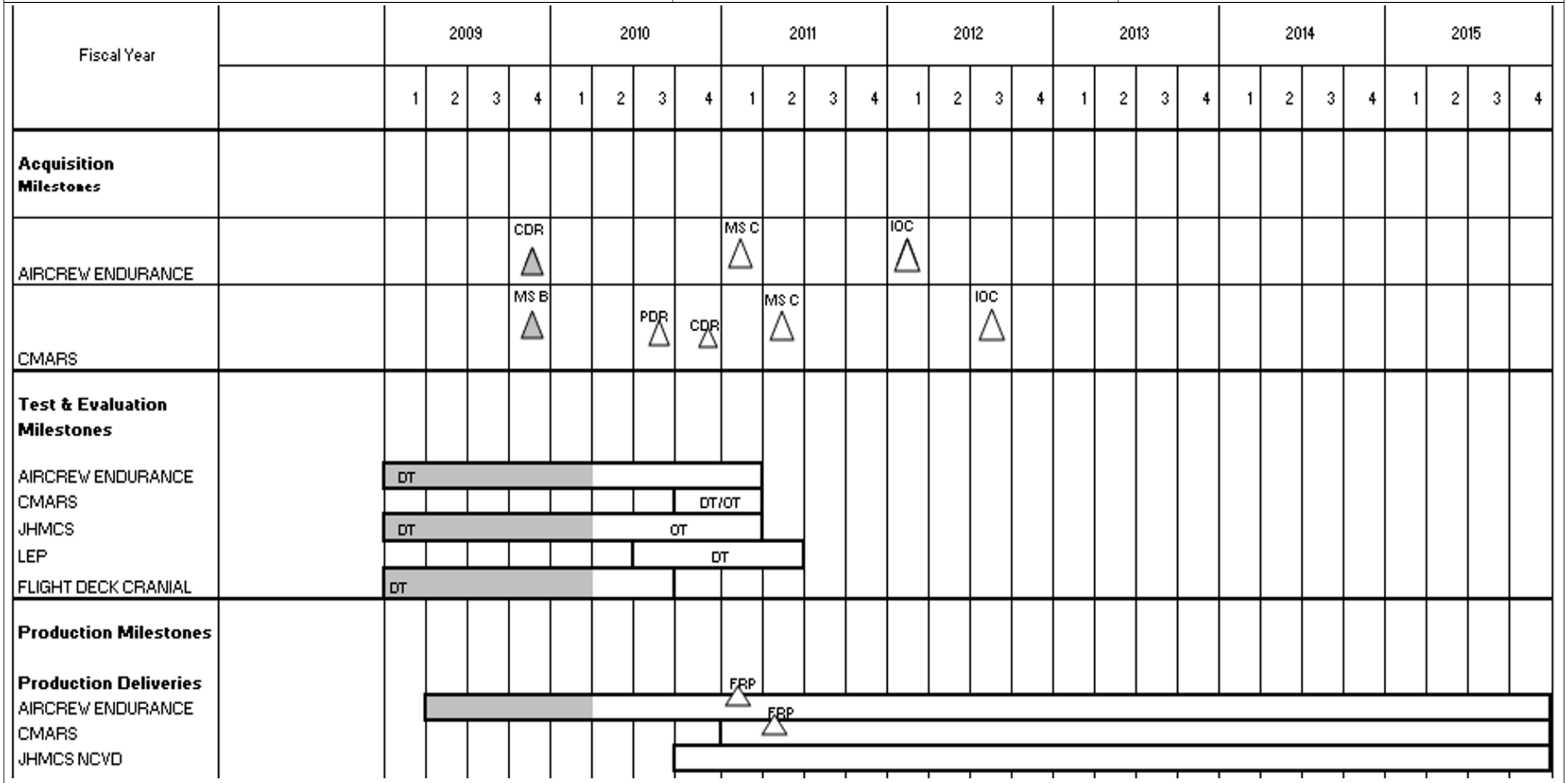


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604264N: *Air Crew Systems Development*	**PROJECT** 0606: *Aircrew System Development*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Aircrew Endurance: CDR	4	2009	4	2009
Aicrew Endurance: MS C/FRP	1	2011	1	2011
Aircrew Endurance: IOC	1	2012	1	2012
CMARS: MS B	4	2009	4	2009
CMARS: PDR	3	2010	3	2010
CMARS: MS C/FRP	2	2011	2	2011
CMARS: CDR	4	2010	4	2010
CMARS: IOC	3	2012	3	2012
Aircrew Endurance: DT	1	2009	1	2011
CMARS: DT	4	2010	1	2011
JHMCS NVCD: DT/OT	1	2009	1	2011
LEP: DT	3	2010	2	2011
Flight Deck Cranial: DT	1	2009	3	2010
Aircrew Endurance: Deliverables	2	2009	4	2015
CMARS: Deliverables	1	2011	4	2015
JHMCS NVCD: Deliverables	4	2010	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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604269N: *EA-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	115.724	57.078	22.042	0.000	22.042	16.783	17.031	17.725	18.509	Continuing	Continuing
3063: *EA-18G Development*	114.527	55.485	22.042	0.000	22.042	16.783	17.031	17.725	18.509	Continuing	Continuing
9999: *Congressional Adds*	1.197	1.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.643

A. Mission Description and Budget Item Justification

The EA-18G is replacing the EA-6B aircraft. The EA-18G's electronic attack upgrades the EA-6B Airborne Electronic Attack (AEA) capability to detect, identify, locate and suppress hostile emitters.

FY 2010 Estimate includes $269K OEF Supplemental Budget Request for fuel pricing.

Congressional Add:
9A33A Next Generation Electronic Warfare Simulator. Provides Radio Frequency (RF) threat generation capabilities for the EA-18G Advanced Weapons Laboratory team to validate and verify the performance of mission critical Electronic Warfare systems.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	128.689	55.446	0.000	0.000	0.000
Current President's Budget	115.724	57.078	22.042	0.000	22.042
Total Adjustments	-12.965	1.632	22.042	0.000	22.042
• Congressional General Reductions		-0.237			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		1.600			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-9.500	0.000			
• SBIR/STTR Transfer	-3.465	0.000			
• Program Adjustments	0.000	0.000	22.042	0.000	22.042
• Rate/Misc Adjustments	0.000	0.269	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604269N: *EA-18 Squadrons*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *NEXT GENERATION ELECTRONIC WARFARE SIMULATOR*	1.197	1.593
Congressional Add Subtotals for Project: 9999	1.197	1.593
Congressional Add Totals for all Projects	1.197	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604269N: *EA-18 Squadrons*	PROJECT 3063: *EA-18G 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
3063: *EA-18G Development*	114.527	55.485	22.042	0.000	22.042	16.783	17.031	17.725	18.509	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The EA-18G is replacing the EA-6B aircraft. The EA-18G electronic attack upgrades the EA-6B (ALQ-218, ALQ-99, USQ-113) Airborne Electronic Attack (AEA) capability to detect, identify, locate and suppress hostile emitters; provide enhanced connectivity to National, Theater and Strike assets; and provide organic precision emitter targeting for employment of onboard suppression weapon, High-speed Anti-Radiation Missile (HARM) family of weapons, to fulfill operational requirements. The performance of the aircraft is compatible with the primary strike/fighter aircraft projected to be in the inventory, allowing it to be fully integrated into specific strike packages. The EA-18G has the capability to operate autonomously or as a major node in a network-centric operation and is being designed to perform a range of Electronic Warfare/Electronic Attack functions either simultaneously or independently.

FY 2010 Estimate includes $269K OEF Supplemental Budget Request for fuel pricing.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
EA-18G Design and Avionics Integration	88.038	13.471	6.098	0.000	6.098
The EA-18G has the capability to operate autonomously or as a major node in a network-centric operation and is being designed to perform a range of Electronic Warfare/Electronic Attack functions either simultaneously or independently. Funding will be utilized for design and integration of avionics systems into the EA-18G. *FY 2009 Accomplishments:* Continued Air Vehicle design and integration of avionics into the EA-18G.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604269N: *EA-18 Squadrons*	PROJECT 3063: *EA-18G Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue Air Vehicle design and integration of avionics into the EA-18G. *FY 2011 Base Plans:* Continue Air Vehicle design and integration of avionics into the EA-18G.					
EA-18G Software Development Funding will be utilized to develop to software capabilities for the EA-18G. *FY 2009 Accomplishments:* Continued software development of the EA-18G. *FY 2010 Plans:* Continue software development of the EA-18G. *FY 2011 Base Plans:* Continue software development of the EA-18G.	9.202	30.929	9.514	0.000	9.514
EA-18G Developmental & Operational Testing Funding will be utilized to support required test phases of the EA-18G. *FY 2009 Accomplishments:* Continued and completed developmental testing associated with System Design & Development. *FY 2010 Plans:* Continue operational test planning. Complete Operational Evaluation (OPEVAL).	17.287	11.085	6.430	0.000	6.430

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604269N: *EA-18 Squadrons*	PROJECT 3063: *EA-18G Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue operational test planning.					
Accomplishments/Planned Programs Subtotals	114.527	55.485	22.042	0.000	22.042

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/014300: *EA-18G*	1,613.698	1,627.367	1,083.882	0.000	1,083.882	2,355.947	91.030	48.961	8.480	0.000	9,291.151
• APN/05250: *F-18 Series (OSIP 011-10)*	0.000	2.545	8.761	0.000	8.761	10.030	10.085	7.463	5.390	0.000	44.274

D. Acquisition Strategy

A sole source contract was awarded to Boeing (the platform manufacturer) for system design and development (SDD) under a Cost-Plus Incentive Fee/Award Fee (CPIF/AF) contract arrangement that provides incentives based on cost, schedule, and technical performance. Boeing has a subcontract with Northrop Grumman to incorporate Electronic Warfare/Electronic Attack systems into the Super Hornet. The contract has been structured to minimize the Navy's up-front investment and cancellation penalty, while reducing costs for the total program life cycle. In FY05, two F/A-18F's began modification with RDT&E funds to incorporate the Electronic Warfare/Electronic Attack systems for further development, integration, and testing. In FY06, an Engineering Change Proposal (using procurement funds) was incorporated into the SDD contract to procure the EA-18G unique airframe changes and Airborne Electronic Attack kits, respectively, for the 4 SDD aircraft. Also during FY06, groundwork for the eight (8) Low Rate Initial Production (LRIP) aircraft was initiated and a Request For Proposal (RFP) was released prior to the Milestone C authorization and awarded in the fourth quarter FY07. During FY08, a Request For Proposal (RFP) was generated and released prior to LRIP II Decision (DAB 30 April 08). OPEVAL started in September FY08 and was completed in May of FY09. FY09 will be the last year for the SDD contract. The FRP decision is scheduled for fourth quarter FY09. Contractual studies are underway for Operational Requirement Document core block II activities and those efforts will be integrated into the overall EA-18G plan/roadmap as resources permit.

E. Performance Metrics

Program achieved Full Rate Production (FRP) Decision in 4th Quarter FY2009 and FRP AEA Kit Award in 1st Quarter FY2010. Completion of FPR Delivery scheduled for 3rd Quarter FY2013.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604269N: *EA-18 Squadrons*	PROJECT 3063: *EA-18G 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
GFE	WR	NSWC Det Crane, IN	2.072	0.008	Feb 2010	0.005	Feb 2011	0.000		0.005	0.020	2.105	Continuing
Primary Hdw Dev (ALQ-99)	WR	NSWC Det Crane, IN	25.014	0.000		0.000		0.000		0.000	0.000	25.014	Continuing
Primary Hdw Dev (Aircraft)	SS/CPAF	Boeing St. Louis, MO	949.873	4.245	Oct 2009	1.651	Oct 2010	0.000		1.651	0.000	955.769	955.769
Primary Hdw Dev (Aircraft)	Various/ Various	Various Various	3.059	0.056	Feb 2010	0.041	Feb 2011	0.000		0.041	0.156	3.312	Continuing
SDD Award Fee	SS/CPAF	Boeing St. Louis, MO	88.497	0.000		0.000		0.000		0.000	0.000	88.497	88.497
Systems Engineering	WR	NAWCAD Lakehurst, NJ	5.958	0.151	Nov 2009	0.109	Nov 2010	0.000		0.109	0.412	6.630	Continuing
Systems Engineering	WR	NAWCAD Pax River, MD	27.612	1.615	Nov 2009	1.169	Nov 2010	0.000		1.169	4.647	35.043	Continuing
Systems Engineering	WR	NAWCWD China Lake, CA	77.758	1.724	Nov 2009	1.248	Nov 2010	0.000		1.248	4.943	85.673	Continuing
Systems Engineering	WR	NAWCWD Pt. Mugu, CA	47.703	0.880	Nov 2009	0.637	Nov 2010	0.000		0.637	2.408	51.628	Continuing
Systems Engineering	WR	NSCW Det Crane, IN	13.291	0.418	Nov 2009	0.303	Nov 2010	0.000		0.303	1.144	15.156	Continuing
		Subtotal	1,240.837	9.097		5.163		0.000		5.163	13.730	1,268.827	1,044.266

Remarks

Primary Hardware development is based on current value of the SDD contract plus a projection of additional future planned requirements. To date, 100% of the award fee has been awarded.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604269N: *EA-18 Squadrons*	PROJECT 3063: *EA-18G 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
Integrated Logistics Support	WR	Various Various	3.954	0.272	Nov 2009	0.650	Nov 2010	0.000		0.650	2.600	7.476	Continuing
Software Development	SS/CPFF	Boeing St. Louis, MO	190.437	30.864	Nov 2009	9.514	Nov 2010	0.000		9.514	25.132	255.947	255.947
		Subtotal	194.391	31.136		10.164		0.000		10.164	27.732	263.423	255.947

Remarks

Target values of contract includes current items on contract and projected additions.

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 & Eval	MIPR	NASA Ames Research CA	3.016	0.000		0.000		0.000		0.000	0.000	3.016	Continuing
Developmental Test & Eval	MIPR	Various Various	2.382	0.000		0.000		0.000		0.000	0.000	2.382	Continuing
Developmental Test & Eval	WR	NAWCAD Pax River, MD	108.983	2.622	Nov 2009	1.823	Nov 2010	0.000		1.823	7.997	121.425	Continuing
Developmental Test & Eval	WR	NAWCWD China Lake, CA	81.031	7.818	Nov 2009	2.324	Nov 2010	0.000		2.324	13.869	105.042	Continuing
Operational Test & Eval	WR	COTF	9.105	0.441	Nov 2009	0.283	Nov 2010	0.000		0.283	1.132	10.961	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604269N: *EA-18 Squadrons*	PROJECT 3063: *EA-18G Development*

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
		Norfolk, VA											
		Subtotal	204.517	10.881		4.430		0.000		4.430	22.998	242.826	

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	12.246	0.698	Nov 2009	0.428	Nov 2010	0.000		0.428	1.914	15.286	Continuing
Government Engineering Support	WR	NAWCAD Pax River, MD	29.058	1.235	Nov 2009	1.073	Nov 2010	0.000		1.073	4.491	35.857	Continuing
Government Engineering Support	WR	Various Various	1.191	0.000		0.000		0.000		0.000	0.000	1.191	Continuing
Program Management Support	WR	NAWCAD Pax River, MD	19.965	2.022	Nov 2009	0.632	Nov 2010	0.000		0.632	2.730	25.349	Continuing
Program Management Support	WR	CNAF Whidbey Island, WA	0.150	0.000		0.000		0.000		0.000	0.000	0.150	Continuing
Travel	WR	Various Various	1.871	0.416	Nov 2009	0.152	Nov 2010	0.000		0.152	0.666	3.105	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604269N: *EA-18 Squadrons*	PROJECT 3063: *EA-18G 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
Subtotal			64.481	4.371		2.285		0.000		2.285	9.801	80.938	

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	1,704.226	55.485		22.042		0.000		22.042	74.261	1,856.014	1,300.213

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604269N: *EA-18 Squadrons*	**PROJECT** 3063: *EA-18G Development*

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
1319 RDT&E, N / BA-5 System Development & Demonstration	0604269N EA-18G	3063 EA-18G Development

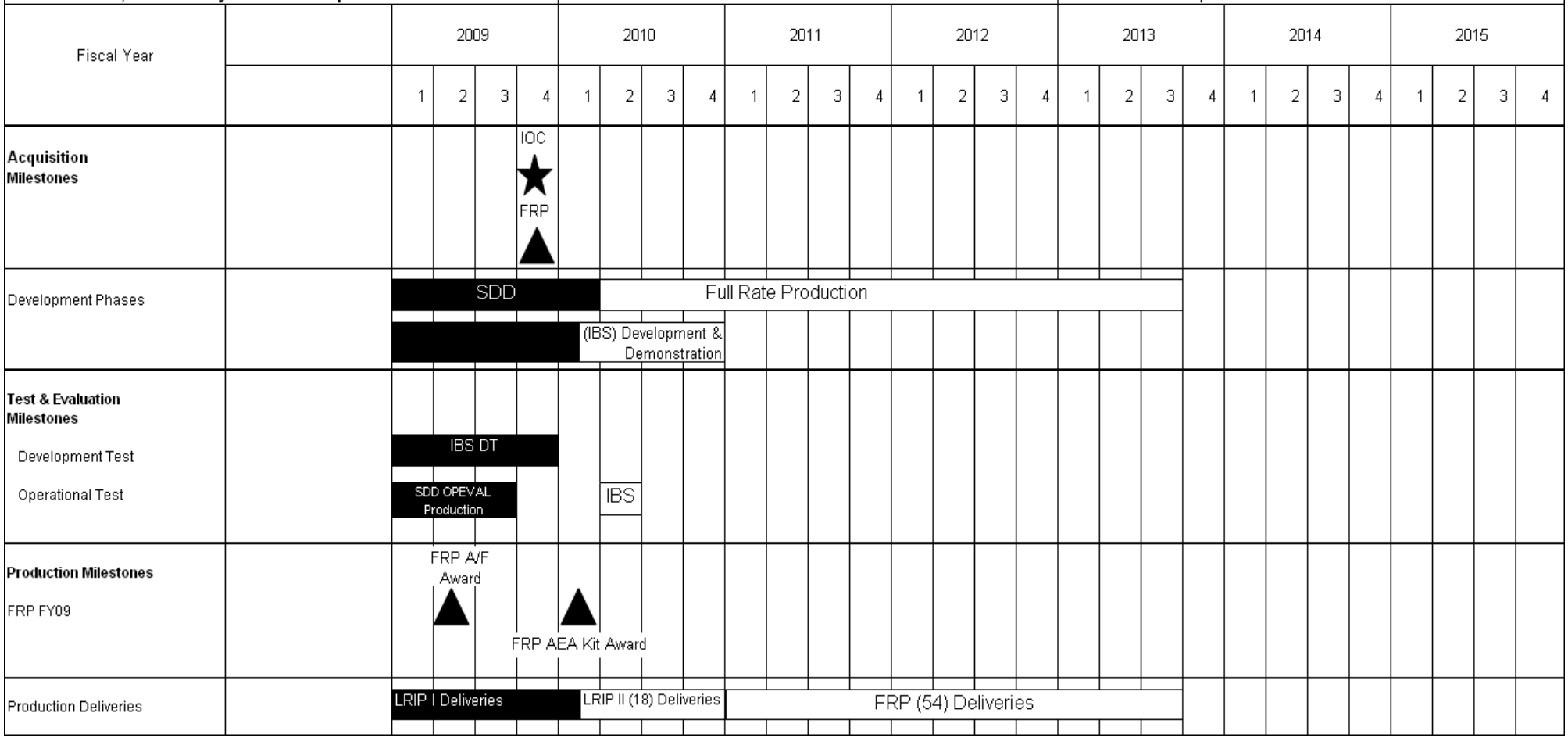


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604269N: *EA-18 Squadrons*	PROJECT 3063: *EA-18G Development*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
System Development & Demonstration Phase (SDD)	1	2009	3	2009
Operational Evaluation (OPEVAL)	1	2009	3	2009
Integrated Broadcast System (IBS) Receiver Development and Demonstration Phase	1	2009	4	2010
IBS Receiver Development Test	1	2009	4	2009
IBS Receiver Operational Testing	2	2010	2	2010
LRIP I Delivery	1	2009	4	2009
Initial Operational Capability (IOC)	4	2009	4	2009
LRIP II Delivery	1	2010	4	2010
Full Rate Production Airframe Award	2	2009	2	2009
Full Rate Production AEA Kit Award	1	2010	1	2010
FRP Decision	4	2009	4	2009
FRP	4	2009	3	2013
FRP Delivery	1	2011	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604269N: *EA-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*	1.197	1.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.643
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: NEXT GENERATION ELECTRONIC WARFARE SIMULATOR *FY 2009 Accomplishments:* Provided Radio Frequency (RF) threat generation capabilities for the EA-18G Advanced Weapons Laboratory Team to validate and verify the performance of mission critical Electronic Warfare Systems. *FY 2010 Plans:* Provide Radio Frequency (RF) threat generation capabilities for the EA-18G Advanced Weapons Laboratory Team to validate and verify the performance of mission critical Electronic Warfare Systems.	1.197	1.593
Congressional Adds Subtotals	1.197	1.593

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604269N: *EA-18 Squadrons*	PROJECT 9999: *Congressional Adds*

E. Performance Metrics

Not required for Congressional Adds.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) 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	91.418	105.193	80.819	0.000	80.819	77.804	37.650	29.151	30.001	Continuing	Continuing
0556: *EW Counter Response*	70.267	26.376	24.287	0.000	24.287	22.400	22.831	23.458	24.157	Continuing	Continuing
1742: *EW Technical Development and T&E*	5.308	4.967	4.799	0.000	4.799	4.876	4.958	5.087	5.212	Continuing	Continuing
2175: *Tactical Air Electronic Warfare*	10.183	65.193	51.733	0.000	51.733	50.528	9.861	0.606	0.632	Continuing	Continuing
2260: *Specific Emitter ID*	0.674	0.690	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.081
9999: *Congressional Adds*	4.986	7.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.054

A. Mission Description and Budget Item Justification

This element includes development of Electronic Warfare (EW) systems for the United States Navy (USN), United States Marine Corps (USMC), and United States Army tactical aircraft, USMC helicopters, surface combatants, data link vulnerability assessments, precision targeting, USN and USMC radio frequency jammers, and development and testing of electronic warfare devices for emerging threats and emergency contingencies.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	90.476	97.635	0.000	0.000	0.000
Current President's Budget	91.418	105.193	80.819	0.000	80.819
Total Adjustments	0.942	7.558	80.819	0.000	80.819
• Congressional General Reductions		-0.439			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.003			
• Congressional Adds		8.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	3.375	0.000			
• SBIR/STTR Transfer	-2.433	0.000			
• Program Adjustments	0.000	0.000	80.819	0.000	80.819

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604270N: *Electronic Warfare (EW) Dev*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *F/A18 Countermeasures Improvement*	0.000	3.983
Congressional Add: *Small Survivable Jammer*	0.000	0.797
Congressional Add: *PT MUGU ELECTRONIC WARFARE LAB UPGRADE*	1.596	3.187
Congressional Add: *Integrated Naval Electronic Warfare*	0.997	0.000
Congressional Add: *USMC Electronic Warfare(EW) Training*	2.393	0.000
Congressional Add Subtotals for Project: 9999	4.986	7.967
Congressional Add Totals for all Projects	4.986	7.967

Change Summary Explanation

Technical:
Project Unit 0556 / EW COUNTER RESPONSE: Not Applicable
Project Unit 1742 / EW TECHNICAL DEVELOPMENT & T&E: Not Applicable
Project Unit 2175 / TACTICAL AIR ELECTRONIC WARFARE: IDECM Block 3: IOT&E found IB-3 effective, not suitable. Required VCD is underway. IDECM Block 4: The IB-4 acquisition and contract strategy includes development of the Common On-Board-Jammer for the F/A-18 C/DE/F aircraft through sole source contract awards for modifications to the ALQ-214. The common jammer must meet the requirements of the IB-2 On-board Jammer (OBJ) Operational Requirements Document (ORD) and the IDECM Radio Frequency Countermeasure (RFCM) Off-board Capabilities Production Document (CPD).
Project Unit 2260 / SPECIFIC EMITTER ID: Not Applicable
Project Unit 9999 / CONGRESSIONAL ADD: Not Applicable

Schedule:
Project Unit 0556 / EW COUNTER RESPONSE: A shortage in availability of test aircraft resulted in ICAP III schedule delays. Test aircraft availability was reduced from two aircraft to one during Block 4 testing causing delays to Block 4 as well as the subsequent Block 5 and 6 DT/OT. The DT and OT portions of the schedule have been divided into separate events to allow more flexibility and detail in scheduling.
Project Unit 1742 / EW TECHNICAL DEVELOPMENT & T&E: Not Applicable
Project Unit 2175 / TACTICAL AIR ELECTRONIC WARFARE: Integrated Defensive Electronic Countermeasures (IDECM) Block 2 (IB-2): IB-2 is in Full Rate Production (FRP). The IB-2 schedule has been changed to reflect the continuation of annual production contracts through FY 2011. IDECM Block 3 (IB-3): IB-3

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604270N: *Electronic Warfare (EW) Dev*

Initial Operational Test & Evaluation (IOT&E) completed in September 2008 with a finding of effective, not suitable. The IB-3 schedule has been changed to reflect the impact of the reported deficiencies and required Verification of Correction to Deficiencies (VCD) Developmental and Operational testing scheduled to complete in September 2010. The start of the IB-3 Low Rate Initial Production (LRIP) 4 deliveries changed from 4th Qtr FY 2009 to 1st Qtr FY 2010 via contractual modification due to required failure analysis for reported deficiencies. The failure analysis affected the contractor's internal manufacturing plan and initial LRIP 4 deliveries. IDECM Block 4 (IB-4): IB-4 EMD Award has been changed to reflect the extended negotiation and definitization period. IB-4 EMD Award is planned for March 2010.
Project Unit 2260 / SPECIFIC EMITTER ID: Not Applicable
Project Unit 9999 / CONGRESSIONAL ADD: 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 0556: *EW Counter Response*	

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
0556: *EW Counter Response*	70.267	26.376	24.287	0.000	24.287	22.400	22.831	23.458	24.157	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 upgrades to cope with the increasingly complex and dense Electronic Warfare (EW) threat environment. The required improvements in airborne electronic attack (EA) will be achieved by applying state-of-the-art signal exploitation/processing/display techniques, improved tactics and jamming capabilities.

These efforts include the continued development of Force Protection/Overseas Contingency Operations (OCO) (classified discussion upon request) Navigation (NAV) and Information Operations (I/O) applications and enhanced communications jamming. The efforts under this project provide for the electronic countermeasures response to advanced threat weapon systems and C3 networks that are expanding in density and technical complexity. This project funds the continuing development and integration of all EW and EA systems for the US Navy electronic attack aircraft including improvements within precision Direction of Arrival (DOA), geo-location, Specific Emitter Identification (SEI), auto-Electronic Support Measures (ESM), and selective reactive jamming.

The ICAP III test articles begun in FY 1999 were two EA-6B aircraft modified to support the Improved Capability (ICAP) III program and Low Band Transmitter (LBT) Engineering Development Models (EDMs). An EA-6B ICAP III aircraft will continue to be used as a test article during government test and evaluation of MIDS/ Link-16, LBT and other EW improvements. A requirement exists to allow the EA-6B to participate in various coordinated targeting scenarios such as Network Centric Warfare, Force Net, Improved Suppression of Enemy Air Defenses/Destruction of Enemy Air Defenses, and other strategic-and theatre-based DOD networks and strategies. Likewise, the ICAP III system shall be matured to enable the fusion and correlation of both organic and non-organic threat information to better present sensor and targeting information to the theatre commander via coordinated efforts with other airborne, ground and ship-based operations. A method of implementing this requirement is to include the EA-6B on the Link-16 EW Network. Incorporation of the full EW Link-16 message set into the EA-6B and participation of the ICAP III within the Network Centric Warfare arena will greatly improve the Strike Group Commander's situational awareness. All efforts and system upgrades include the conversion of and transition from the Tactical EA-6B Mission Planning System (TEAMS) to the Joint Mission Planning System (JMPS), including development of EA-6B Unique Planning Modules.

The ALQ-99 Low Band Transmitter (LBT) system provides an expanded war fighting capability against the early warning/acquisition radars and communication links of modern integrated air defense systems. The LBT entered Engineering and Manufacturing Development (E&MD) in September 1996, followed by Low Rate Initial Production (LRIP) in FY 2005 and Full Rate Production (FRP Milestone III) was approved in FY 2008.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 0556: *EW Counter Response*

Electronic Attack Jammer Techniques Optimization (JATO) and test support is required to address and counter new and evolving radar and communications threats in support of existing and emerging systems such as the EA-6B and EA-18G. JATO will continue to generate techniques, tactics, and procedures that will help to optimize the capabilities of existing weapon systems, and to assist in requirements definitions of emerging AEA systems.

A Next Generation Jammer (NGJ) capability to replace the ALQ-99 system is required to keep pace with advances in threat weapons systems and continual expansion of AEA systems. NGJ capabilities will address AEA capability gaps, AEA sufficiency gaps and ALQ-99 availability gaps.

Beginning in FY10, Airborne Electronic Attack (AEA) efforts are budgeted in PE 0604274N Project 0557 Next Generation Jammer. Prior to FY10 AEA was budgeted for in PE 0604270N 0556 EW Counter Response.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ICAP III UPDATE	5.555	8.310	6.376	0.000	6.376
FY 2009 Accomplishments: Completed ICAP III Block 4 and operational test readiness review. Began coding and development of ICAP III block 5 culminating in successful completion of the critical design review.					
FY 2010 Plans: Efforts will concentrate on completing the integration and enhancement of LINK-16 and ALQ-218 capabilities into the ICAP III aircraft as well as resolving the OPEVAL/Verification of Correction of FOT&E related deficiencies. ICAP III Block 4 weapon system includes integration of ALE-47 hardware and USQ-113 software improvements with a fleet release scheduled for FY09-Q4. ICAP III Block 5 includes a robust software package designed to enhance functionality of the ALQ-218 and related EA-6B weapons systems. Development will begin in FY09 and continue until fielded.					
FY 2011 Base Plans: Efforts will concentrate on completing the integration and enhancement of LINK-16 and ALQ-218 capabilities into the ICAP III aircraft as well as resolving the OPEVAL/Verification of Correction of FOT&E related deficiencies. Efforts will continue fielding the improvements achieved in ICAP III Block 5 as well as begin the initial planning and development of ICAP III Block 6.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 0556: *EW Counter Response*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MISSION PLANNING	3.720	4.270	3.893	0.000	3.893
FY 2009 Accomplishments: Updated outdated hardware and increased the mission planning capability to keep pace with the block modifications. *FY 2010 Plans:* Joint Mission Planning Systems (JMPS) and associated EA-6B Unique Planning Components (UPC's) supports ICAP III Block upgrades. These efforts will continue development of the JMPS components in direct support of the ICAP III system. *FY 2011 Base Plans:* Joint Mission Planning Systems (JMPS) and associated EA-6B Unique Planning Components (UPC's) supports ICAP III Block upgrades. These efforts will continue development of the JMPS components in direct support of the ICAP III system.					
LINK 16 MESSAGE SETS AND DATA LINKS	1.079	1.200	1.145	0.000	1.145
FY 2009 Accomplishments: Continued development and testing of the Link-16 modification; significantly increased the amount and type of parametric data distributed across the link. *FY 2010 Plans:* Continue development and testing of the Link-16 modification. These data link enhancements will enable the EA-6B ICAP III continued participation within Force Net and facilitate the EA contributions to the greater situational awareness allowed by Network Centric Warfare efforts.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 0556: *EW Counter Response*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue development and testing of the Link-16 modification. These data link enhancements will enable the EA-6B ICAP III continued participation within Force Net and facilitate the EA contributions to the greater situational awareness allowed by Network Centric Warfare efforts.					
JAMMER TECHNIQUES OPTIMIZATION (JATO) *FY 2009 Accomplishments:* Completed and released five JATO Techniques Analysis and Tactics (JTATs) for EA-6B ICAP II and ICAP III operations, including OEF and OIF. Conducted tests of multiple Electronic Attack systems v/s radar and communications threats. Supported requirements definition for various programs including NGJ, Intrepid Tiger, and ITALD-J. *FY 2010 Plans:* Continue engineering development and test support required to address and counter new and evolving radar and communications threats in support of existing and emerging systems such as the EA-6B and EA-18G. JATO will continue to generate techniques, tactics, and procedures to optimize the capabilities of ALQ-99 , ALQ-218, and ITALD-J systems, and to assist in requirements definitions of emerging AEA systems. JATO also continues to lead efforts in support of OCO and Force Protection issues. (Classified discussion available upon request.) *FY 2011 Base Plans:* Continue engineering development and test support required to address and counter new and evolving radar and communications threats in support of existing and emerging systems such as the EA-6B and EA-18G. JATO will continue to generate techniques, tactics, and procedures to optimize the capabilities of ALQ-99 , ALQ-218, and ITALD-J systems, and to assist in requirements definitions of emerging AEA systems. JATO also continues to lead efforts in support of OCO and Force Protection issues. (Classified discussion available upon request.)	12.032	11.166	10.533	0.000	10.533

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 0556: *EW Counter Response*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
AIRBORNE ELECTRONIC ATTACK (AEA)	36.006	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Four Broad Agency Announcement contracts were signed in Jan 2009 for 6 month studies to perform system-level trade studies defining notional requirements and technical baselines for a Next Generation Jammer (NGJ) system. Concurrently, an NGJ Analysis of Alternatives is being conducted with a planned completion in the 3rd qtr of FY2010. For FY2010 and beyond, refer to PE 0604274N. Beginning in FY10, Airborne Electronic Attack (AEA) efforts are budgeted in PE 0604274N Project 0557 Next Generation Jammer.					
Intrepid Tiger Pod FA-18 E/F outfitting	8.445	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Conducted engineering trade studies & component selection for common AEA payload design. Conducted performance analysis and design of additional system unique components to support podded system integration. Conducted ground testing of CORPORAL components on the EA-6B. Began CORPORAL Technology Demonstration 1A (TD1A) to be completed by the end of FY09.					
Improved Tactical Air Launched Decoy Jammer (ITALD-J)	3.430	1.430	2.340	0.000	2.340
FY 2009 Accomplishments: Began engineering trade space analysis by conducting requirements analysis and defining design parameters. Purchased long lead items for EDM development. *FY 2010 Plans:* The ITALD-J program will continue to address unmitigated IADS threats in the mid-term by converting ITALD platforms to an expendable active electronic attack variant capable of deception and jamming against multi-function phased array Target Engagement Radars (TERs). To support the requirement in the long-term this program will produce and field a tactical air launched decoy with jammer payload					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 0556: *EW Counter Response*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
capable of being supported and maintained in future years. This program covers modifications to ITALD-J and future Airborne Electronic Attack Expendables (AEAE) in order to improve reliability/ maintainability/availability, enhance mission capability, resolve obsolescence issues, and correct deficiencies found in testing or in the field. For a mid-term effort, funding will develop Engineering Development Model (EDM) prototypes and conduct initial effectiveness testing. *FY 2011 Base Plans:* Funding will continue AEAE efforts begun in FY10, including ITALD-J EDM development. Funding will also continue additional long-term risk reduction efforts as well as initiate integrated and interoperability testing in preparation for an ITALD-J production decision.					
Accomplishments/Planned Programs Subtotals	70.267	26.376	24.287	0.000	24.287

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/05110: *EA-6 Series*	33.161	84.854	14.891	15.000	29.891	15.186	11.585	4.983	0.000	0.000	3,360.632

D. Acquisition Strategy

The ICAP III contract, an E&MD Cost Plus Incentive Fee/Award Fee basic contract with two Fixed Price Incentive (FPI) production options, was awarded to a Northrop Grumman team in March 1998 following Milestone II and a full and open competition. The contract was changed to a Cost Plus Award Fee contract in FY 1999. LRIP contract award was completed in FY 2003. A Milestone III Navy Program Decision Meeting was held on 23 September 2005. The Acquisition Decision Memorandum was signed by ASN RDA on 21 November 2005. A Firm Fixed Price Full Rate Production (FRP) contract for Lot 2, 4 ALQ-218 systems, was awarded in March 2006. The FRP Lot 3 contract for 7 ALQ-218 systems was awarded 11 April 2008. Contract for Lot 4, ALQ-218 systems was awarded 15 September 2008.

E. Performance Metrics

1. Successful completion of ICAP III Block 4 DT.
2. Continued development of ICAP III Block 5 sufficient to conduct a successful and on time development 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 0556: *EW Counter Response*

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 Develop - ICAP III	C/FFP	Various Various	252.271	7.339	Dec 2009	0.627	Dec 2010	0.000		0.627	0.000	260.237	260.237
Studies & Analysis (Non FFRDC)	C/FFP	Various Various	1.043	0.000		0.000		0.000		0.000	0.000	1.043	1.043
Systems Engineering NR	WR	Naval Research Lab Maryland	0.000	1.512	Nov 2009	0.531	Nov 2010	0.000		0.531	0.000	2.043	Continuing
Systems Engineering NAWCAD	WR	NAWCAD Patuxent River, MD	11.993	2.709	Dec 2009	3.027	Dec 2010	0.000		3.027	0.000	17.729	Continuing
Systems Eng/BLK Update	WR	NAWCWD Point Mugu, CA	41.573	5.321	Dec 2009	7.000	Dec 2010	0.000		7.000	0.000	53.894	Continuing
Systems Engineering NSWC	WR	NSWC Det Crane, IN	6.371	0.975	Dec 2009	0.912	Dec 2010	0.000		0.912	0.000	8.258	Continuing
Systems Engineering VAR	WR	Various Various	7.903	1.108	Dec 2009	1.733	Dec 2010	0.000		1.733	0.000	10.744	Continuing
		Subtotal	321.154	18.964		13.830		0.000		13.830	0.000	353.948	261.280

Remarks

Beginning in FY10, Airborne Electronic Attack (AEA) efforts are budgeted in PE 0604274N Project 0557 Next Generation Jammer. Prior to FY10 AEA was budgeted for in PE 0604270N 0556 EW Counter Response.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 0556: *EW Counter Response*

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 - JATO	SS/FP	Johns Hopkins Unv Maryland	12.555	3.799	Dec 2009	4.288	Dec 2010	0.000		4.288	0.000	20.642	20.642
Eng & Tech Srvc (Non FFRDC)	Various/ Various	Various Various	0.964	2.145	Oct 2009	5.563	Oct 2010	0.000		5.563	0.000	8.672	Continuing
DFCS Installs	Various/ Various	Various Various	0.000	0.559	May 2010	0.000		0.000		0.000	0.000	0.559	Continuing
ILS Pubs - ICAP III	WR	FRC Jacksonville, FL	0.000	0.809	Jan 2010	0.464	Dec 2010	0.000		0.464	0.000	1.273	Continuing
		Subtotal	13.519	7.312		10.315		0.000		10.315	0.000	31.146	20.642

Remarks

Beginning in FY10, Airborne Electronic Attack (AEA) efforts are budgeted in PE 0604274N Project 0557 Next Generation Jammer. Prior to FY10 AEA was budgeted for in PE 0604270N 0556 EW Counter Response.

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
Promram Management Support	WR	Various Various	0.530	0.100	Dec 2009	0.142	Dec 2010	0.000		0.142	0.000	0.772	Continuing
		Subtotal	0.530	0.100		0.142		0.000		0.142	0.000	0.772	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 0556: *EW Counter Response*

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	335.203	26.376		24.287		0.000		24.287	0.000	385.866	281.922

Remarks

Beginning in FY10, Airborne Electronic Attack (AEA) efforts are budgeted in PE 0604274N Project 0557 Next Generation Jammer. Prior to FY10 AEA was budgeted for in PE 0604270N 0556 EW Counter Response.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 0556: *EW Counter Response*

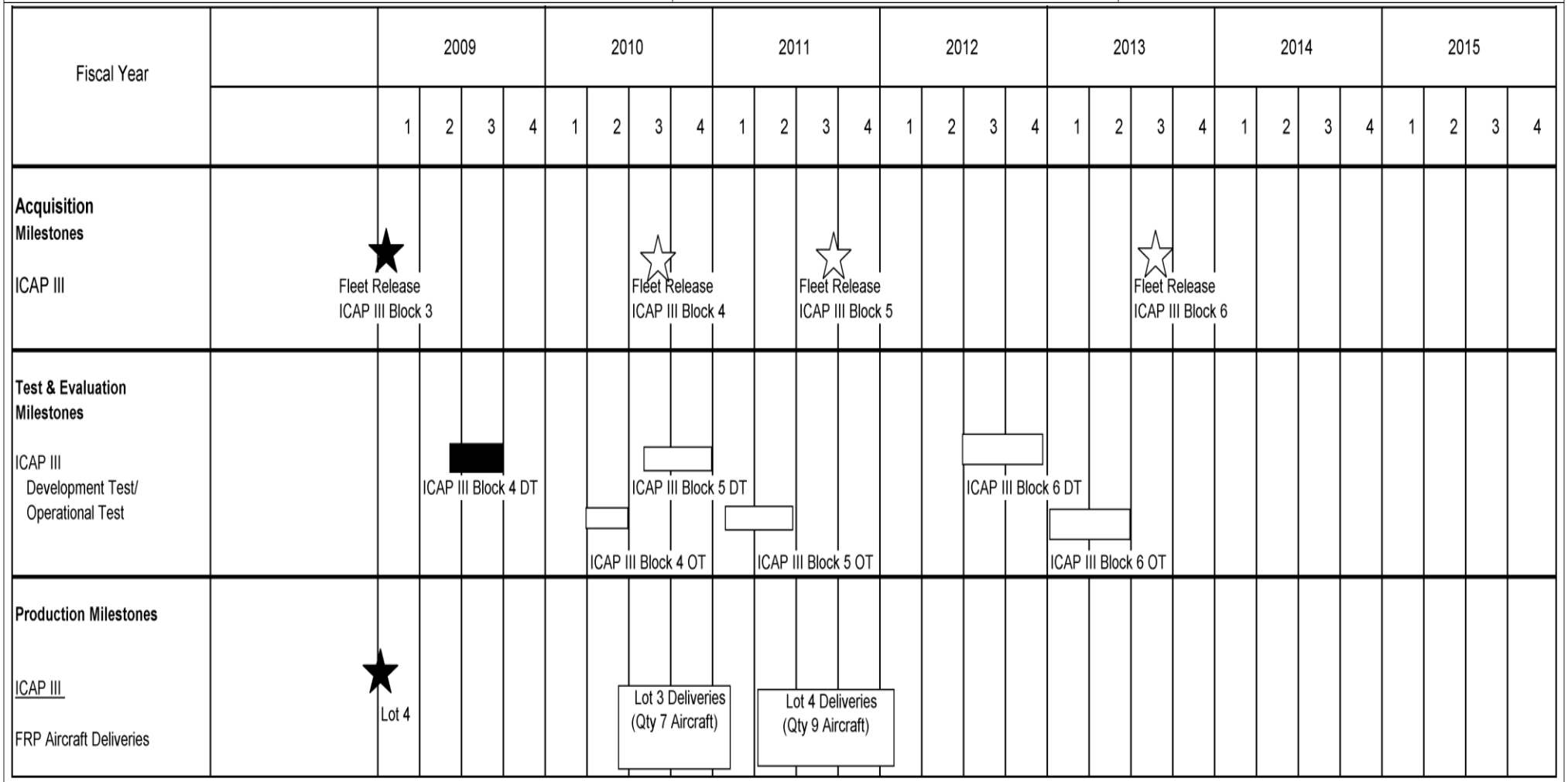


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 0556: *EW Counter Response*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Fleet Release - ICAP III BLOCK 3	1	2009	1	2009
Fleet Release - ICAP III BLOCK 4	3	2010	3	2010
Fleet Release - ICAP III BLOCK 5	3	2011	3	2011
Fleet Release - ICAP III BLOCK 6	3	2013	3	2013
ICAP III Block 4 OT	2	2010	2	2010
ICAP III Block 4 DT	2	2009	3	2009
ICAP III Block 5 DT	3	2010	4	2010
ICAP III Block 5 OT	1	2011	2	2011
ICAP III Block 6 DT	3	2012	4	2012
ICAP III Block 6 OT	1	2013	2	2013
ICAP III - Lot 3 FRP Deliveries (Qty 7)	2	2010	4	2010
ICAP III - Lot 4 FRP Deliveries (Qty 9)	2	2011	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 1742: *EW Technical Development and T&E*	

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
1742: *EW Technical Development and T&E*	5.308	4.967	4.799	0.000	4.799	4.876	4.958	5.087	5.212	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project Unit 1742 EW Technical Development and T & E. Funds efforts that focus on the quick reaction prototyping of tactical information and electronic warfare systems. This program directly addresses various fleet requirements across mulitple platforms (airborne, surface and subsurface), airborne and surface crypotologic operational requirements documents and the joint oversight council missions needs statement for information warfare and electronic warfare systems and capabilitilies. These systems/capabilities provide information dominance to friendly forces during conflict, which is necessary for successful mission accomplishment.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
EW Technical Development and T&E	0.662	0.680	0.420	0.000	0.420
FY 2009 Accomplishments: Conducted airborne jammer development,test and evaluation on ancillary equipment,cabling,hardware,antennas for the prototype aircraft. *FY 2010 Plans:* Continue airborne Information Warfare jammer development, test, and evaluation to include ancillary equipment, cabling, hardware, antennas and installation on prototype aircraft. *FY 2011 Base Plans:* Continue airborne Information Warfare jammer development, test, and evaluation to include ancillary equipment, cabling, hardware, antennas and installation on prototype aircraft.					
EW Technical Development Studies & Analysis	2.773	2.662	2.715	0.000	2.715

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 1742: *EW Technical Development and T&E*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Conducted studies and vulnerability analysis on emerging threats/targets for Electronic Warfare (EW) programs. *FY 2010 Plans:* Continue studies and vulnerability analysis on emerging/chaning threats/targets for EW programs. *FY 2011 Base Plans:* Continue studies and vulnerability analysis on emerging/chaning threats/targets for EW programs.					
EW Technical Development/Develop and Systems Integration *FY 2009 Accomplishments:* Developed Electronic Warfare (EW) capabilites in accordance with Fleet Forces Command and prioritzed signals to be integrated into existing MCS-21 EW systems and deployed on air and surface platforms. *FY 2010 Plans:* Continue developing EW capabilites in accordance with Fleet Forces Command and prioritize signals that are first to be intregrated into existing MCS-21 EW systems and deployed on air and surface platforms. *FY 2011 Base Plans:* Continue developing EW capabilites in accordance with Fleet Forces Command and prioritize signals that are first to be intregrated into existing MCS-21 EW systems and deployed on air and surface platforms.	1.237	1.116	1.152	0.000	1.152
EW Technical Development/Program Management Support	0.636	0.509	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 1742: *EW Technical Development and T&E*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Funded travel expenses and required training to support the Research & Development projects as well as acquistion expenses in support of the program. *FY 2010 Plans:* Continue funding necessary travel expenses and training to support the Research & Development projects as well as acquistion expenses in support of the program management office. *FY 2011 Base Plans:* Continue funding necessary travel expenses and training to support the Research & Development projects as well as acquistion expenses in support of the program management office.					
Accomplishments/Planned Programs Subtotals	5.308	4.967	4.799	0.000	4.799

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Successful quick reaction protoyping.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 1742: *EW Technical Development and T&E*	

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	3.293	0.311	Sep 2010	0.305	Sep 2011	0.000		0.305	Continuing	Continuing	Continuing
Aircraft Integration	Various/ Various	Various Various	1.005	0.390	Sep 2010	0.111	Sep 2011	0.000		0.111	Continuing	Continuing	Continuing
		Subtotal	4.298	0.701		0.416		0.000		0.416			

Remarks

Continue airborne Information Warfare jammer development, test and evaluation to include ancillary equipment, cabling, hardware, antennas and installation on prototype aircraft.

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	1.682	0.507	Sep 2010	0.519	Sep 2011	0.000		0.519	Continuing	Continuing	Continuing
Software Development	Various/ Various	Various Various	2.060	0.806	Sep 2010	1.136	Sep 2011	0.000		1.136	Continuing	Continuing	Continuing
Studies & Analyses	Various/ Various	Various Various	3.832	1.940	Dec 2009	2.219	Dec 2010	0.000		2.219	Continuing	Continuing	Continuing
		Subtotal	7.574	3.253		3.874		0.000		3.874			

Remarks

Conduct studies and vulnerability analysis on emerging threats/targets for Electronic Warfare (EW) programs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 1742: *EW Technical Development and T&E*

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	2.390	0.500	Sep 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	2.390	0.500		0.000		0.000		0.000			

Remarks

Supports the development of technical test plans and techniques for developed capabilities at various test facilities for multiple navy platforms.

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	0.485	0.211	Sep 2010	0.209	Sep 2011	0.000		0.209	Continuing	Continuing	Continuing
Travel	Various/ Various	Various Various	0.779	0.302	Sep 2010	0.300	Sep 2011	0.000		0.300	Continuing	Continuing	Continuing
Acquisition Workforce Fund - 2009	Various/ Various	Various Various	0.026	0.000	Sep 2010	0.000	Sep 2011	0.000		0.000	0.000	0.026	Continuing
		Subtotal	1.290	0.513		0.509		0.000		0.509			

Remarks

Provides for official travel and training expenses and miscellaneous consumables for the program management office.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 1742: *EW Technical Development and T&E*	

	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	15.552	4.967		4.799		0.000		4.799			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604270N: *Electronic Warfare (EW) Dev*	**PROJECT** 1742: *EW Technical Development and T&E*

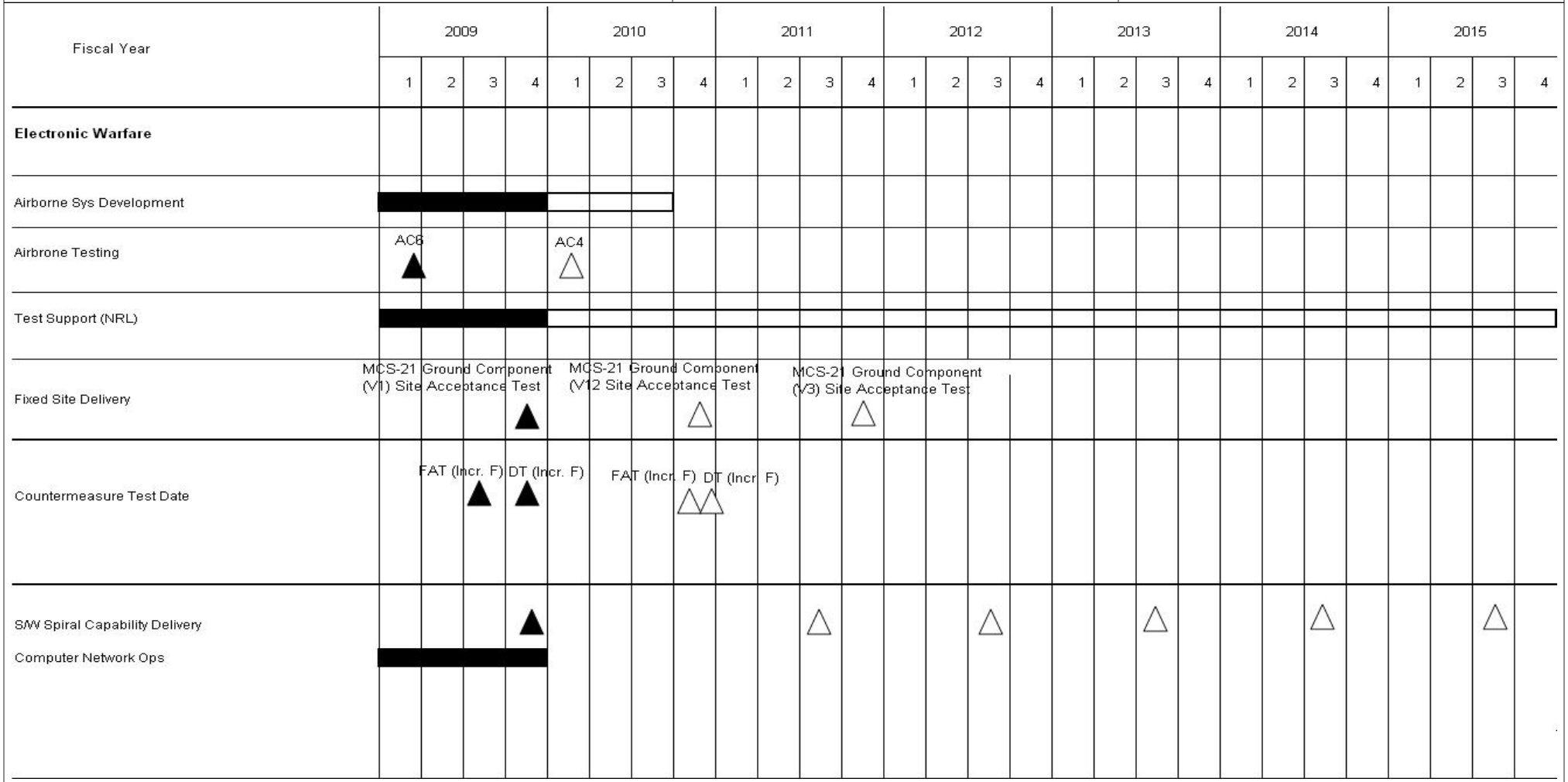


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 1742: *EW Technical Development and T&E*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Airborne System Development	1	2009	3	2010
Aircraft Developmental Testing	1	2009	1	2010
Test Support	1	2009	4	2015
Fixed Site Delivery #1	4	2009	4	2009
Countermeasure Delivery #1	4	2009	4	2009
Fixed Site Delivery #2	4	2010	4	2010
Countermeasure Delivery #2	4	2010	4	2010
Fixed Site Delivery #3	4	2011	4	2011
Countermeasure Delivery #3	4	2011	4	2011
Countermeasure Test #1	3	2009	4	2009
Countermeasure Test #2	4	2010	4	2010
Coumputer Network Operations	1	2009	4	2009
Computer Network Operations-Spiral Capability Delivery #1	4	2009	4	2009
Computer Network Operations-Spiral Capability Delivery #2	3	2011	3	2011
Computer Network Operations-Spiral Capability Delivery #3	3	2012	3	2012
Computer Network Operations-Spiral Capability Delivery #4	3	2013	3	2013
Computer Network Operations-Spiral Capability Delivery #5	3	2014	3	2014
Computer Network Operations-Spiral Capability Delivery #6	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic 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
2175: *Tactical Air Electronic Warfare*	10.183	65.193	51.733	0.000	51.733	50.528	9.861	0.606	0.632	Continuing	Continuing
Quantity of RDT&E Articles	0	6	6	0	6	0	0	0	0		

A. Mission Description and Budget Item Justification

Integrated Defensive Electronic Countermeasures (IDECM) Block 3 (IB-3) introduced the new Fiber Optic Towed Decoy (FOTD) capability to the IDECM Block 2 Electronic Warfare (EW) Suite as a replacement for the ALE-50 decoy. The FOTD, when integrated with the rest of the F/A-18E/F EW suite (i.e., ALQ-214, ALR-67(V)3, ALE-47 and ALE-50), the associated cockpit controls, displays and other avionics significantly improves the survivability of the host aircraft in a Radio Frequency (RF) threat environment. Initial Operational Test & Evaluation (IOT&E) found IB-3 effective, not suitable. Verification of Correction to Deficiencies (VCD) identified during IOT&E is required. VCD activities are underway and are planned to conclude in FY10.

IDECM Block 4 (IB-4) is an Engineering Change Proposal (ECP) to the ALQ-214 to render it suitable for operation on F/A-18C/D aircraft (replacing the ALQ-126B and significantly improving F/A-18C/D survivability) while retaining all IDECM suite functionality when installed on F/A-18E/F aircraft. The IB-4 acquisition and contract strategy includes development of the Common On-Board-Jammer for the F/A-18 C/D/E/F aircraft through sole source contract awards for modifications to the ALQ-214. IB-4, ALQ-214 ECP, efforts include hardware and software design, development and test, delivery of Engineering Development Models (EDMs), integration and testing on the host aircraft. The F/A-18C/D EW Suite includes the ALR-67(V)2 Radar Warning Receiver (RWR), the ALE-47 Countermeasures Dispensing Set (CMDS), the mission computer and other avionics. In addition to performing the RWR function, the ALR-67(V)2 is the EW Bus Controller. The EW Bus is the primary interface between the EW Systems (Jammer, RWR, and CMDS). The mission computer is the Avionics Bus Controller, the interface between the EW suite and other avionics.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Tactical Air Electronic Warfare	10.183	65.193	51.733	0.000	51.733
FY 2009 Accomplishments: FY09: Risk Reduction efforts in support of IDECM Block 4, ALQ-214 ECP continued in FY09. In preparation for a 1st Quarter FY 2010 non-recurring engineering contract, ITT Electronic Systems					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic Warfare*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
completed preliminary and detailed/final hardware designs for the Weapons Replacement Assemblies (WRAs) as well as associated preliminary software design efforts. A Preliminary Design Review (PDR) was conducted in FY09 to review the technical status and associated ECP design changes as part of the Risk Reduction effort. *FY 2010 Plans:* FY10: The IDECM Block 4, ALQ-214 ECP engineering effort will be awarded in FY10 to ITT Electronic Systems and will include the final design, development, integration and test of Engineering and Manufacturing Development (EMD) units. The contract is planned to continue through FY15. *FY 2011 Base Plans:* FY11 Base: The IDECM Block 4, ALQ-214 ECP engineering effort will continue into FY11. In addition, engineering and logistics support with laboratory testing will begin in FY11.					
Accomplishments/Planned Programs Subtotals	10.183	65.193	51.733	0.000	51.733

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/0576 1: *IDECM*	40.374	41.924	19.823	0.000	19.823	0.000	0.000	0.000	0.000	0.000	102.121
• APN/0576 2: *Common On-Board Jammer*	0.000	0.000	0.000	0.000	0.000	68.945	76.004	85.615	90.845	140.699	462.108
• PANMC/0182: *Airborne Expendable CM*	17.189	25.839	19.041	0.000	19.041	20.248	21.270	21.912	22.614	742.731	890.844

D. Acquisition Strategy

Integrated Defensive Electronic Countermeasures (IDECM) Block 3 (IB-3) sole source award of Verification of Correction to Deficiencies (VCD) and LRIP efforts in FY 2009, FY 2010 and FY 2011. In April 2009 ASN(RD&A) approved the requested restructure of IB-4 to reflect the Engineering Change Proposal (ECP) strategy, replacing Milestones with In-Process Reviews (IPRs) in the program schedule. IB-4 sole source award of ALQ-214 ECP efforts in 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604270N: *Electronic Warfare (EW) Dev*	**PROJECT** 2175: *Tactical Air Electronic Warfare*

E. Performance Metrics

IDECM Block 3: Successfully complete Verification of Correction to Deficiencies (VCD) Developmental and Operational Test. Successfully achieve Milestone III. Successfully achieve Initial Operational Capability (IOC).

IDECM Block 4: Successfully conduct In-Process Review 1 (Post-Preliminary Design Review (PDR) Assessment). Successfully conduct Critical Design Review (CDR). Successfully conduct In-Process Review 2 (Post-CDR Assessment).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic 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
Aircraft Integration-IDECM	Various/ Various	Various Various	70.761	0.000		0.000		0.000		0.000	0.000	70.761	Continuing
Aircraft Integration-IDECM Boeing	SS/CPFF	Boeing St. Louis, MO	1.410	0.000		0.000		0.000		0.000	0.000	1.410	1.410
Primary Hdw Dev AAR-47 FY07 SUPP ATK	SS/CPFF	ATK Missile Clearwater, FL	16.000	0.000		0.000		0.000		0.000	0.000	16.000	16.000
Primary Hdw Dev AAR-47 FY07 SUPP AFB	MIPR	AFB Eglin, FL	2.100	0.000		0.000		0.000		0.000	0.000	2.100	Continuing
Primary Hdw Dev AAR-47 FY07 SUPP NVS	MIPR	NVS Fort Belvoir, VA	0.064	0.000		0.000		0.000		0.000	0.000	0.064	Continuing
Primary Hdw Dev - IDECM ITT	SS/FFP	ITT Clifton, NJ	0.000	53.171	Jan 2010	40.959	Dec 2010	0.000		40.959	32.189	126.319	126.319
Ship Suitability AAR-47	WR	NAWCAD Pax River, MD	0.050	0.000		0.000		0.000		0.000	0.000	0.050	Continuing
Studies & Analysis DRFM (CONG)	MIPR	NUWC Keyport, WA	0.018	0.000		0.000		0.000		0.000	0.000	0.018	Continuing
Systems Eng - IDECM BAE	SS/CPFF	BAE Systems Nashua, NY	14.552	0.000		0.000		0.000		0.000	0.000	14.552	14.552
Systems Eng - IDECM	SS/CPFF	Various Various	62.439	7.497	Apr 2010	6.426	Apr 2011	0.000		6.426	7.154	83.516	83.516
Systems Eng - IDECM Raytheon	SS/CPFF	Raytheon Goleta, CA	0.268	0.000		0.000		0.000		0.000	0.000	0.268	0.268
	SS/CPFF	ITT	1.810	0.000		0.000		0.000		0.000	0.000	1.810	1.810

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic 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
Risk Reduction DRFM (CONG)		Clifton, NJ											
Risk Reduction IDECM ITT1	SS/CPFF	ITT Clifton, NJ	2.495	0.000		0.000		0.000		0.000	0.000	2.495	2.495
Risk Reduction IDECM ITT2	SS/FP	ITT Clifton, NJ	7.883	0.000		0.000		0.000		0.000	0.000	7.883	7.883
		Subtotal	179.850	60.668		47.385		0.000		47.385	39.343	327.246	254.253

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/Eng Supt AAR-47 (Non-FFRDC)	WR	NRL Washington, DC	0.343	0.000		0.000		0.000		0.000	0.000	0.343	Continuing
Dev/Eng Supt AAR-47	WR	Various Various	0.220	0.000		0.000		0.000		0.000	0.000	0.220	Continuing
Software Dev - IDECM	WR	Various Various	6.843	0.000		0.000		0.000		0.000	0.000	6.843	Continuing
Integrated Log Supt AAR-47	SS/CPFF	ATK Missile Clearwater, FL	0.650	0.000		0.000		0.000		0.000	0.000	0.650	0.650

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic Warfare*

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 Dev AAR-47	SS/CPFF	ATK Missile Clearwater, FL	0.171	0.000		0.000		0.000		0.000	0.000	0.171	0.171
Integrated Log Supt - IDECM	WR	FRC-SE Jacksonville, FL	0.105	0.180	Dec 2009	0.139	Dec 2010	0.000		0.139	0.291	0.715	Continuing
ILS - IDECM (Non-FFRDC)	SS/CPFF	FRC-SE Jacksonville, FL	0.000	0.188	Jan 2010	0.190	Jan 2011	0.000		0.190	0.000	0.378	0.378
		Subtotal	8.332	0.368		0.329		0.000		0.329	0.291	9.320	1.199

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 Supt AAR-47	WR	NRL Washington, DC	0.270	0.000		0.000		0.000		0.000	0.000	0.270	Continuing
IDECM Test Supt (OPTEVFOR)	WR	Oper T&E for CD 30 VA	4.030	0.000		0.000		0.000		0.000	0.000	4.030	Continuing
IDECM Test Supt (Non-FFRDC)	SS/CPFF	Various Various	1.486	0.000		0.000		0.000		0.000	0.000	1.486	1.486
Live Fire Test & Eval AAR-47	WR	NRL Washington, DC	0.508	0.000		0.000		0.000		0.000	0.000	0.508	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic Warfare*

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 AAR-47	WR	NRL Washington, DC	0.100	0.000		0.000		0.000		0.000	0.000	0.100	Continuing
Studies & Analysis (Non-FFRDC) (CONG)	SS/CPFF	John Hopkins Un Laurel, MD	0.774	0.000		0.000		0.000		0.000	0.000	0.774	0.774
Flight Test - IDECM	WR	Various Various	0.000	0.053	Jan 2010	0.926	Jan 2011	0.000		0.926	26.521	27.500	Continuing
		Subtotal	7.168	0.053		0.926		0.000		0.926	26.521	34.668	2.260

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
AAR-47 Travel	Allot	NAVAIR Pax River, MD	0.050	0.000		0.000		0.000		0.000	0.000	0.050	Continuing
Prog Mgmt DRFM	WR	NAWCAD Pax River, MD	0.002	0.000		0.000		0.000		0.000	0.000	0.002	Continuing
PM Supt DRFM (Non-FFRDC)	C/TBD	TBD TBD	0.146	0.000		0.000		0.000		0.000	0.000	0.146	0.146
Prog Mgmt Supt DRFM (CONG)	WR	NAWCAD Pax River, MD	0.234	0.000		0.000		0.000		0.000	0.000	0.234	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic 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
Mgt & Prof Supt Srvc-IDECM (Non-FFRDC)	SS/CPFF	Amelex California, MD	0.210	0.223	Dec 2009	0.230	Dec 2010	0.000		0.230	0.000	0.663	0.663
Prog Mgmt Supt - IDECM	WR	Various Various	19.386	0.350	Dec 2009	0.360	Dec 2010	0.000		0.360	0.537	20.633	Continuing
Prog Mgmt Supt (Non-FFRDC)	SS/CPFF	DPA, Inc. Arlington, VA	0.077	0.000		0.000		0.000		0.000	0.000	0.077	0.077
Travel - IDECM	Allot	Various Various	0.104	0.000		0.000		0.000		0.000	0.000	0.104	Continuing
Travel - IDECM NAWCAD	Allot	NAWCAD Pax River, MD	0.224	0.000		0.000		0.000		0.000	0.000	0.224	Continuing
Travel	Allot	NAWCAD Pax River, MD	0.005	0.100	Oct 2009	0.100	Oct 2010	0.000		0.100	0.000	0.205	Continuing
Impact Fees	WR	NAWCAD Pax River, MD	0.032	0.000		0.000		0.000		0.000	0.000	0.032	Continuing
Eng Supt - IDECM NAWCAD	WR	NAWCWD China Lake, CA	9.547	0.000		0.000		0.000		0.000	0.000	9.547	Continuing
Eng Supt - IDECM	WR	Various Various	32.505	0.000		0.000		0.000		0.000	0.000	32.505	Continuing
Eng/Log Supt - DRFM (CONG) VAR	WR	Various Various	0.524	0.000		0.000		0.000		0.000	0.000	0.524	Continuing
Eng/Log Supt - DRFM (CONG) NAWCAD	WR	NAWCAD Pax River, MD	0.713	0.000		0.000		0.000		0.000	0.000	0.713	Continuing
Eng/Log Supt - DRFM (CONG) DTIC	MIPR	DTIC Fort Belvoir, VA	0.067	0.000		0.000		0.000		0.000	0.000	0.067	Continuing
	WR	NAWCAD	0.120	0.000		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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic 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
Eng/Log Supt - DRFM NAWCAD		Pax River, MD											
Eng/Log Supt - DRFM	WR	Various Various	0.420	0.000		0.000		0.000		0.000	0.000	0.420	Continuing
Eng/Log Supt - IDECM NAWCAD	WR	NAWCAD Pax River, MD	0.050	1.591	Dec 2009	1.174	Dec 2010	0.000		1.174	2.454	5.269	Continuing
Eng/Log Supt - IDECM	WR	Various Various	0.840	1.386	Dec 2009	0.895	Dec 2010	0.000		0.895	1.770	4.891	Continuing
Eng/Log Supt - DRFM (CONG) NRL	WR	NRL Washington, DC	0.375	0.000		0.000		0.000		0.000	0.000	0.375	Continuing
Eng/Log Supt - DRFM (CONG) FRCSE	WR	FRC-SE Jacksonville, FL	0.050	0.000		0.000		0.000		0.000	0.000	0.050	Continuing
Eng/Log Supt - IDECM FRCSE	WR	FRC-SE Jacksonville, FL	0.000	0.229	Dec 2009	0.102	Dec 2010	0.000		0.102	0.210	0.541	Continuing
Eng & Tech Srvcs (Non-FFRDC) L3	SS/CPFF	L-3/Titan California, MD	0.448	0.000		0.000		0.000		0.000	0.000	0.448	0.448
Eng & Tech Srvcs (Non-FFRDC) NRL	SS/CPFF	NRL Washington, DC	0.000	0.225	Dec 2009	0.232	Dec 2010	0.000		0.232	0.485	0.942	0.942
		Subtotal	66.129	4.104		3.093		0.000		3.093	5.456	78.782	2.276

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic Warfare*	

	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	261.479	65.193		51.733		0.000		51.733	71.611	450.016	259.988

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604270N: *Electronic Warfare (EW) Dev*	**PROJECT** 2175: *Tactical Air Electronic Warfare*

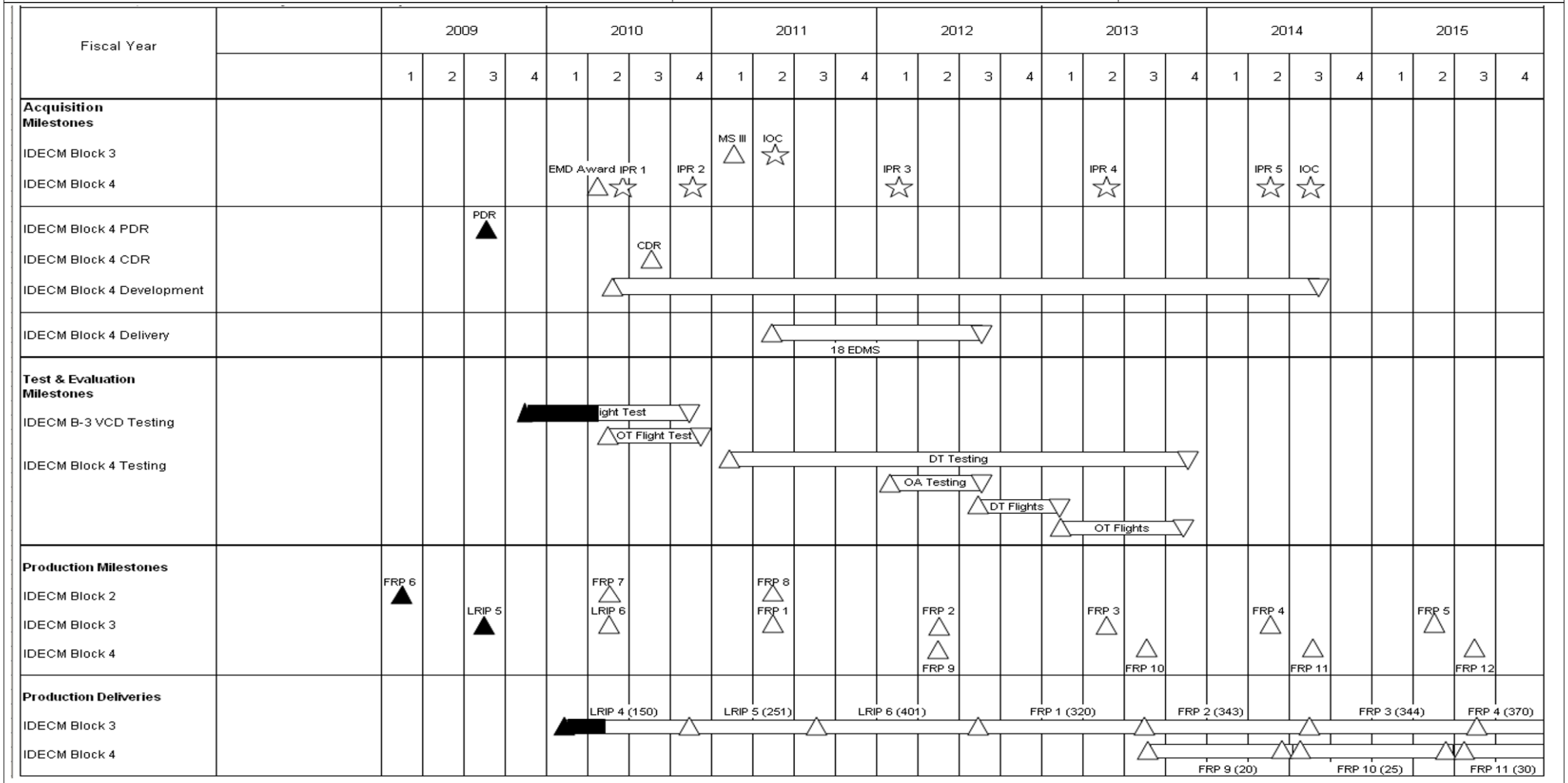


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic Warfare*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
IDECM Block 3 Milestone III	1	2011	1	2011
IDECM Block 3 Initial Operating Capability (IOC)	2	2011	2	2011
IDECM Block 4 Eng & Mfg Development (EMD) Award	2	2010	2	2010
IDECM Block 4 In-Process Review (IPR) 1	2	2010	2	2010
IDECM Block 4 In-Process Review (IPR) 2	4	2010	4	2010
IDECM Block 4 In-Process Review (IPR) 3	1	2012	1	2012
IDECM Block 4 In-Process Review (IPR) 4	2	2013	2	2013
IDECM Block 4 In-Process Review (IPR) 5	2	2014	2	2014
IDECM Block 4 IOC	3	2014	3	2014
IDECM Block 4 Prelimary Design Review (PDR)	3	2009	3	2009
IDECM Block 4 Critical Design Review (CDR)	3	2010	3	2010
IDECM Block 4 Devolopment	2	2010	3	2014
IDECM Block 3 EDM Deliveries (18)	2	2011	3	2012
IDECM Block 3 VCD DT Flight Testing	4	2009	4	2010
IDECM Block 3 VCD OT Flight Test	2	2010	4	2010
IDECM Block 4 DT Testing	1	2011	4	2013
IDECM Block 4 OA Testing	1	2012	3	2012
IDECM Block 4 DT Flights	3	2012	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic Warfare*

	Start		End	
Event	Quarter	Year	Quarter	Year
IDECM Block 4 OT Flights	1	2013	4	2013
IDECM Block 2 Full Rate Production (FRP) 6	1	2009	1	2009
IDECM Block 2 Full Rate Production (FRP) 7	2	2010	2	2010
IDECM Block 2 Full Rate Production (FRP) 8	2	2011	2	2011
IDECM Block 3 Low Rate Initial Production (LRIP) 5	3	2009	3	2009
IDECM Block 3 Low Rate Initial Production (LRIP) 6	2	2010	2	2010
IDECM Block 3 Full Rate Production (FRP) 1	2	2011	2	2011
IDECM Block 3 Full Rate Production (FRP) 2	2	2012	2	2012
IDECM Block 3 Full Rate Production (FRP) 3	2	2013	2	2013
IDECM Block 3 Full Rate Production (FRP) 4	2	2014	2	2014
IDECM Block 3 Full Rate Production (FRP) 5	2	2015	2	2015
IDECM Block 4 Full Rate Production (FRP) 9	2	2012	2	2012
IDECM Block 4 Full Rate Production (FRP) 10	3	2013	3	2013
IDECM Block 4 Full Rate Production (FRP) 11	3	2014	3	2014
IDECM Block 4 Full Rate Production (FRP) 12	3	2015	3	2015
IDECM Block 3 LRIP 4 Deliveries (150)	1	2010	4	2010
IDECM Block 3 LRIP 5 Deliveries (251)	4	2010	3	2011
IDECM Block 3 LRIP 6 Deliveries (401)	3	2011	3	2012
IDECM Block 3 FRP 1 Deliveries (320)	3	2012	3	2013
IDECM Block 3 FRP 2 Deliveries (343)	3	2013	3	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2175: *Tactical Air Electronic Warfare*

	Start		End	
Event	Quarter	Year	Quarter	Year
IDECM Block 3 FRP 3 Deliveries (344)	3	2014	3	2015
IDECM Block 3 FRP 4 Deliveries (370)	3	2015	4	2015
IDECM Block 4 FRP 9 Deliveries (20)	3	2013	2	2014
IDECM Block 4 FRP 10 Deliveries (25)	3	2014	2	2015
IDECM Block 4 FRP 11 Deliveries (30)	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2260: *Specific Emitter ID*	

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
2260: *Specific Emitter ID*	0.674	0.690	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.081
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project supports systems development and collection of Specific Emitter Identification (SEI) information from National Technical Means (NTM) to track commercial ships over 200 gross registered tons world-wide. Research and development will cover improvements and enhancements to Electronic Intelligence technology. This will include improved/next generation SEI technology for miniaturization and automation of hardware, national collection systems, signal processing and analysis, and de-interleaving of signals. Propagation in a multi-path signal environment will also be assessed. All work on this project will be undertaken in pursuit of goals stated by the Office of Naval Intelligence and the National Security Agency in support of the Worldwide Ship Tracking Program.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SENSOR FUSION	0.175	0.198	0.000	0.000	0.000
This effort supports systems development and information fusion of improved SEI technology for automation of hardware, national collection systems, signal processing and analysis, and de-interleaving of signals. *FY 2009 Accomplishments:* - Continued task to fuse additional sources of data with SEI data for automation of hardware, national collection systems, signal processing and analysis, and de-interleaving of signals. Work toward increasing sensor fusion, collection and reporting automation helped reduce staffing and support remote access and control capability. *FY 2010 Plans:* Continue all efforts of FY09. Project moves to PE 0304270N starting FY 2011.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 2260: *Specific Emitter ID*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SYSTEM AUTOMATION This effort supports development of an autonomous surveillance system capable of providing emitter signal information to a central location. *FY 2009 Accomplishments:* - Continued task to develop an unmanned, autonomous, remote collection and surveillance system. - Continued task to automate fusion of other sensor information with SEI data collection. *FY 2010 Plans:* Continue all efforts of FY09. Project moves to PE 0304270N starting FY 2011.	0.229	0.245	0.000	0.000	0.000
TECHNOLOGY REFRESH & COMMUNICATION ENHANCEMENT This effort improves SEI system performance, real-time communication and tactical use of SEI which will be expanded with next generation SEI technology. *FY 2009 Accomplishments:* - Continued task to incorporate other SEI algorithms into deployed processing software. - Continued task on integrating advanced SEI hardware with WINSEI software to support improved SEI system performance and capabilities for tactical and technical use, and which can be expanded with next generation SEI algorithms. - Continued task to incorporate further message reporting formats for dissemination of SEI data and improve SEI interoperability. - Continued task to expand collection capability to support additional radar types. *FY 2010 Plans:* Continue all efforts of FY09. Project moves to PE 0304270N starting FY 2011.	0.270	0.247	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.674	0.690	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604270N: *Electronic Warfare (EW) Dev*	**PROJECT** 2260: *Specific Emitter ID*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

1. SEI information on thirty to fifty thousand ships per year are entered into the intelligence database.
2. System reliability increases of 10% each year are anticipated under the current funding level.
3. Two technical and software upgrades are accomplished each year that significantly enhance the SEI system's overall effectivesss.
4. It is estimated that one collection site per year can be fully automated increasing the systems effectiveness.
5. Continue developing and deploying techniques to increase capability for evolving radar types 6. Additional details can be described in a classified environment.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) 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*	4.986	7.967	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.054
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: F/A18 Countermeasures Improvement *FY 2010 Plans:* Additional funding to integrate improved countermeasure equipment and Mission Computer upgrades so that Navy and Marine Corps aircrew have the combat capabilities they need to survive and succeed against modern threats.	0.000	3.983
Congressional Add: Small Survivable Jammer *FY 2010 Plans:* These funds to be used for investigation of EW and jamming technology that could potentially be incorporated into an Unmanned Aerial System.	0.000	0.797
Congressional Add: PT MUGU ELECTRONIC WARFARE LAB UPGRADE	1.596	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604270N: *Electronic Warfare (EW) Dev*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: Upgraded laboratory equipment and facilities necessary to develop a NAWCWD Point Mugu laboratory facility modernization. *FY 2010 Plans:* Upgrade laboratory equipment and facilities necessary to develop a NAWCWD Point Mugu laboratory facility modernization.		
Congressional Add: Integrated Naval Electronic Warfare *FY 2009 Accomplishments:* Provided subject matter expertise to support Integrated Naval Electronic Warfare efforts to integrate electronic warfare into the Navy's various missions.	0.997	0.000
Congressional Add: USMC Electronic Warfare(EW) Training *FY 2009 Accomplishments:* Developed airborne electronic attack training and tactics procedures for the USMC Electronic Warfare Training Program.	2.393	0.000
Congressional Adds Subtotals	4.986	7.967

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604270N: *Electronic Warfare (EW) Dev*	PROJECT 9999: *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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo 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	756.596	129.404	159.785	0.000	159.785	296.539	395.483	593.686	692.250	Continuing	Continuing
3058: *VH-71 Replacement Helo*	698.757	0.000	94.687	0.000	94.687	0.000	0.000	0.000	0.000	0.000	3,234.212
3065: *VH-71 Replacement Helo Increment II*	57.839	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	57.839
3300: *Presidential Helicopter VXX*	0.000	29.819	65.098	0.000	65.098	296.539	395.483	593.686	692.250	Continuing	Continuing
9999: *Congressional Adds*	0.000	99.585	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	99.585

A. Mission Description and Budget Item Justification

Marine Helicopter Squadron One (HMX-1) is required to provide safe and timely transportation for the President and Vice President of the United States, heads of state and others as directed by the White House Military Office (WHMO). Currently two Type, Model, Series (TMS) aircraft are used by HMX-1 for the Presidential support mission - the VH-3D and the VH-60N. The VH-71 program was the replacement helicopter for the VH-3D and VH-60N. In order for the VH-71 to be available to most effectively assume Presidential vertical lift mission by FY10, two Increments were to be developed. Increment 1 was to provide an initial limited capability to fulfill the immediate need Presidential lift requirement. Three (3) test article aircraft, system design and development (SDD) efforts, maintenance trainers, and associated logistics were initiated in 2005 for Increment 1. Included in the SDD contract were five (5) Increment 1 pilot production aircraft to support Initial Operational Capability (IOC). Increment 2 was to be developed to complete all of the Presidential support requirements. Two test articles were to be procured in FY09 to accommodate air vehicle structural differences between Increment 1 and 2 (main gear box, drive train, engines, tail unit and main rotor blades). The second test vehicle was to be procured instead of pursuing the planned modifications to one of the Increment 1 test vehicles due to the extent of the air vehicle structural differences. Due to increased cost and schedule growth the Secretary of Defense and USD (AT&L) directed cancellation of the current VH-71 program. The VH-71 contract was terminated on 1 June 2009. The VXX is a follow-on program for the VH-71. An acquisition strategy for the VXX program is being established. Funding includes pre-MS A risk reduction activities, capability based assessments, Concept of Operations (CONOPS) development, Analysis of Alternatives, specification development, system concept development and threat analysis leading to a FY10 Material Development Decision (MDD). Following a successful MS A decision and entrance into the Technology Development Phase, activities will focus on the proposed material solutions, specifically, reducing technology risk, determining and maturing the appropriate set of technologies and to demonstrate technology on prototypes.

This program element includes $2 million for the Defense Acquisition Workforce Development Fund (DAWDF) in FY 2009.

Congressional Add: Technology Capture

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604273N: *VH-71 Executive Helo Development*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	831.802	85.240	0.000	0.000	0.000
Current President's Budget	756.596	129.404	159.785	0.000	159.785
Total Adjustments	-75.206	44.164	159.785	0.000	159.785
• Congressional General Reductions		-0.539			
• Congressional Directed Reductions		-55.240			
• Congressional Rescissions	0.000	-0.057			
• Congressional Adds		100.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-3.924	0.000			
• SBIR/STTR Transfer	-24.283	0.000			
• Program Adjustments	0.000	0.000	159.785	0.000	159.785
• Rate/Misc Adjustments	0.001	0.000	0.000	0.000	0.000
• Congressional Recision Adjustments	-47.000	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: *Technology Capture*	0.000	99.585
Congressional Add Subtotals for Project: 9999	0.000	99.585
Congressional Add Totals for all Projects	0.000	99.585

Change Summary Explanation

Technical: Not applicable.

Schedule:
PU 3058: All schedule changes are due to 15 May 2009 ADM from USD (AT&L) cancelling the VH-71 program. On 1 June 2009 the VH-71 contract was terminated.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604273N: *VH-71 Executive Helo Development*

PU 3065: All schedule changes are due to 15 May 2009 ADM from USD (AT&L) cancelling the VH-71 program. On 1 June 2009 the VH-71 contract was terminated.
PU 3300: Presidential Helicopter VXX efforts consist of activities in support of a successful MS A decision and early Technology Development Phase activity for the proposed material solutions.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3058: *VH-71 Replacement Helo*	

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
3058: *VH-71 Replacement Helo*	698.757	0.000	94.687	0.000	94.687	0.000	0.000	0.000	0.000	0.000	3,234.212
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

The VH-71 contract was terminated on 1 June 2009.

A. Mission Description and Budget Item Justification

Marine Helicopter Squadron One (HMX-1) is required to provide safe and timely transportation for the President and Vice President of the United States, heads of state and others as directed by the White House Military Office (WHMO). Currently two Type, Model, Series (TMS) aircraft are used by HMX-1 for the Presidential support mission - the VH-3D and the VH-60N. The VH-71 program provides the replacement helicopter for the VH-3D and VH-60N. In order for the VH-71 to be available to most effectively assume Presidential vertical lift mission by FY10, two Increments were to be developed. Increment 1 was to provide an initial limited capability to fulfill the immediate need Presidential lift requirement. Three (3) test article aircraft, system design and development (SDD) efforts, maintenance trainers, and associated logistics were initiated in 2005 for Increment 1. Included in the SDD contract were five (5) Increment 1 pilot production aircraft to support Initial Operational Capability (IOC). Due to increased cost and schedule growth the Secretary of Defense and USD (AT&L) directed cancellation of the current VH-71 program. The VH-71 contract was terminated on 1 June 2009. Receipt of the Termination Proposal is expected in the 3rd QTR of FY10. The reduction of FY10 funding for termination liability requires utilizing the identified FY11 funding for the negotiation and eventual settlement of the termination proposal. This FY11 funding will be utilized to support the execution of the Secretary of Defense and USD (AT&L)'s decision to cancel the VH-71 program.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program Management and Support	36.219	0.000	2.518	0.000	2.518
FY 2009 Accomplishments: Funding was for in-house, field activity, and contractor support of VH-71 Integrated Product Teams (IPTs) activities.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3058: *VH-71 Replacement Helo*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Funding covers the Secretary of Defense and USD (AT&L)'s decision to cancel the current VH-71 program. Efforts include, but are not limited to, government integrated logistics support, program management support, systems engineering support, technical pubs, and travel for VH-71 program in support of the termination.					
Test and Evaluation *FY 2009 Accomplishments:* Funding was for Test and Evaluation of test article aircraft, pilot production aircraft, and SDD assets, including Live Fire Test and Evaluation.	11.924	0.000	0.000	0.000	0.000
Product Development *FY 2009 Accomplishments:* Contract award was for initial test article aircraft, fatigue test article, long-lead pilot production aircraft efforts, System Design and Development (SDD) work efforts, and support of training systems efforts including but not limited to, aircrew/pilot trainers, training curriculum, and requisite training support. *FY 2011 Base Plans:* Funding covers termination costs of the contract based on the Secretary of Defense and USD (AT&L)'s decision to cancel the current VH-71 program.	650.614	0.000	92.169	0.000	92.169
Accomplishments/Planned Programs Subtotals	698.757	0.000	94.687	0.000	94.687

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604273N: *VH-71 Executive Helo Development*	**PROJECT** 3058: *VH-71 Replacement Helo*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The VH-71 program was designated an ACAT ID program. The program received milestone B/C approval from OUSD (AT&L) on 27 JAN 2005 and subsequently awarded an SDD contract to LMSI on 28 JAN 2005. The Secretary of Defense and USD (AT&L) directed cancellation of the VH-71 program due to increased cost and schedule growth. The Lockheed Martin contract was terminated on 1 June 2009.

E. Performance Metrics

The VH-71 contract was terminated on 1 June 2009.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3058: *VH-71 Replacement Helo*

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	Lockheed Martin Corp Owego, NY	2,690.051	0.000		92.169	Jun 2011	0.000		92.169	0.000	2,782.220	2,831.649
Systems Engineering	WR	NAWCAD Patuxent River, MD	13.140	0.000		0.000		0.000		0.000	0.000	13.140	Continuing
Training Development	C/CPAF	Lockheed Martin Corp Owego, NY	4.989	0.000		0.000		0.000		0.000	0.000	4.989	4.989
Training Development	WR	NAWCAD Patuxent River, MD	20.862	0.000		0.000		0.000		0.000	0.000	20.862	Continuing
Training Development	Various/ Various	Various Various	3.235	0.000		0.079	Nov 2010	0.000		0.079	0.000	3.314	Continuing
		Subtotal	2,732.277	0.000		92.248		0.000		92.248	0.000	2,824.525	2,836.638

Remarks

Covers the Secretary of Defense and USD (AT&L)'s decision to cancel the current VH-71 program.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3058: *VH-71 Replacement Helo*

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 Equipment	Various/ Various	Various Various	17.524	0.000		0.021	Nov 2010	0.000		0.021	0.000	17.545	Continuing
Integrated Logistics Support	WR	NADEP Cherry Point, NC	6.312	0.000		0.328	Nov 2010	0.000		0.328	0.000	6.640	Continuing
Integrated Logistics Support	WR	NAWCAD Lakehurst, NJ	13.610	0.000		0.322	Nov 2010	0.000		0.322	0.000	13.932	Continuing
Integrated Logistics Support	WR	NAWCAD Patuxent River,MD	15.302	0.000		0.000		0.000		0.000	0.000	15.302	Continuing
Integrated Logistics Support	Various/ Various	Various Various	0.792	0.000		0.098	Nov 2010	0.000		0.098	0.000	0.890	Continuing
Studies and Analyses	Various/ Various	Various Various	3.772	0.000		0.000		0.000		0.000	0.000	3.772	Continuing
Studies and Analyses	C/FFP	Lockheed Martin Corp Owego, NY	87.240	0.000		0.000		0.000		0.000	0.000	87.240	87.774
Studies and Analyses	C/FFP	Sikorsky Aircraft Stratford, CT	87.350	0.000		0.000		0.000		0.000	0.000	87.350	87.586
Studies and Analyses	WR	NAWCAD Patuxent River, MD	0.061	0.000		0.000		0.000		0.000	0.000	0.061	Continuing
		Subtotal	231.963	0.000		0.769		0.000		0.769	0.000	232.732	175.360

Remarks

Covers the Secretary of Defense and USD (AT&L)'s decision to cancel the current VH-71 program.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3058: *VH-71 Replacement Helo*

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	NAWCAD Patuxent River, MD	30.349	0.000		0.000		0.000		0.000	0.000	30.349	Continuing
Development Test & Evaluation	Various/ Various	Various Various	11.267	0.000		0.000		0.000		0.000	0.000	11.267	Continuing
Live Fire Test & Evaluation	WR	NAWCWD China Lake, CA	13.131	0.000		0.000		0.000		0.000	0.000	13.131	Continuing
		Subtotal	54.747	0.000		0.000		0.000		0.000	0.000	54.747	

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	9.028	0.000		0.000		0.000		0.000	0.000	9.028	Continuing
Government Engineering Support	WR	NAWCAD Patuxent River, MD	74.364	0.000		0.000		0.000		0.000	0.000	74.364	Continuing
Government Engineering Support	Various/ Various	Various Various	11.858	0.000		0.590	Nov 2010	0.000		0.590	0.000	12.448	Continuing
	WR	NAWCAD	54.192	0.000		0.662	Nov 2010	0.000		0.662	0.000	54.854	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3058: *VH-71 Replacement Helo*

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											
Program Management Support	Various/ Various	Various Various	17.310	0.000		0.418	Nov 2010	0.000		0.418	0.000	17.728	Continuing
Transportation	Various/ Various	Various Various	2.288	0.000		0.000		0.000		0.000	0.000	2.288	Continuing
Travel	Various/ Various	NAWCAD Patuxent River, MD	1.509	0.000		0.000		0.000		0.000	0.000	1.509	Continuing
		Subtotal	170.549	0.000		1.670		0.000		1.670	0.000	172.219	

Remarks

Covers the Secretary of Defense and USD (AT&L)'s decision to cancel the current VH-71 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	3,189.536	0.000		94.687		0.000		94.687	0.000	3,284.223	3,011.998

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3058: *VH-71 Replacement Helo*

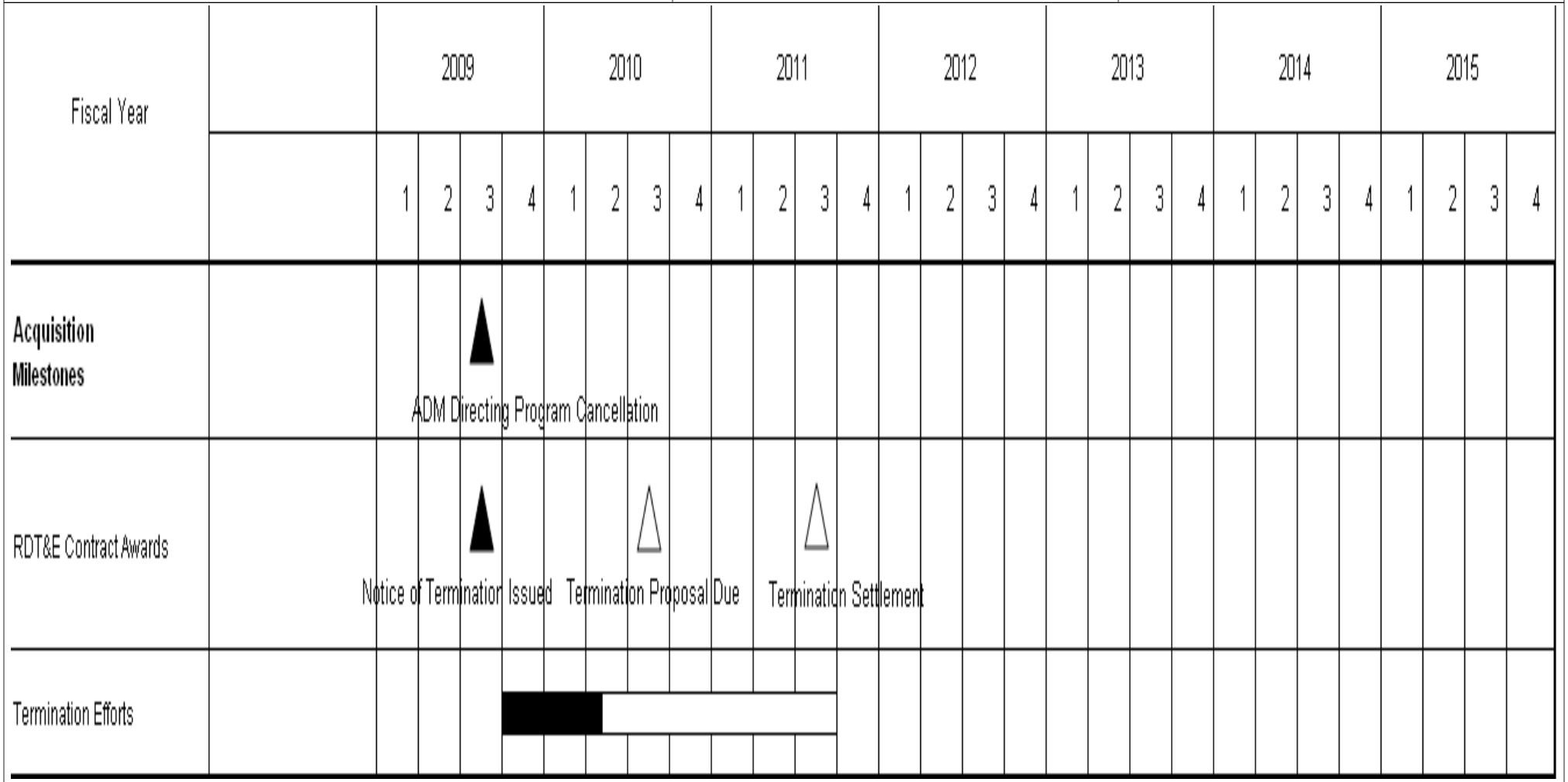


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604273N: *VH-71 Executive Helo Development*	**PROJECT** 3058: *VH-71 Replacement Helo*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
ADM Directing Program Cancellation	3	2009	3	2009
Notice of Termination Issued	3	2009	3	2009
Termination Efforts	4	2009	3	2011
Termination Proposal Due	3	2010	3	2010
Termination Settlement	3	2011	3	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3065: *VH-71 Replacement Helo Increment II*	

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
3065: *VH-71 Replacement Helo Increment II*	57.839	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	57.839
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

The VH-71 contract was terminated on 1 June 2009.

A. Mission Description and Budget Item Justification

Marine Helicopter Squadron One (HMX-1) is required to provide safe and timely transportation for the President and Vice President of the United States, heads of state and others as directed by the White House Military Office (WHMO). Currently two Type, Model, Series (TMS) aircraft are used by HMX-1 for the Presidential support mission - the VH-3D and the VH-60N. The VH-71 program provides the replacement helicopter for the VH-3D and VH-60N. In order for the VH-71 to be available to most effectively assume Presidential vertical lift mission by FY10, two Increments were to be developed. Increment 2 was to be developed to complete all of the Presidential support requirements. Two test articles were to be procured in FY09 to accommodate air vehicle structural differences between Increment 1 and 2 (main gear box, drive train, engines, tail unit and main rotor blades). The second test vehicle was to be procured instead of persuing the planned modifications to one of the Increment 1 test vehicles due to the extent of the air vehicle structural differences. Due to increased cost and schedule growth the Secretary of Defense and USD (AT&L) directed cancellation of the current VH-71 program. The VH-71 contract was terminated on 1 June 2009.

This project unit includes $2 million for the Defense Acquisition Workforce 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
Program Management and Support	3.947	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Funding was for in-house, field activity, and contractor support of VH-71 Integrated Product Teams (IPTs) activities. Efforts include, but are not limited to, government development support, integrated					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3065: *VH-71 Replacement Helo Increment II*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
logistics support, engineering support, program management support, systems engineering support, support equipment, technical pubs, and travel for VH-71 program. The Secretary of Defense and USD (AT&L) directed cancellation of the VH-71 program due to increased cost and schedule growth.					
Test and Evaluation *FY 2009 Accomplishments:* Funding was for Test and Evaluation of test article aircraft, pilot production aircraft, and SDD assets, including Live Fire Test and Evaluation. The Secretary of Defense and USD (AT&L) directed cancellation of the VH-71 program due to increased cost and schedule growth.	0.310	0.000	0.000	0.000	0.000
Product Development *FY 2009 Accomplishments:* Funding was for contract award for initial test article aircraft, System Design and Development (SDD) work efforts, low-rate initial production, and support of training systems efforts including but not limited to, aircrew / pilot trainers, training curriculum, and requisite training support. The Secretary of Defense and USD (AT&L) directed cancellation of the VH-71 program due to increased cost and schedule growth.	51.582	0.000	0.000	0.000	0.000
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded DoD Acquisition Workforce Fund	2.000	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	57.839	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604273N: *VH-71 Executive Helo Development*	**PROJECT** 3065: *VH-71 Replacement Helo Increment II*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The VH-71 program was designated an ACAT ID program. The program received milestone B/C approval from OUSD (AT&L) on 27 JAN 2005 and subsequently awarded an SDD contract to LMSI on 28 JAN 2005. The Secretary of Defense and USD (AT&L) directed cancellation of the VH-71 program due to increased cost and schedule growth. The Lockheed Martin contract was terminated on 1 June 2009.

E. Performance Metrics

The VH-71 contract was terminated on 1 June 2009.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3300: *Presidential Helicopter VXX*	

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
3300: *Presidential Helicopter VXX*	0.000	29.819	65.098	0.000	65.098	296.539	395.483	593.686	692.250	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

The VXX was a new start in FY 2010.

A. Mission Description and Budget Item Justification

Marine Helicopter Squadron One (HMX-1) is required to provide safe and timely transportation for the President and Vice President of the United States, heads of state and others as directed by the White House Military Office (WHMO). Currently two Type, Model, Series (TMS) aircraft are used by HMX-1 for the Presidential support mission - the VH-3D and the VH-60N. The VXX Executive Helicopter Replacement Program will replace the VH-3D and VH-60N. An acquisition strategy for the VXX program is being established. Funding includes pre-MS A risk reduction activities, capability based assessments, Concept of Operations (CONOPS) development, Analysis of Alternatives guidance development, specification development, system concept development and threat analysis leading to a FY10 Material Development Decision (MDD). Following a successful MS A decision and entrance into the Technology Development Phase, activities will focus on the proposed material solutions, specifically, reducing technology risk, determining and maturing the appropriate set of technologies, and to demonstrate technology on prototypes.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program Management and Support	0.000	28.643	38.135	0.000	38.135
FY 2010 Plans: Conduct MS A risk reduction tasks to include: VXX requirements analysis, Concept of Operations (CONOPS) development, Analysis of Alternatives guidance development, and system concept development.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604273N: *VH-71 Executive Helo Development*	**PROJECT** 3300: *Presidential Helicopter VXX*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Complete MS A activities. Upon completion of the AoA, and entrance into the Technology Development phase funded activities of the proposed material solutions will include: reducing technology risk, determining and maturing the appropriate set of technologies, and to demonstrate technology on prototypes.					
Test and Evaluation *FY 2010 Plans:* Support VXX initial test and evaluation planning and documentation. *FY 2011 Base Plans:* Support VXX initial test and evaluation planning and documentation.	0.000	0.860	1.290	0.000	1.290
Product Development *FY 2010 Plans:* Provides Government and Contractor VXX systems engineering support to accomplish technical activities to include trade studies and risk reduction activities. Provides Government VXX program management support. *FY 2011 Base Plans:* Provides Government and Contractor VXX systems engineering support to accomplish technical activities to include trade studies, risk reduction, and early Technology Development phase activities. Provides Government VXX program management support.	0.000	0.316	25.673	0.000	25.673
Accomplishments/Planned Programs Subtotals	0.000	29.819	65.098	0.000	65.098

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604273N: *VH-71 Executive Helo Development*	**PROJECT** 3300: *Presidential Helicopter VXX*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

An acquisition plan for a new start VXX program is being established. Funding includes pre-MS A risk reduction activities, capability based assessments, Concept of Operations (CONOPS) development, trade study analysis, specification development, system concept development and threat analysis leading to a FY10 Material Development Decision (MDD)/ program start.

E. Performance Metrics

Pre-MDAP, performance metrics will be provided upon program ACAT designation/post MS 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3300: *Presidential Helicopter VXX*

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 HW Dev - Trade Study	C/Various	Various Various	0.000	0.000		29.774	Jun 2011	0.000		29.774	0.000	29.774	29.774
Training Support	Various/ Various	Various Various	0.000	0.316	Jan 2010	0.474	Nov 2010	0.000		0.474	0.000	0.790	Continuing
		Subtotal	0.000	0.316		30.248		0.000		30.248	0.000	30.564	29.774

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	NAWCAD Patuxent River, MD	0.000	2.284	Jan 2010	3.900	Nov 2010	0.000		3.900	0.000	6.184	Continuing
Integrated Logistics Support	Various/ Various	Various Various	0.000	5.200	Jan 2010	2.400	Jan 2011	0.000		2.400	0.000	7.600	Continuing
Studies and Analysis	Various/ Various	Various Various	0.000	0.000		0.750	Nov 2010	0.000		0.750	0.000	0.750	Continuing
		Subtotal	0.000	7.484		7.050		0.000		7.050	0.000	14.534	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3300: *Presidential Helicopter VXX*

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	NAWCAD Patuxent River, MD	0.000	0.860	Jan 2010	4.800	Nov 2010	0.000		4.800	0.000	5.660	Continuing
		Subtotal	0.000	0.860		4.800		0.000		4.800	0.000	5.660	

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	0.000	0.650	Jan 2010	0.975	Nov 2010	0.000		0.975	0.000	1.625	Continuing
Government Engineering Support	WR	NAWCAD Patuxent River, MD	0.000	6.244	Jan 2010	9.500	Nov 2010	0.000		9.500	0.000	15.744	Continuing
Program Management Support	WR	NAWCAD Patuxent River, MD	0.000	13.940	Jan 2010	12.200	Nov 2010	0.000		12.200	0.000	26.140	Continuing
Travel	Various/ Various	NAVAIR Patuxent River, MD	0.000	0.325	Jan 2010	0.325	Oct 2010	0.000		0.325	0.000	0.650	Continuing
		Subtotal	0.000	21.159		23.000		0.000		23.000	0.000	44.159	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3300: *Presidential Helicopter VXX*

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	0.000	29.819		65.098		0.000		65.098	0.000	94.917	29.774

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	PROJECT 3300: *Presidential Helicopter VXX*

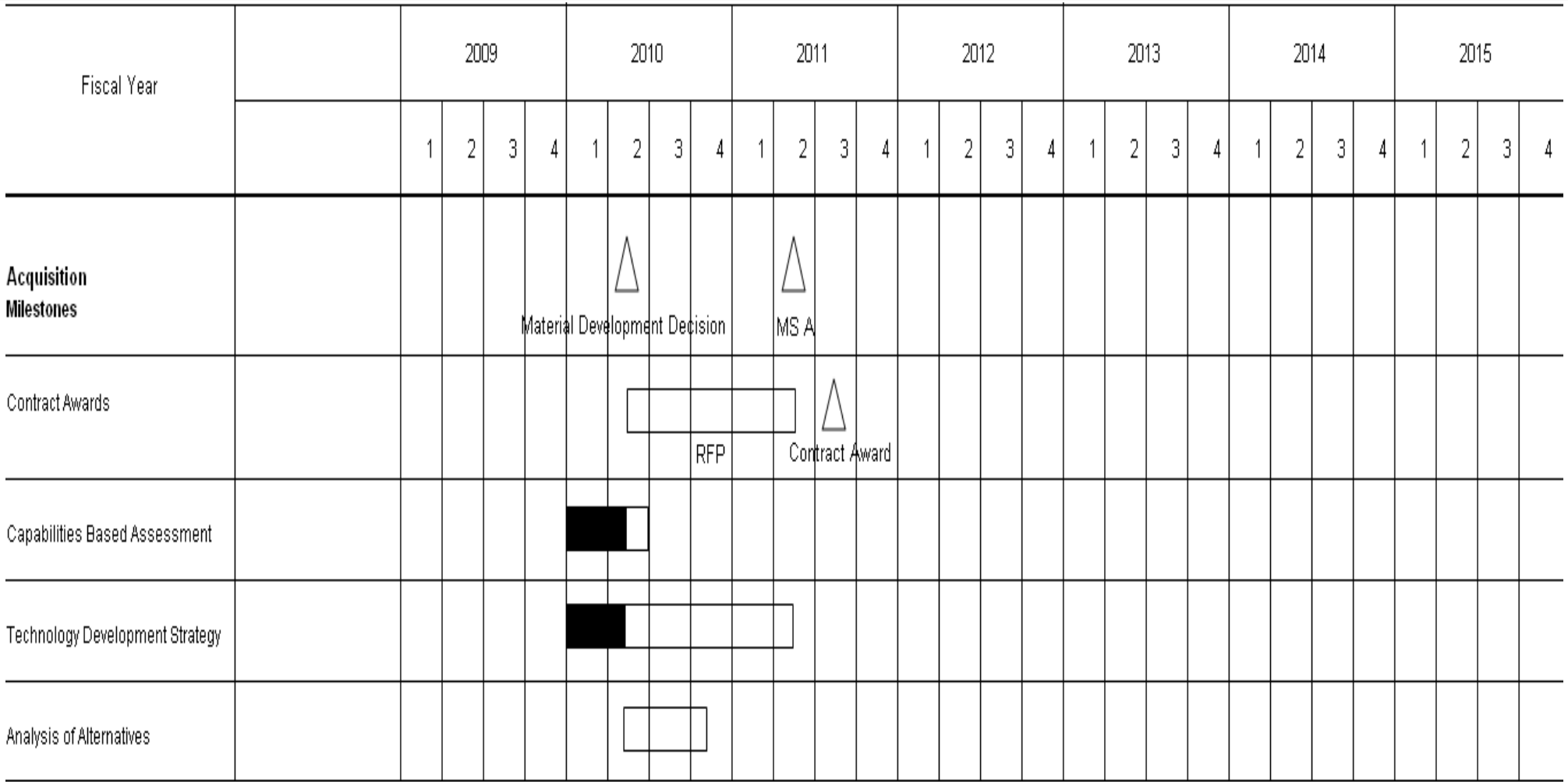


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604273N: *VH-71 Executive Helo Development*	**PROJECT** 3300: *Presidential Helicopter VXX*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Capabilities Based Assessment (CBA)	1	2010	2	2010
Technology Development Strategy (TDS)	1	2010	2	2011
Material Development Decision (MDD)	2	2010	2	2010
Request For Proposal (RFP)	2	2010	2	2011
Analysis of Alternatives	2	2010	4	2010
Milestone A	2	2011	2	2011
Contract Award	3	2011	3	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604273N: *VH-71 Executive Helo Development*	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	99.585	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	99.585
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: Technology Capture *FY 2010 Plans:* Efforts in support of Technology Capture.	0.000	99.585
Congressional Adds Subtotals	0.000	99.585

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604274N: *Next Generation Jammer (NGJ)*

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	117.481	120.602	0.000	120.602	119.891	121.507	124.862	127.422	Continuing	Continuing
0557: *Next Generation Jammer*	0.000	117.481	120.602	0.000	120.602	119.891	121.507	124.862	127.422	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project develops a Next Generation Jammer (NGJ) capability and appropriate technologies required to replace the existing ALQ-99 Tactical Jamming System. NGJ is required to keep pace with advances in threat weapons systems and continuous expansion of the Airborne Electronic Attack (AEA) mission area. NGJ capabilities will address AEA capability gaps, AEA sufficiency gaps and address ALQ-99 shortfalls in scalability, flexibility, supportability, interoperability, availability and capability. NGJ will adopt an adaptable, modular, and open architecture philosophy to combat the increasing capability gap and enable future growth at a reduced operational and sustainment cost.

NOTE:
NGJ was previously funded under PE 0604270N as part of project 0556 Airborne Electronic Attack (AEA). NGJ effort was budgeted $36.006M under PE 0604270N 0556 in FY09.

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	127.970	0.000	0.000	0.000
Current President's Budget	0.000	117.481	120.602	0.000	120.602
Total Adjustments	0.000	-10.489	120.602	0.000	120.602
• Congressional General Reductions		-0.489			
• Congressional Directed Reductions		-10.000			
• 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	120.602	0.000	120.602

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604274N: *Next Generation Jammer (NGJ)*

Change Summary Explanation

Technical: Not applicable.

Schedule: Multiple competitive Technology Maturation contracts are planned for award in 2010 to develop detailed engineering and programmatic plans for key technology demonstrations. Technical Maturation Awards changed due to Material Solution Analysis Phase as defined by Defense AT&L. Additional technology maturation efforts are being conducted to develop the required component level technologies required to support the advanced capabilities of NGJ.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604274N: *Next Generation Jammer (NGJ)*	PROJECT 0557: *Next Generation Jammer*	

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
0557: *Next Generation Jammer*	0.000	117.481	120.602	0.000	120.602	119.891	121.507	124.862	127.422	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 Next Generation Jammer (NGJ) capability and appropriate technologies required to replace the existing ALQ-99 Tactical Jamming System. NGJ is required to keep pace with advances in threat weapons systems and continuous expansion of the Airborne Electronic Attack (AEA) mission area. NGJ capabilities will address AEA capability gaps, AEA sufficiency gaps and address ALQ-99 shortfalls in scalability, flexibility, supportability, interoperability, availability and capability. NGJ will adopt an adaptable, modular, and open architecture philosophy to combat the increasing capability gap and enable future growth at a reduced operational sustainment cost.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Next Generation Jammer	0.000	117.481	120.602	0.000	120.602
FY 2010 Plans: Conduct Next Generation Jammer (NGJ) technical maturation analysis/studies and complete concept refinement phase activities needed to support a Milestone A decision. *FY 2011 Base Plans:* Complete Milestone A decision and Initiate NGJ technology development activities to reduce technological risk and determine appropriate set of technologies for use in NGJ.					
Accomplishments/Planned Programs Subtotals	0.000	117.481	120.602	0.000	120.602

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604274N: *Next Generation Jammer (NGJ)*	**PROJECT** 0557: *Next Generation Jammer*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Next Generation Jammer (NGJ) is Pre-Concept Design Milestone. Activity will focus on technology maturation to include technology development strategy in preparation for Milestone A.

E. Performance Metrics

To obtain sufficient technology maturation to obtain a favorable Milestone A decision for continued program 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604274N: *Next Generation Jammer (NGJ)*	PROJECT 0557: *Next Generation Jammer*	

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	Various Various	0.000	3.026	Dec 2009	11.600	Dec 2010	0.000		11.600	Continuing	Continuing	Continuing
Sub-System Prototypes	C/CPFF	Various Various	0.000	114.355	Apr 2010	108.902	Apr 2011	0.000		108.902	Continuing	Continuing	Continuing
		Subtotal	0.000	117.381		120.502		0.000		120.502			

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	Various Various	0.000	0.100	Dec 2009	0.100	Dec 2010	0.000		0.100	Continuing	Continuing	Continuing
		Subtotal	0.000	0.100		0.100		0.000		0.100			

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	117.481		120.602		0.000		120.602			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604274N: *Next Generation Jammer (NGJ)*	PROJECT 0557: *Next Generation Jammer*	

	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604274N: *Next Generation Jammer (NGJ)*	PROJECT 0557: *Next Generation Jammer*

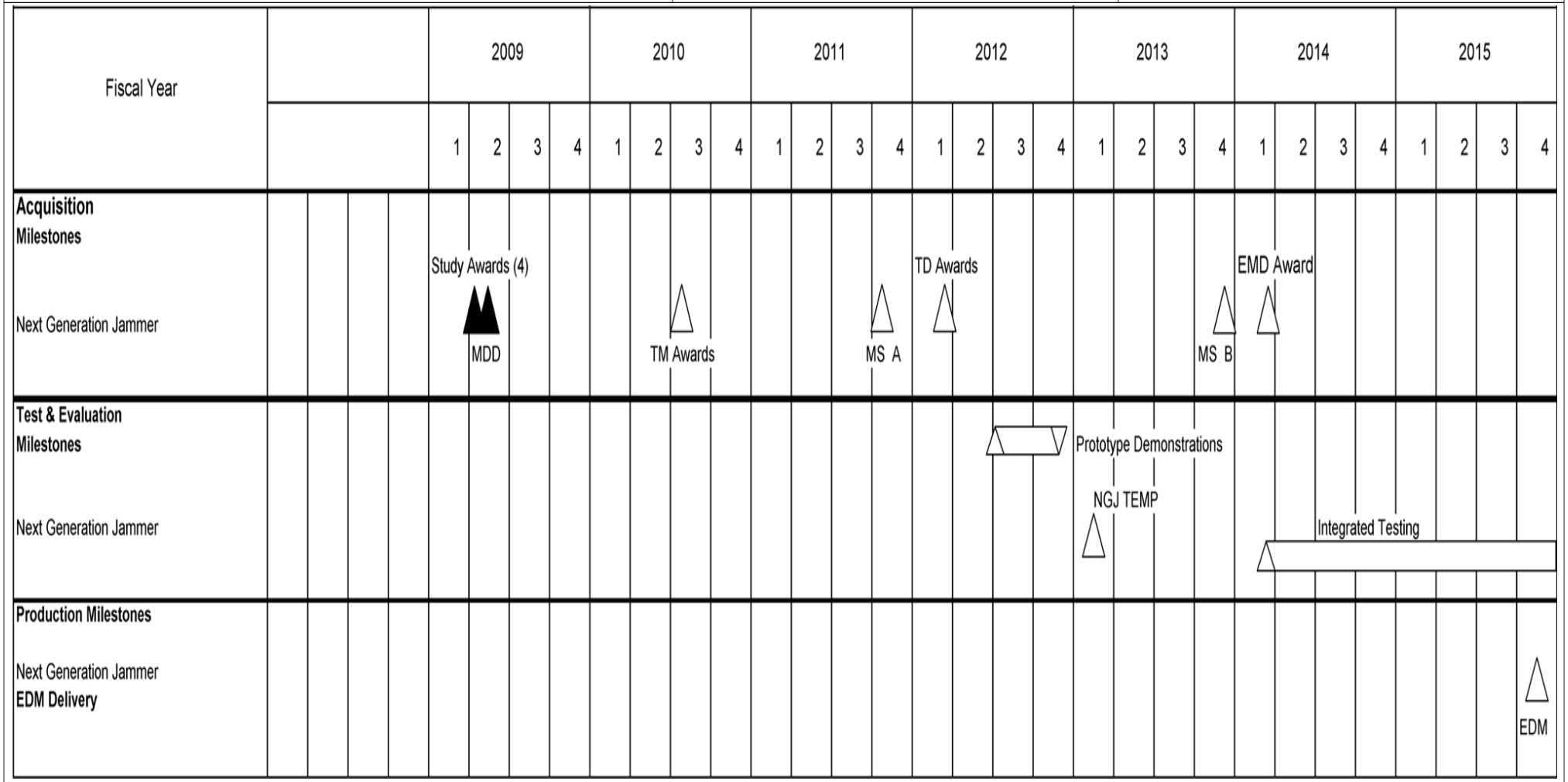


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604274N: *Next Generation Jammer (NGJ)*	**PROJECT** 0557: *Next Generation Jammer*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Trade Study Award	2	2009	2	2009
Material Development Decision	2	2009	2	2009
Technology Maturation Contract Award	3	2010	3	2010
MS A	4	2011	4	2011
Technology Development Contract Award	1	2012	1	2012
Prototype Demonstration	3	2012	4	2012
NGJ Temp	1	2013	1	2013
MS B	4	2013	4	2013
EMD Contract Award	1	2014	1	2014
Integrated Testing	1	2014	4	2015
EDM Deliveries	4	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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*							
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	824.226	875.848	687.723	0.000	687.723	168.526	99.310	92.148	85.575	Continuing	Continuing
3020: *MIDS/JTRS*	26.102	12.567	20.722	0.000	20.722	7.849	7.833	2.429	0.757	Continuing	Continuing
3073: *AMF JTRS*	215.934	323.409	407.334	0.000	407.334	116.406	64.100	68.395	62.190	Continuing	Continuing
3074: *GMR JTRS*	235.516	202.718	101.404	0.000	101.404	6.043	2.283	0.852	0.032	Continuing	Continuing
3075: *HMS JTRS*	127.686	132.438	40.689	0.000	40.689	1.261	1.950	0.062	0.000	0.000	587.557
3076: *JTRS Network Enterprise Domain (JNED)*	205.525	201.131	117.574	0.000	117.574	36.967	23.144	20.410	22.596	Continuing	Continuing
9999: *Congressional Adds*	13.463	3.585	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.346

Note

In FY09-FY11, Program Element (PE) 0604280N represents the total JTRS RDT&E Budget (includes Multifunctional Information Distribution System (MIDS), Airborne and Maritime/Fixed Station (AMF) JTRS, Ground Mobile Radio (GMR) JTRS, Handheld/Manpack/Small Form Fit (HMS) JTRS, and JTRS Network Enterprise Domain (JNED)).

In FY12-FY15, Program Element (PE) 0604280N represents the Navy share (1/3) of the funding associated with all JTRS Development Projects. JTRS Common Development includes funding for: MIDS, AMF JTRS, GMR JTRS, HMS JTRS and JNED. As part of the JTRS joint program budget strategy, each Military Department (MILDEP) budgets for one-third of the total program. Thus in FY12-15 one-third of JTRS Common Development is represented in this PE, one-third is represented in Army PE 0604280A and one-third in Air Force PE 0604280F.

A. Mission Description and Budget Item Justification

JTRS is the Department of Defense (DoD) family of common software-defined programmable radios that will form the foundation of information radio frequency transmission for Joint Vision 2020. The JTRS family of products will be multifunctional, multiband, multimode, network capable, and capable of providing communications through a range of low probability of intercept, low probability of detection and anti-jam waveforms. JTRS products will provide transformational communication capabilities for the warfighter. JTRS is intended to support communications readiness and mission success, in the 2 MegaHertz (MHz) to 2 GigaHertz (GHz) operating frequency range, by providing military commanders with the ability to command, control and communicate with their forces via secure voice/video/data

media forms. JTRS products are hardware-configurable and software-programmable radio systems that provide increased interoperability, flexibility and adaptability to support varied mission requirements.

(AMF) AMF JTRS is a key enabler to the transformation of airborne, maritime, and land based communications toward network-centric operations. AMF JTRS will operate with legacy radios and waveforms used by civilian and military airborne, surface, subsurface, and fixed station platforms. AMF JTRS is intended to provide new radio networking capability as well as replace existing radio systems, which are facing long-term sustainment issues. AMF JTRS capabilities will be incrementally developed, with each increment building on the technological achievements of its predecessor, while providing expanded capabilities.

(MIDS) MIDS- Low Volume Terminal (LVT) is a jam-resistant, secure, digital (voice and data) information distribution system enabling rapid integrated communications, navigation and identification for tactical and command and control operations. The technical objective of the MIDS JTRS program is to transform the MIDS-LVT into a four-channel, Software Communications Architecture (SCA) compliant JTRS, while maintaining current Link-16 and tactical air navigation system (TACAN) functionality. MIDS JTRS is designed to be plug-and-play interchangeable for U.S. Navy and U.S. Air Force platforms that use MIDS-LVT, while accommodating future technologies and capabilities. Improvements such as Link-16 enhanced throughput, Link-16 frequency remapping, and programmable crypto are realized in the MIDS JTRS design. The MIDS JTRS core terminal includes three 2 MHz to 2 GHz programmable channels that allow the warfighter to use multiple waveforms in development by JNED. Total core terminal program requirements include: terminal development, F/A-18 Level 0 integration, software hosting (operating environment/waveforms) and production transition.

(GMR) JTRS GMR will provide networking capability using the Wideband Networking Waveform and Soldier Radio Waveform to connect unmanned sensors to decision makers "On-The-Move" (OTM) which will significantly reduce the decision cycle. JTRS GMR will provide the warfighter with mobile Internet-like capabilities such as voice, data, networking and video communications, as well as interoperability with current force and other JTRS radios across the battle space.

(HMS) provides the JTRS capability to meet Joint Ground Mounted, Dismounted & Embedded Radio Requirements. Increment 1, Phase 1 will develop Small-Form-Fit (SFF) SFF-A (1 and 2 Channel), SFF-D and AN/PRC-154 Rifleman Radio running Soldier Radio Waveform (SRW) for use in a sensitive but unclassified environment (Type 2). Increment 1, Phase 2 will develop the 2 Channel Manpack, SFF-B and SFF-J, and 2 Channel Handheld. Phase 2 radios are all Type 1 compliant for use in a classified environment running Ultra High Frequency (UHF), Satellite Communications (SATCOM), High Frequency (HF), Enhanced Position Location and Reporting System (EPLRS), Soldier Radio Waveform (SRW), Mobile User Objective System (MUOS), and Single Channel Ground to Air Radio System (SINCGARS) waveforms.

(JNED) JNED is responsible for the development and delivery of software-defined, legacy radio waveforms and networking waveforms that support Net-Centric operational warfare at sea, air and on the ground. Networking waveforms extend the Global Information Grid (GIG) to the last tactical mile and to the warfighter. The JNED team is responsible for (1) the overall management and oversight of the JTRS Waveform program, (2) development, validation, and evolution of a common JTRS Software Communications Architecture (SCA), (3) development and evolution of waveform software applications, (4) development of software cryptographic algorithms

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604280N: *JT Tact Radio Sys (JTRS)*

and equipment applications, (5) testing and certification of JTRS waveforms, network services, network management, and software products, and (6) JTRS networking and network management software components. Services are responsible for acquiring and fielding host radio hardware and integrating JTRS into Service platforms.

JUSTIFICATION FOR BUDGET ACTIVITY:
This program is funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	845.057	876.374	0.000	0.000	0.000
Current President's Budget	824.226	875.848	687.723	0.000	687.723
Total Adjustments	-20.831	-0.526	687.723	0.000	687.723
• Congressional General Reductions		-3.650			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.476			
• Congressional Adds		3.600			
• Congressional Directed Transfers		0.000			
• Reprogrammings	2.775	0.000			
• SBIR/STTR Transfer	-23.606	0.000			
• Program Adjustments	0.000	0.000	687.723	0.000	687.723

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *JTRS Handheld Small Form Radio Sys*	0.000	3.585
Congressional Add: *Digital Modular Radio (DMR)*	1.995	0.000
Congressional Add: *Army Tactical Radios for FCS*	11.468	0.000
Congressional Add Subtotals for Project: 9999	13.463	3.585
Congressional Add Totals for all Projects	13.463	3.585

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604280N: *JT Tact Radio Sys (JTRS)*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3020: *MIDS/JTRS*	

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
3020: *MIDS/JTRS*	26.102	12.567	20.722	0.000	20.722	7.849	7.833	2.429	0.757	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In FY09-FY11, Project No. 3020 represents the total Multifunctional Information Distribution System (MIDS) RDT&E budget for those years. Beginning in FY10, all references to MIDS funding includes funding for both MIDS-LVT and MIDS JTRS.

In FY12-FY15, Project No. 3020 represents the Navy share of the funding associated with MIDS JTRS. As part of the JTRS joint program acquisition strategy, each Military Department (MILDEP) budgets for a portion of the total program. The MIDS funding for the Army and Air Force is represented in PE 0604280A and PE 0604280F, respectively.

A. Mission Description and Budget Item Justification

JTRS is the Department of Defense (DoD) family of common software-defined programmable radios that will form the foundation of information radio frequency transmission for Joint Vision 2020. The JTRS family of products will be multifunctional, multiband, multimode, network capable, capable of providing communications through a range of low probability of intercept, low probability of detection and anti-jam waveforms. JTRS products will provide transformational communication capabilities for the warfighter. JTRS is intended to support communications readiness and mission success, in the 2 MegaHertz (MHz) to 2 GigaHertz (GHz) operating frequency range, by providing military commanders with the ability to command, control and communicate with their forces via secure voice/video/data media forms. JTRS products are hardware-configurable and software-programmable radio systems that provide increased interoperability, flexibility and adaptability to support varied mission requirements.

(MIDS) MIDS- Low Volume Terminal (LVT) is a jam-resistant, secure, digital (voice and data) information distribution system enabling rapid integrated communications, navigation and identification for tactical and command and control operations. The technical objective of the MIDS JTRS program is to transform the MIDS-LVT into a four-channel, Software Communications Architecture (SCA) compliant JTRS, while maintaining current Link-16 and tactical air navigation system (TACAN) functionality. MIDS JTRS is designed to be plug-and-play interchangeable for U.S. Navy and U.S. Air Force platforms that use MIDS-LVT, while accommodating future technologies and capabilities. Improvements such as Link-16 frequency remapping and programmable crypto are also realized in the MIDS JTRS design. The MIDS JTRS core terminal includes three 2 MHz to 2 GHz programmable channels that allow the warfighter to use multiple waveforms in development by JNED. Total core terminal program requirements include: terminal development, F/A-18 Level 0 integration, software hosting (operating environment/waveforms) and production transition.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604280N: *JT Tact Radio Sys (JTRS)*	**PROJECT** 3020: *MIDS/JTRS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MIDS/JTRS	25.967	12.567	20.722	0.000	20.722
FY 2009 Accomplishments: Continued MIDS JTRS Phase 2B development and qualification of the Core terminal program. Obtained Core terminal certifications for Communications Security (COMSEC), Electromagnetic Compatibility (EMC) Features, Air Worthiness, SCA compliance and joint interoperability. Conducted Government testing. Provided MIDS systems engineering, COMSEC, logistics, airborne networking, configuration and data management and program management. Completed F/A-18 Level 0 platform integration, test and evaluation and supported equipment development. *FY 2010 Plans:* Receive Limited Production & Fielding decision for Core Terminal program. Provide development and implementation of a Crypto Modernization (CM) capability for MIDS, a mandate required by the NSA, that will replace or update several hardware, software and firmware components within the MIDS terminal. Provide Frequency Remapping development and enhancements, a required Department of Transportation (DOT) mandate to enable the continued use of MIDS Link-16 to remap at least 14 of its 51 data transmission and receipt time slots to frequencies which do not interfere with current and planned Federal Aviation Administration (FAA) safety of flight systems. Provide MIDS systems engineering, COMSEC, logistics, airborne networking, configuration and data management and program management. *FY 2011 Base Plans:* Continue development and implementation of a Crypto Modernization (CM) capability for MIDS. Provide MIDS systems engineering, COMSEC, logistics, airborne networking, and configuration and data management.					
Acquisition Workforce Fund	0.135	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3020: *MIDS/JTRS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Funded acquisition workforce fund.					
Accomplishments/Planned Programs Subtotals	26.102	12.567	20.722	0.000	20.722

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
• RDTEA/0604280A: *MIDS JTRS*	0.000	0.000	0.000	0.000	0.000	5.269	4.692	0.654	0.278	Continuing	Continuing
• RDTEF/0604280F: *MIDS JTRS*	0.000	0.000	0.000	0.000	0.000	17.949	13.622	2.429	0.849	Continuing	Continuing
• O&M, 4A6M: *Service Wide comms (MIDS JTRS)*	0.000	14.581	14.510	0.000	14.510	15.057	15.015	15.141	15.609	Continuing	Continuing
• O&M, 4B7N: *Space and Electronic Warfare Systems (MIDS LVT)*	3.511	3.668	3.769	0.000	3.769	3.497	3.516	3.565	3.666	Continuing	Continuing

D. Acquisition Strategy

(MIDS JTRS) MIDS JTRS development was initiated as a major modification to the MIDS-LVT using an Engineering Change Proposal to the existing production contracts. Development efforts include the Phase 2B Core terminal. The U.S. prime contractors from the MIDS-LVT program (Data Link Solutions and ViaSat, Inc.) will cooperatively design and develop the Core terminal. Each prime contactor will build and qualify Production Verification Terminals. The U.S. will implement a continuous competition strategy between DLS and ViaSat that will be maintained throughout the MIDS JTRS production phase. This strategy was successfully used on MIDS-LVT production. The FY11 budget supports development and implementation of Crypto Modernization and Frequency Remapping capabilities as well as MIDS system engineering and technical support to the program.

E. Performance Metrics

The five ACAT ID JTRS programs are employing mature, software-defined radio technologies and developing more than 10 million lines of code as part of the Increment 1 baseline. Early on, a JTRS enterprise software metrics requirements effort established a baseline of standard software metrics which are monitored on each JTRS contract involving software development. Example metrics are: the number of requirements and the number of use cases required for design are estimated

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604280N: *JT Tact Radio Sys (JTRS)*	**PROJECT** 3020: *MIDS/JTRS*

during the requirement and design phase and analyzed for trend-actual vs. scheduled; the software lines of code (SLOC) counts are used to determine progress during the coding phase; and the execution of test cases as well as trouble reports are monitored during the integration and test phase. Further, a software complexity product metric is collected which demonstrates the testability of the code and is an important criterion for software certification. These software metrics are used to quantify the quality and progress of each software product's development over time. Additionally, MIDS employs Earned Value Metrics to monitor contract performance on its Prime Development Contracts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3020: *MIDS/JTRS*

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
MIDS JTRS HW/SW (Phase 2B Core)1	C/CPIF	DLS Cedar Rapids, IA	120.134	0.000		0.000		0.000		0.000	0.000	120.134	120.134
MIDS JTRS HW/SW (Phase 2B Core)	C/CPIF	ViaSat Inc Carlsbad, CA	125.570	0.000		0.000		0.000		0.000	0.000	125.570	125.570
MIDS JTRS CM and MIDS-LVT CM and ET1	C/Various	DLS Cedar Rapids	0.000	5.779	Jan 2010	9.781	Nov 2010	0.000		9.781	Continuing	Continuing	Continuing
MIDS JTRS CM and MIDS-LVT CM and ET	C/Various	ViaSat Inc Carlsbad, CA	0.000	5.779	Jan 2010	9.781	Nov 2010	0.000		9.781	Continuing	Continuing	Continuing
MIDS JTRS HW/SW (Phase 2C TTNT JPCP) DLS	C/CPFF	DLS Cedar Rapids	11.667	0.000		0.000		0.000		0.000	0.000	11.667	11.667
MIDS JTRS HW/SW (Phase 2C TTNT JPCP) Via	C/CPFF	ViaSat Inc Carlsbad, CA	5.548	0.000		0.000		0.000		0.000	0.000	5.548	5.548
MIDS JTRS Production Transition dls	C/FFP	DLS Cedar Rapids	18.771	0.000		0.000		0.000		0.000	0.000	18.771	18.771
MIDS JTRS Production Transition via	C/FFP	ViaSat Inc. Carlsbad, CA	2.768	0.000		0.000		0.000		0.000	0.000	2.768	2.768
MIDS JTRS Preoperational Support dls	C/CPFF	DLS Cedar Rapids	0.767	0.000		0.000		0.000		0.000	0.000	0.767	0.767
MIDS JTRS Preoperational Support via	C/CPFF	ViaSat Inc. Carlsbad, CA	0.163	0.000		0.000		0.000		0.000	0.000	0.163	0.163
	C/FFP	DLS Cedar Rapids	1.383	0.000		0.000		0.000		0.000	0.000	1.383	1.383

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3020: *MIDS/JTRS*

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
MIDS JTRS Spec. Development (Phase 2A) dls													
MIDS JTRS Spec. Development (Phase 2A) via	C/FFP	ViaSat Inc. Carlsbad, CA	0.704	0.000		0.000		0.000		0.000	0.000	0.704	0.704
MIDS JTRS Proposal Prep (Phase 2B Core) dls	C/FFP	DLS Cedar Rapids	0.600	0.000		0.000		0.000		0.000	0.000	0.600	0.600
MIDS JTRS Proposal Prep (Phase 2B Core) via	C/FFP	ViaSat Inc. Carlsbad, CA	1.922	0.000		0.000		0.000		0.000	0.000	1.922	1.922
		Subtotal	289.997	11.558		19.562		0.000		19.562			

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
F/A-18 Level 0 Development Support (Unique) cl	WR	NAWS, China Lake Ridgecrest, CA	1.526	0.000		0.000		0.000		0.000	0.000	1.526	1.526

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3020: *MIDS/JTRS*

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
F/A-18 Level 0 Integrated Logistics Suppor (Unique) pax	WR	NAWC Pax River, MD	0.412	0.000		0.000		0.000		0.000	0.000	0.412	0.412
		Subtotal	1.938	0.000		0.000		0.000		0.000	0.000	1.938	1.938

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
F/A-18 Level 0 Developmental Test & Evaluation (Unique)	WR	NAWC Pax River, MD	5.409	0.000		0.000		0.000		0.000	0.000	5.409	5.409
F/A-18 Level 0 OperationalTest & Evaluation (Unique)	WR	NAWS China Lake Ridgecrest, CA	1.028	0.000		0.000		0.000		0.000	0.000	1.028	1.028
F/A-18 Test Assets dsl	C/FFP	DSL Cedar Rapids, IA	8.850	0.000		0.000		0.000		0.000	0.000	8.850	8.850
F/A-18 Test Assets via	C/FFP	ViaSat, Inc Carlsbad, CA	7.365	0.000		0.000		0.000		0.000	0.000	7.365	7.365
* F/A-18 EDMs dsl	C/FFP	DLS Cedar Rapids, IA	2.740	0.000		0.000		0.000		0.000	0.000	2.740	2.740

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3020: *MIDS/JTRS*

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
* F/A-18 EDMs via	C/FFP	ViaSat, Inc. Carlsbad, CA	2.475	0.000		0.000		0.000		0.000	0.000	2.475	2.475
Government Testing	WR	SSC San Diego, CA	1.745	0.000		0.000		0.000		0.000	0.000	1.745	1.745
Engineering Support and Labor/SCS Changes	WR	NAWS China Lake Ridgecrest, CA	10.519	0.000		0.000		0.000		0.000	0.000	10.519	10.519
NAVAIR Labor	WR	NAWC Pax River, MD	4.231	0.000		0.000		0.000		0.000	0.000	4.231	4.231
ECP 6277 Preparation	WR	NAWC Pax River, MD	1.963	0.000		0.000		0.000		0.000	0.000	1.963	1.963
		Subtotal	46.325	0.000		0.000		0.000		0.000	0.000	46.325	46.325

Remarks

Items marked with an asterisk (*) designate Navy unique tasks.

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	General Dynamics/Syntek San Diego, Ca	15.145	0.000		0.000		0.000		0.000	0.000	15.145	15.145

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3020: *MIDS/JTRS*

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
Workforce Acquisition Fund	C/FP	Not Specified Not Specified	0.135	0.000		0.000		0.000		0.000	0.000	0.135	0.135
Travel	C/FP	Not Specified Not Specified	1.020	0.209		0.335		0.000		0.335	0.000	1.564	1.564
Government Engineering	WR	Various Not Specified	21.745	0.800		0.825		0.000		0.825	0.000	23.370	23.370
Airborne Networking Support	WR	SSC San Diego, Ca	1.313	0.000		0.000		0.000		0.000	0.000	1.313	1.313
Program Management Support	Various/ CPFF	Booz Allen Hamilton/SSC San Diego, Ca	8.146	0.000		0.000		0.000		0.000	0.000	8.146	8.146
		Subtotal	47.504	1.009		1.160		0.000		1.160	0.000	49.673	49.673

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	385.764	12.567		20.722		0.000		20.722			

Remarks

In PYs-FY11, Project No. 3020 represents the total MIDS JTRS RDT&E budget for those years.
In FY12-FY13, Project No. 3020 represents the Navy share of the funding associated with MIDS JTRS. As part of the JTRS joint program acquisition strategy, each Military Department (MILDEP) budgets for a portion of the total program. MIDS funding for the Army and Air Force is represented in PE 0604280A and PE 0604280F, respectively.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604280N: *JT Tact Radio Sys (JTRS)*	**PROJECT** 3020: *MIDS/JTRS*

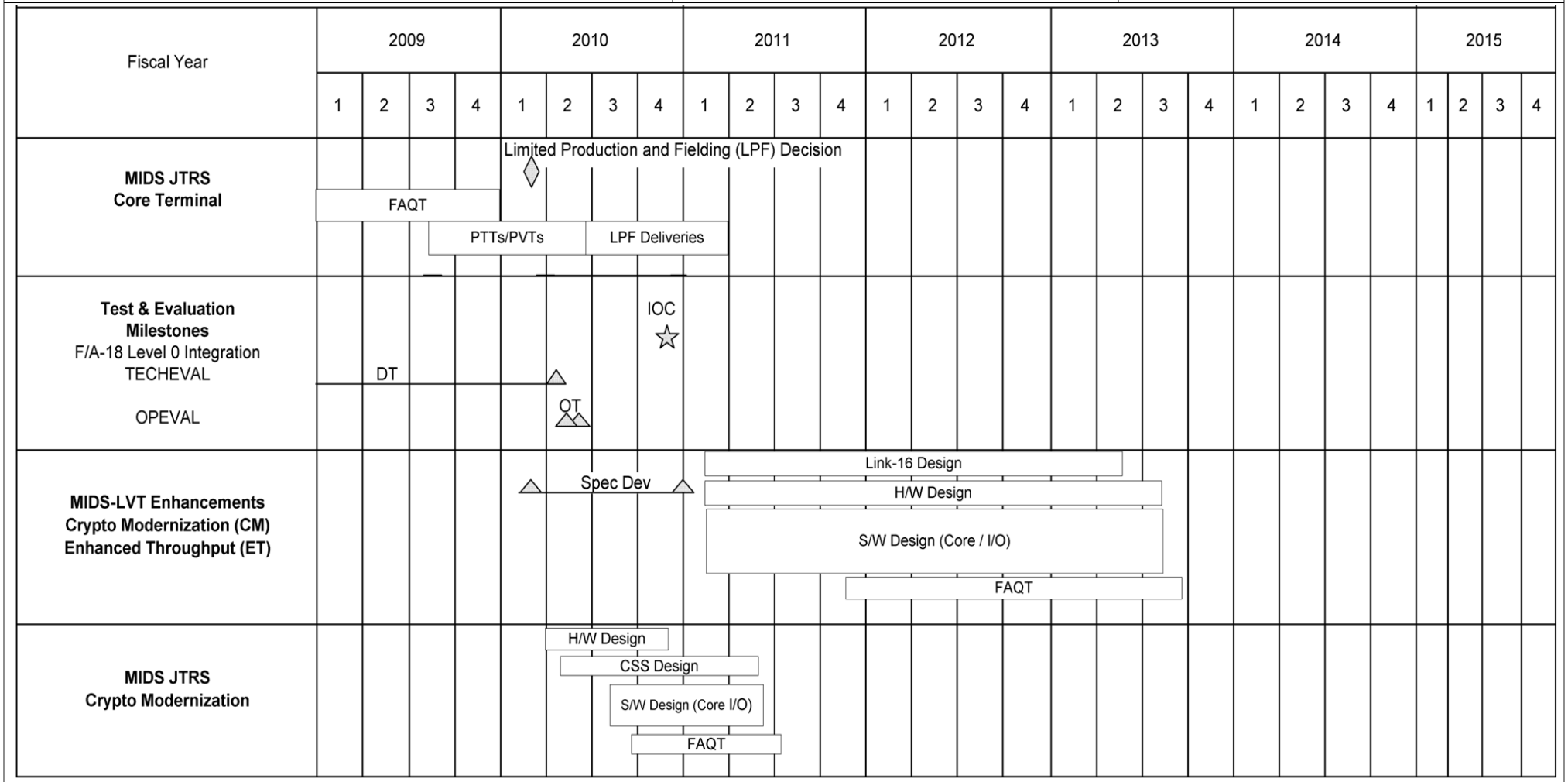


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3020: *MIDS/JTRS*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
MIDS JTRS Core Terminal: Phase 2B-Contractor Testing (FAQT)	1	2009	4	2009
MIDS JTRS Core Terminal: Phase 2B-Limited Fielding and Production Decision	1	2010	1	2010
MIDS JTRS Core Terminal: Phase 2B -Government Testing	2	2010	3	2010
MIDS JTRS Core Terminal: Phase 2B-Production Verification Terminal Delivery	4	2009	4	2009
MIDS JTRS Core Terminal: Phase 2B-Production Transition Terminal Delivery	3	2009	2	2010
MIDS JTRS Core Terminal: Phase 2B-Full Rate Production Decision	3	2010	3	2010
MIDS JTRS Core Terminal: Test and Evaluation-Technical Evaluation (TECHEVAL)	1	2009	4	2009
MIDS JTRS Core Terminal: Test and Evaluation-Operational Evaluation (OPEVAL)	1	2010	2	2010
MIDS JTRS Core Terminal: Test and Evaluation-Initial Operational Capability (IOC)	4	2010	4	2010
MIDS-LVT Enhancements: Crypto Modernization (CM) -Spec Development	2	2010	4	2010
MIDS-LVT Enhancements: CM -Link-16 Design	1	2011	2	2013
MIDS-LVT Enhancements: CM -H/W Design	1	2011	3	2013
MIDS-LVT Enhancements: CM -S/W Design	1	2011	3	2013
MIDS-LVT Enhancements: CM -FAQT	4	2011	3	2013
MIDS JTRS Crypto Modernization: H/W Design	2	2010	4	2010
MIDS JTRS Crypto Modernization: CSS Design	2	2010	2	2011
MIDS JTRS Crypto Modernization: S/W Design	3	2010	2	2011
MIDS JTRS Crypto Modernization: FAQT	3	2010	3	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3073: *AMF JTRS*	

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
3073: *AMF JTRS*	215.934	323.409	407.334	0.000	407.334	116.406	64.100	68.395	62.190	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In FY09-FY11, Project No. 3073 represents the total AMF JTRS RDT&E budget for those years.

In FY12-FY15, Project No. 3073 represents the Navy share (1/3) of the funding associated with AMF JTRS. As part of the JTRS joint program acquisition strategy, each Military Department (MILDEP) budgets for one-third of the total program. Thus, one-third of JTRS Common Development is represented in this PE, one-third is represented in Army PE 0604280A and one-third in Air Force PE 0604280F.

A. Mission Description and Budget Item Justification

JTRS is the Department of Defense (DoD) family of common software-defined programmable radios that will form the foundation of information radio frequency transmission for Joint Vision 2020. The JTRS family of products will be multifunctional, multiband, multimode, network capable, capable of providing communications through a range of low probability of intercept, low probability of detection and anti-jam waveforms. JTRS products will provide transformational communication capabilities for the warfighter. JTRS is intended to support communications readiness and mission success, in the 2 MegaHertz (MHz) to 2 GigaHertz (GHz) operating frequency range, by providing military commanders with the ability to command, control and communicate with their forces via secure voice/video/data media forms. JTRS products are hardware-configurable and software-programmable radio systems that provide increased interoperability, flexibility and adaptability to support varied mission requirements.

(AMF) AMF JTRS is a key enabler to the transformation of airborne, maritime, and land based communications toward network-centric operations. AMF JTRS will operate with legacy radios and waveforms used by military airborne, surface, subsurface, and fixed station platforms. AMF JTRS is intended to provide new radio networking capability as well as replace existing radio systems, which are facing long-term sustainment issues. AMF JTRS capabilities will be incrementally developed, with each increment building on the technological achievements of its predecessor, while providing expanded capabilities.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3073: *AMF JTRS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
AMF JTRS	214.895	323.409	407.334	0.000	407.334
FY 2009 Accomplishments: Continued SDD design activities leading up to Critical Design Review (CDR); continued EDM hardware and non-waveform software development and integration; continued waveform porting activities; continued platform integration development for AMF test program; and NSA information assurance activities and verification of design. Continued development engineering and management support for associated JTR system components. *FY 2010 Plans:* Conduct Critical Design Review in 1st quarter FY10. Continue EDM hardware and non-waveform software development and integration; continue waveform porting activities; continue platform integration development for AMF test program; conduct initial hardware and software demonstration with the AMF JTR Set-SA and AMF JTR Set-M/F; and continue NSA information assurance activities and verification of design. Continue development engineering and management support for associated JTR system components. Conduct Contractor Development Test Readiness Review for AMF JTR Set-SA. *FY 2011 Base Plans:* Continue EDM hardware and non-waveform software development and integration; continue waveform porting activities; deliver AMF JTR Set-SA and AMF JTR Set-M/F EDMs; conduct Contractor Development Test Readiness Review for AMF JTR Set-MF; continue platform integration development for AMF test program; conduct System Verification Review/Production Readiness Review for AMF JTR Set-SA; conduct Integrated Test Airborne B (ITA B); conduct Integrated Test Maritime B (ITM B); prepare for Milestone C; and continue NSA information assurance activities and verification of design. Continue development engineering and management support for associated JTR system components.					
Acquisition Workforce Fund	1.039	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3073: *AMF JTRS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Funded acquisition workforce fund.					
Accomplishments/Planned Programs Subtotals	215.934	323.409	407.334	0.000	407.334

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
• RDTEA/0604280A: *AMF JTRS*	0.000	0.000	0.000	0.000	0.000	114.398	67.967	18.488	1.320	Continuing	Continuing
• RDTEF/0604280F: *AMF JTRS*	0.000	0.000	0.631	0.000	0.631	113.593	64.404	23.172	1.304	Continuing	Continuing

D. Acquisition Strategy

The FY11 budget supports the JTRS AMF Engineering Manufacturing and Development (EMD) (formerly SDD, changed as a result of 5000.2) efforts. A joint AF/ Navy/Army team manages the development of a common core radio design that will be the basis for satisfying the AMF requirements. AMF completed Pre-System Development and Demonstration (SDD) contracts in early FY07, which were awarded to two competing vendors in late FY04. These efforts included System, Hardware, and Software Development reviews, Preliminary Design Reviews and technical risk reduction activities. The AMF program awarded the SDD contract on March 28, 2008. This effort is leveraging technical solutions derived from efforts resulting from the Pre-SDD contracts as well as from JPEO Enterprise activities. A Critical Design Review (CDR) was completed 1st Qtr FY10. EMD continues in FY11 and FY12 for the AMF JTRS system Engineering Development Models (EDMs), associated testing and integration, development engineering and management support for associated JTR system components.

E. Performance Metrics

The five ACAT 1D JTRS programs are employing mature, software-defined radio technologies and developing more than 10 million lines of code as part of the Increment 1 baseline. Early on, a JTRS enterprise software metrics requirements effort established a baseline of standard software metrics which are monitored on each JTRS contract involving software development. Example metrics are: the number of requirements and the number of use cases required for design are estimated during the requirement and design phase and analyzed for trend-actual vs. scheduled; the software lines of code (SLOC) counts are used to determine progress during the coding phase; and the execution of test cases as well as trouble reports are monitored during the integration and test phase. Further, a software complexity product metric is collected which demonstrates the testability of the code and is an important criterion for software certification. These software metrics are used to quantify

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3073: *AMF JTRS*

the quality and progress of each software product's development over time. Additionally, AMF employs Earned Value Metrics to monitor contract performance on the Prime Development Contract.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3073: *AMF JTRS*	

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
MIDS JTRS HW/SW (Phase 2A/2B Core) dls	C/CPIF	DLS Cedar Rapids, IA	8.563	0.000		0.000		0.000		0.000	0.000	8.563	8.563
MIDS JTRS HW/SW (Phase 2A/2B Core) via	C/CPIF	ViaSat Inc Carlsbad, CA	4.078	0.000		0.000		0.000		0.000	0.000	4.078	4.078
AMF JTRS Development - JTR System (Pre-SDD) Boeing	C/CPFF	The Boeing Co Anaheim, CA	45.603	0.000		0.000		0.000		0.000	0.000	45.603	45.603
AMF JTRS Development - JTR System (Pre-SDD) LM	C/CPFF	Lockheed Martin Manassas, VA	45.335	0.000		0.000		0.000		0.000	0.000	45.335	45.335
AMF JTRS Development - JTR SET (SDD) LM	C/CPIF	Lockheed Martin Manassas, VA	267.005	242.300	Oct 2009	191.500	Oct 2010	0.000		191.500	Continuing	Continuing	Continuing
AMF JTRS - Requirements Planning and Risk Reduction	WR	Various Not Specified	8.662	38.436	Oct 2009	81.657	Oct 2010	0.000		81.657	Continuing	Continuing	Continuing
AMF JTRS - Systems Engineering	WR	Various Not Specified	78.814	15.049	Oct 2009	17.803	Oct 2010	0.000		17.803	Continuing	Continuing	Continuing
Systems Engineering - JTRS Implementation-Navy Unique	WR	Various Not Specified	15.634	0.000		0.000		0.000		0.000	0.000	15.634	15.634
H/W Development: DMR HF Power Amplifier	C/FFP	GDDS Not Specified	4.901	0.000		0.000		0.000		0.000	0.000	4.901	4.901
Systems Engineering - JTF WARNET	WR	Various Not Specified	7.481	0.000		0.000		0.000		0.000	0.000	7.481	7.481
JTRS HMS Design, Development	C/CPAF		0.000	0.000		28.666	Oct 2010	0.000		28.666	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3073: *AMF JTRS*	

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
and Manufacture of Engineering Development Models (EDMs)		General Dynamics C4 Systems Scottsdale, AZ											
		Subtotal	486.076	295.785		319.626		0.000		319.626			

Remarks

JTF Warnet and DMR are no longer funded on this 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
AMF JTRS - Acquisition, and ILS Support	WR	Various Not Specified	15.456	7.676	Oct 2009	7.571	Oct 2010	0.000		7.571	Continuing	Continuing	Continuing
Software Dev: DMR Build 6.4	C/FFP	GDDS Not Specified	12.861	0.000		0.000		0.000		0.000	0.000	12.861	12.861
		Subtotal	28.317	7.676		7.571		0.000		7.571			

Remarks

DMR is no longer funded on this project.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3073: *AMF JTRS*

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
AMF JTRS - Test and Evaluation and Test Support	WR	Various Not Specified	24.913	14.280	Oct 2009	75.217	Oct 2010	0.000		75.217	Continuing	Continuing	Continuing
DMR T&E (FOTE) SD	WR	SSC San Diego, CA	1.724	0.000		0.000		0.000		0.000	0.000	1.724	1.724
DMR T&E (FOTE) CHARL	WR	SSC Charleston, SC	1.732	0.000		0.000		0.000		0.000	0.000	1.732	1.732
		Subtotal	28.369	14.280		75.217		0.000		75.217			

Remarks

DMR is no longer funded on this 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
AMF Business Operations Management and Support	WR	Various Not Specified	19.831	5.668	Oct 2009	4.920	Oct 2010	0.000		4.920	Continuing	Continuing	Continuing
Acquisition Workforce Fund - 2009	C/FP	Not Specified Not Specified	1.039	0.000		0.000		0.000		0.000	0.000	1.039	1.039
		Subtotal	20.870	5.668		4.920		0.000		4.920			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3073: *AMF JTRS*

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	563.632	323.409		407.334		0.000		407.334			

Remarks

PY column only includes the Navy portion of the budget for AMF JTRS. Prior to FY07, Air Force AMF JTRS funding resided in Air Force PE 0604280F, Project 5068. Prior to FY07, Navy AMF JTRS funding resided in this Navy PE, Project 3073. FY07, FY08 and FY09 PYs represent the total AMF JTRS RDT&E budget for those years.

In FY10 and FY11, Project No. 3073 represents the total AMF JTRS RDT&E budget.

In FY12-15 Project No. 3073 represents one-third of the total AMF JTRS RDT&E budget. As part of the JTRS joint program acquisition strategy, each MILDEP budgets for one-third of the total program. Thus, one-third of AMF is represented in this PE, one-third is represented in Army PE 0604280A, and one-third in Air Force PE 0604280F.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3073: *AMF JTRS*

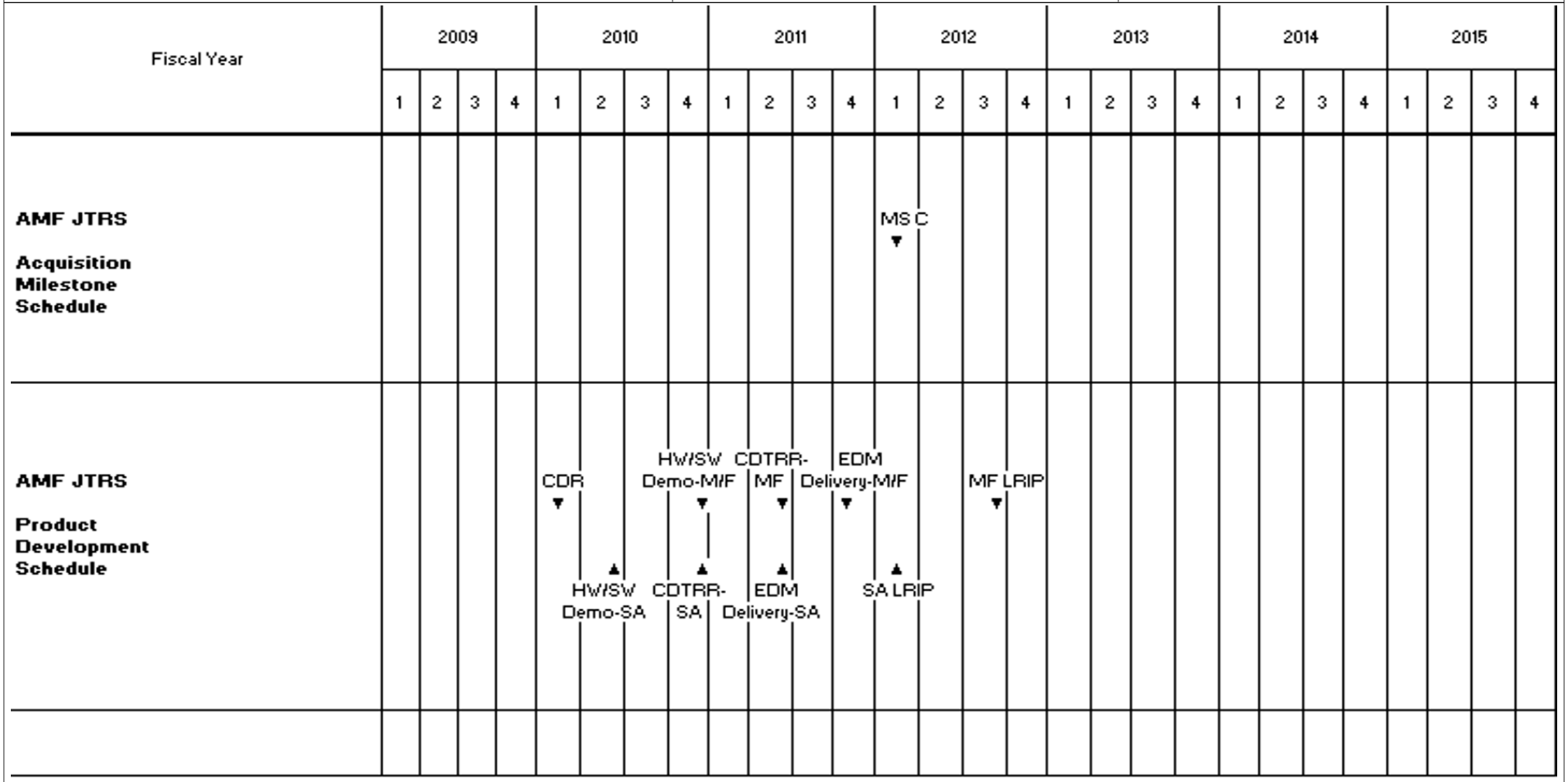


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3073: *AMF JTRS*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Critical Design Review (CDR)	1	2010	1	2010
Initial HW/SW Demonstration - SA (IHSD-SA)	2	2010	2	2010
Contractor Development Test Readiness Review - SA (CDTRR-SA)	4	2010	4	2010
Initial HW/SW Demonstration - M/F (IHSD-MF)	4	2010	4	2010
Eng Dev Model (EDM) Delivery-SA	2	2011	2	2011
Contractor Development Test Readiness Review - MF (CDTRR-MF)	2	2011	2	2011
EDM Delivery-M/F	4	2011	4	2011
Milestone C (MS C)	1	2012	1	2012
Low-Rate Initial Production I - SA (LRIP-SA)	1	2012	1	2012
Low-Rate Initial Production I - MF (LRIP-MF)	3	2012	3	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3074: *GMR JTRS*	

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
3074: *GMR JTRS*	235.516	202.718	101.404	0.000	101.404	6.043	2.283	0.852	0.032	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In FY09-FY11, Project No. 3074 represents the total Ground Mobile Radio (GMR) JTRS RDT&E budget for those years.

In FY12-FY15, Project No. 3074 represents the Navy share (1/3) of the funding associated with GMR JTRS. As part of the JTRS joint program acquisition strategy, each Military Department (MILDEP) budgets for one-third of the total program. Thus, one-third of JTRS Common Development is represented in this PE, one-third is represented in Army PE 0604280A and one-third in Air Force PE 0604280F.

A. Mission Description and Budget Item Justification

JTRS is the Department of Defense (DoD) family of common that will form the foundation of information radio frequency transmission for Joint Vision 2020. The JTRS family of products will be multifunctional, multiband, multimode, network capable, capable of providing communications through a range of low probability of intercept, low probability of detection and anti-jam waveforms. JTRS products will provide transformational communication capabilities for the warfighter. JTRS is intended to support communications readiness and mission success, in the 2 MegaHertz (MHz) to 2 GigaHertz (GHz) operating frequency range, by providing military commanders with the ability to command, control and communicate with their forces via secure voice/video/data media forms. JTRS products are hardware-configurable and software-programmable radio systems that provide increased interoperability, flexibility and adaptability to support varied mission requirements.

(GMR) JTRS GMR will provide networking capability using the Wideband Networking Waveform and Soldier Radio Waveform to connect unmanned sensors to decision makers "On-The-Move" (OTM) which will significantly reduce the decision cycle. JTRS GMR will provide the warfighter with mobile Internet-like capabilities such as voice, data, networking and video communications, as well as interoperability with current force and other JTRS radios across the battle space using new networking Waveforms and current Waveforms.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
GMR JTRS	234.349	202.718	101.404	0.000	101.404

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604280N: *JT Tact Radio Sys (JTRS)*	**PROJECT** 3074: *GMR JTRS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Supported the design, development, manufacture and delivery of GMR EDMs, technical support, and start of the Production Qualification Test (PQT). *FY 2010 Plans:* Supports the design, development, manufacture and delivery of GMR EDMs, technical support, System Integration Test (SIT), Limited User Test (LUT), and completion of PQT. *FY 2011 Base Plans:* Complete development and support Multi-service Operational Test and Evaluation (MOT&E) preparation and National Security Agency (NSA) Certification.					
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded acquisition workforce fund.	1.167	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	235.516	202.718	101.404	0.000	101.404

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
• RDTEA/0604280A: *GMR JTRS*	0.000	0.000	0.000	0.000	0.000	6.372	2.500	0.970	0.129	Continuing	Continuing
• RDTEF/0604280F: *GMR JTRS*	0.000	0.000	0.000	0.000	0.000	6.327	2.458	1.000	0.127	Continuing	Continuing
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	571.542

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3074: *GMR JTRS*

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
• RDTEA/0604805A: *JTRS Cluster 1/ GMR*											

D. Acquisition Strategy

This project supports the JTRS GMR SDD efforts. After a Milestone (MS) B Decision in 3QFY02, the GMR development effort was awarded to develop multichannel ground and airborne configurations (airborne is now realigned under AMF). The JTRS GMR supports an evolutionary acquisition strategy and was based on an aggressive acquisition schedule. In June 2002, a Cost Plus Award Fee (CPAF) contract was competitively awarded to develop or acquire numerous SCA compliant waveforms, define common form-fit-function configurations for vehicular versions of the JTRS hardware, and successfully port the waveforms to JTRS hardware produced by two different developers. Although Waveform development is part of the contract, the Waveform development is funded and managed under the JNED. A software reprogrammable radio providing the warfighter with the multiband and multimode capability, networkable radio system which provides simultaneous voice, data and video communications to increase interoperability, flexibility, and adaptability in support of varied mission requirements for vehicular platforms is being developed. The Engineering Development Models (EDM) design is complete. The FY11 budget supports the completion of Development and preparation for the Operational Test.

E. Performance Metrics

The five ACAT 1D JTRS programs are employing mature, software-defined radio technologies and developing more than 10 million lines of code as part of the Increment 1 baseline. Early on, a JTRS enterprise software metrics requirements effort established a baseline of standard software metrics which are monitored on each JTRS contract involving software development. Example metrics are: the number of requirements and the number of use cases required for design are estimated during the requirement and design phase and analyzed for trend-actual vs. scheduled; the software lines of code (SLOC) counts are used to determine progress during the coding phase; and the execution of test cases as well as trouble reports are monitored during the integration and test phase. Further, a software complexity product metric is collected which demonstrates the testability of the code and is an important criterion for software certification. These software metrics are used to quantify the quality and progress of each software product's development over time. Additionally, GMR employs Earned Value Metrics to monitor contract performance on the Prime Development Contract.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3074: *GMR JTRS*

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
JTRS GMR GFE	MIPR	PEO C3T Ft. Monmouth, NJ	4.000	0.000		0.000		0.000		0.000	0.000	4.000	4.000
JTRS GMR SDD	C/CPAF	BOEING Anaheim, CA	622.299	148.713	Oct 2009	76.767	Oct 2010	0.000		76.767	Continuing	Continuing	Continuing
JTRS DEVELOPMENT - System Engineering Support	MIPR	PEO C3T Ft. Monmouth, NJ	6.723	7.010	Oct 2009	3.005	Oct 2010	0.000		3.005	Continuing	Continuing	Continuing
Technology Development efforts	MIPR	PEO C3T Ft. Monmouth, NJ	9.192	7.569	Oct 2009	4.205	Oct 2010	0.000		4.205	Continuing	Continuing	Continuing
		Subtotal	642.214	163.292		83.977		0.000		83.977			

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
JTRS Antenna Study	MIPR	PEO C3T Ft. Monmouth, NJ	2.025	0.000		0.000		0.000		0.000	0.000	2.025	2.025
JTRS Tech Support	MIPR	PEO C3T Ft. Monmouth, NJ	3.656	3.484	Oct 2009	2.204	Oct 2010	0.000		2.204	Continuing	Continuing	Continuing
JTRS MUOS Support	C/CPFF	Johns Hopkins University	0.623	0.000		0.000		0.000		0.000	0.000	0.623	0.623

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3074: *GMR JTRS*

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
		Laural, MD											
DIACAP Support	MIPR	PEO C3T Ft. Monmouth, MJ	0.000	0.960	Oct 2009	0.000		0.000		0.000	0.000	0.960	0.960
		Subtotal	6.304	4.444		2.204		0.000		2.204			

Remarks

PYs column only reflects prior year Navy GMR JTRS costs for FY07-08. Prior to FY07, GMR JTRS funding resided in Army PE 0604805A, Project 615. In FY09-11, Project No. 3074 represents the total GMR JTRS RDT&E budget.
In FY12-15, Project No. 3074 represents one-third of the total GMR JTRS RDT&E budget. As part of the JTRS joint program acquisition strategy, each MILDEP budgets for one-third of the total program. Thus, one-third of GMR is represented in this PE, one-third is represented in Army PE 0604280A, and one-third in Air Force PE 0604280F.

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
JTRS EPG test bed & test planning	MIPR	EPG Fort Huachuca, AZ	9.797	3.100	Oct 2009	4.009	Oct 2010	0.000		4.009	Continuing	Continuing	Continuing
JTRS M&S	MIPR	USAIC Fort Huachuca, AZ	4.741	2.643	Oct 2009	1.594	Oct 2010	0.000		1.594	Continuing	Continuing	Continuing
JTRS Test In-house Spt & Gov activities	MIPR	PEO C3T Ft. Monmouth, NJ	6.320	3.073	Oct 2009	1.987	Oct 2010	0.000		1.987	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3074: *GMR JTRS*

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
JTRS EOA/SIT/LUT/ MOTE Test Activity	MIPR	EPG Fort Huachuca, AZ	1.870	10.538	Oct 2009	4.616	Oct 2010	0.000		4.616	Continuing	Continuing	Continuing
		Subtotal	22.728	19.354		12.206		0.000		12.206			

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
JTRS Business Engineering Mgmt	MIPR	PEO C3T Ft. Monmouth, NJ	8.934	5.408	Oct 2009	1.849	Oct 2010	0.000		1.849	Continuing	Continuing	Continuing
PMO Support	MIPR	PEO C3T Ft. Monmouth, NJ	19.732	10.220	Oct 2009	1.168	Oct 2010	0.000		1.168	Continuing	Continuing	Continuing
JTRS MITRE support	MIPR	MITRE Ft. Monmouth, NJ	0.513	0.000		0.000		0.000		0.000	0.000	0.513	0.513
Acquisition Workforce Fund	C/FP	Not Specified Not Specified	1.167	0.000		0.000		0.000		0.000	0.000	1.167	1.167
		Subtotal	30.346	15.628		3.017		0.000		3.017			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3074: *GMR JTRS*	

	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	701.592	202.718		101.404		0.000		101.404			

Remarks

PYs column only reflects prior year Navy GMR JTRS costs for FY07-08. Prior to FY07, GMR JTRS funding resided in Army PE 0604805A, Project 615. In FY09-11, Project No. 3074 represents the total GMR JTRS RDT&E budget.

In FY12-15, Project No. 3074 represents one-third of the total GMR JTRS RDT&E budget. As part of the JTRS joint program acquisition strategy, each MILDEP budgets for one-third of the total program. Thus, one-third of GMR is represented in this PE, one-third is represented in Army PE 0604280A, and one-third in Air Force PE 0604280F.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604280N: *JT Tact Radio Sys (JTRS)*	**PROJECT** 3074: *GMR JTRS*

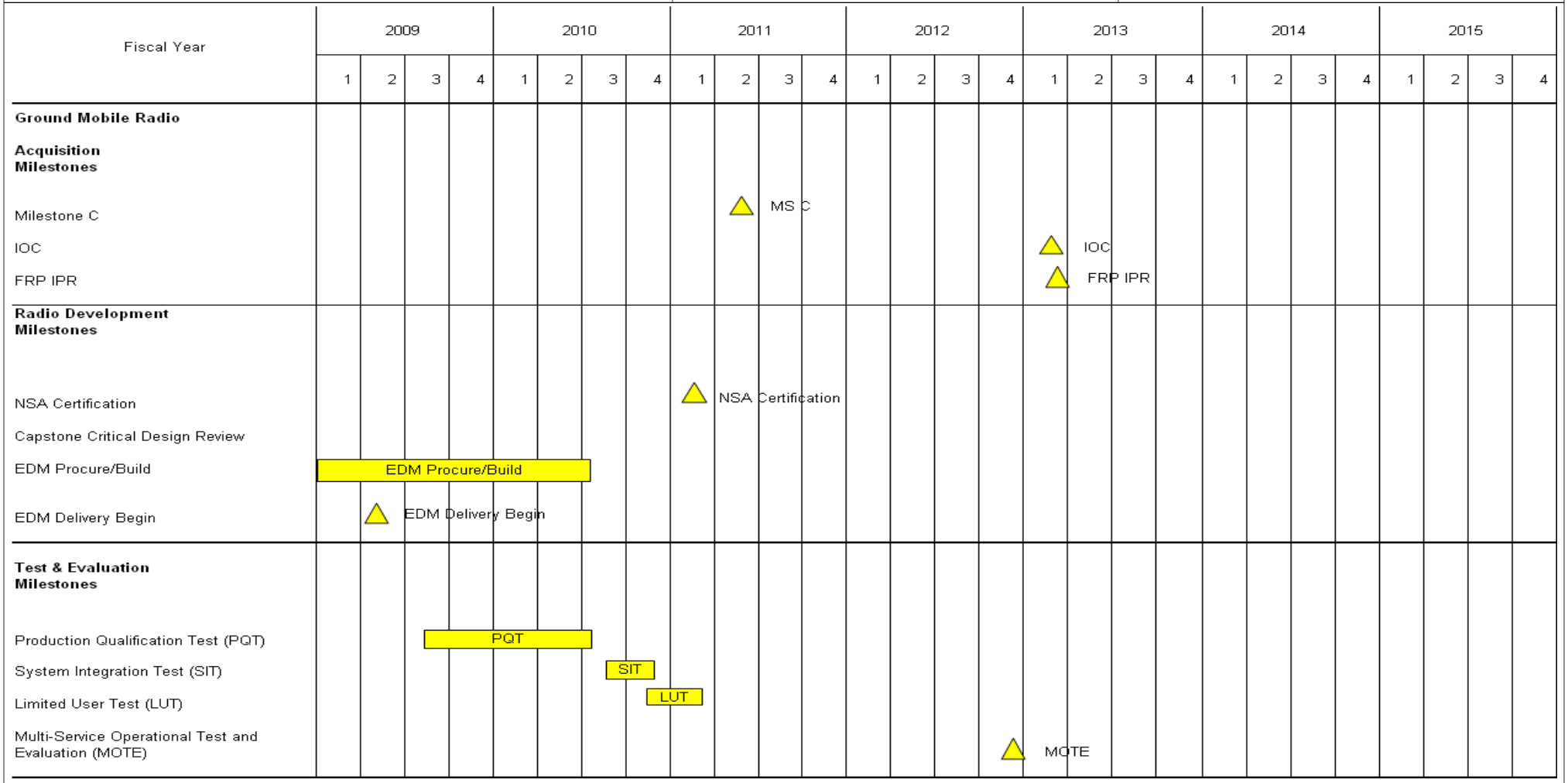


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604280N: *JT Tact Radio Sys (JTRS)*	**PROJECT** 3074: *GMR JTRS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
EDM Procure/Build	1	2009	3	2010
EDM Delivery Begin	2	2009	2	2009
Production Qualification Test (PQT)	3	2009	3	2010
JTRS - Army GMR System Integration Test (SIT)	3	2010	4	2010
Limited User Test	4	2010	1	2011
NSA Certification	1	2011	1	2011
JTRS GMR Milestone C	2	2011	2	2011
JTRS - Multi-Service Operational Test and Evaluation	4	2012	4	2012
IOC	1	2013	1	2013
FRP IPR	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3075: *HMS JTRS*	

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
3075: *HMS JTRS*	127.686	132.438	40.689	0.000	40.689	1.261	1.950	0.062	0.000	0.000	587.557
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In FY09-FY11, Project No. 3075 represents the total HMS JTRS RDT&E budget for those years.

In FY12-FY14, Project No. 3075 represents the Navy share (1/3) of the funding associated with HMS JTRS. As part of the JTRS joint program acquisition strategy, each Military Department (MILDEP) budgets for one-third of the total program. Thus, one-third of JTRS Common Development is represented in this PE, one-third is represented in Army PE 0604280A and one-third in Air Force PE 0604280F.

A. Mission Description and Budget Item Justification

JTRS is the Department of Defense (DoD) family of common that will form the foundation of information radio frequency transmission for Joint Vision 2020. The JTRS family of products will be multifunctional, multiband, multimode, network capable, capable of providing communications through a range of low probability of intercept, low probability of detection and anti-jam waveforms. JTRS products will provide transformational communication capabilities for the warfighter. JTRS is intended to support communications readiness and mission success, in the 2 MegaHertz (MHz) to 2 GigaHertz (GHz) operating frequency range, by providing military commanders with the ability to command, control and communicate with their forces via secure voice/video/data media forms. JTRS products are hardware-configurable and software-programmable radio systems that provide increased interoperability, flexibility and adaptability to support varied mission requirements.

HMS provides the JTRS capability to meet Joint Ground Mounted, Dismounted & Embedded Radio Requirements. Increment 1, Phase 1 will develop Small-Form-Fit (SFF) SFF-A (1 and 2 Channel), SFF-D and AN/PRC-154 Rifleman Radio running Soldier Radio Waveform (SRW) for use in a sensitive but unclassified environment (Type 2). Increment 1, Phase 2 will develop the 2 Channel Manpack, SFF-B and SFF-J, and 2 Channel Handheld. Phase 2 radios are all Type 1 compliant for use in a classified environment running Ultra High Frequency (UHF), Satellite Communications (SATCOM), High Frequency (HF), Enhanced Position Location and Reporting System (EPLRS), Soldier Radio Waveform (SRW), Mobile User Objective System (MUOS), and Single Channel Ground to Air Radio System (SINCGARS) waveforms.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3075: *HMS JTRS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
HMS JTRS	127.052	132.438	40.689	0.000	40.689
FY 2009 Accomplishments: Supported the Contractor Developmental Test (CDT) and Government Development Test (GDT) for Phase 1 radios; Phase 1 Limited User Test (LUT); preparation for Milestone C for Phase 1 AN/PRC-154 Rifleman Radio; technical support for Phase 1; Phase 2 design and development for EDMs; Phase 2 Design Readiness Review (DRR); technical support for Phase 2. *FY 2010 Plans:* Supports the Government Development Test (GDT) for Phase 1 radios, continued preparation for Milestone C for Phase 1 AN/PRC-154 Rifleman Radio; Phase 1 First Article Test (FAT) and Phase 1 Information Assurance certification; technical support for Phase 1; Phase 2 EDM manufacturing, CDT, and GDT; technical support for Phase 2. *FY 2011 Base Plans:* Supports technical support for Phase 1; Phase 1 Operational Test (OT) and Phase 1 Information Assurance certification; Phase 2 Limited User Test (LUT), Phase 2 Information Assurance certification; preparation for Milestone C for Phase 2.					
Acquisition Workforce Fund	0.634	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Funded acquisition workforce fund.					
Accomplishments/Planned Programs Subtotals	127.686	132.438	40.689	0.000	40.689

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
• RDTEA/0604280A: *HMS JTRS*	0.000	0.000	0.784	0.000	0.784	1.363	2.134	0.064	0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3075: *HMS JTRS*

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
• RDTEF/0604280F: *HMS JTRS*	0.000	0.000	0.000	0.000	0.000	1.354	2.097	0.067	0.000	Continuing	Continuing
• RDTEA/0604805A: *JTRS Cluster 5 / HMS*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	242.657

D. Acquisition Strategy

This project supports the JTRS HMS SDD efforts. The JTRS HMS Program began with the development of the HMS Radios following Milestone (MS) B approval on April 26, 2004. HMS uses an evolutionary acquisition strategy and will deliver NSA certified capabilities. Following full and open competition, a single Cost-Plus-Award Fee (CPAF) contract was awarded on July 16, 2004. The contract is structured to address Increment 1. JTRS HMS Increment 1 consists of two phases of development. Increment 1, Phase 1 will develop SFF-A (1 and 2 Channel), SFF-D and AN/PRC-154 Rifleman Radio running Soldier Radio Waveform (SRW) for use in a sensitive but unclassified environment (Type 2). Increment 1, Phase 2 will develop the 2 Channel Manpack, SFF-B and SFF-J, and 2 Channel Handheld which are all Type 1 compliant for use in a classified environment running Ultra High Frequency (UHF), Satellite Communications (SATCOM), High Frequency (HF), Enhanced Position Location and Reporting System (EPLRS), Soldier Radio Waveform (SRW), Mobile User Objective System (MUOS), and Single Channel Ground to Air Radio System (SINCGARS) waveforms. The FY11 budget supports the completion of Development and preparation for the Operational Test.

E. Performance Metrics

The five ACAT 1D JTRS programs are employing mature, software-defined radio technologies and developing more than 10 million lines of code as part of the Increment 1 baseline. Early on, a JTRS enterprise software metrics requirements effort established a baseline of standard software metrics which are monitored on each JTRS contract involving software development. Further, a software complexity product metric is collected which demonstrates the testability of the code and is an important criterion for software certification. These software metrics are used to quantify the quality and progress of each software product's development over time. Additionally, JTRS HMS employs Earned Value Metrics to monitor contract performance on the Prime Development Contract.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3075: *HMS JTRS*

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
JTRS HMS Design, Development and Manufacture of Engineering Development Models (EDMs)	C/CPAF	General Dynamics C4 Systems Scottsdale, AZ	308.164	81.979	Oct 2009	25.347	Oct 2010	0.000		25.347	Continuing	Continuing	Continuing
JTRS HMS Development System Engineering Support	MIPR	PEO C3T Ft. Monmouth, NJ	24.964	6.203	Oct 2009	0.275	Oct 2010	0.000		0.275	Continuing	Continuing	Continuing
Technology Development efforts	MIPR	PEO C3T Ft. Monmouth, NJ	8.317	5.355	Oct 2009	0.000		0.000		0.000	0.000	13.672	13.672
		Subtotal	341.445	93.537		25.622		0.000		25.622			

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
JTRS Technical Support	MIPR	PEO C3T Ft. Monmouth, NJ	16.096	5.209	Oct 2009	3.082	Oct 2010	0.000		3.082	Continuing	Continuing	Continuing
		Subtotal	16.096	5.209		3.082		0.000		3.082			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3075: *HMS JTRS*

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
JTRS EPG test bed and planning	MIPR	EPG Ft. Huachuca, AZ	0.300	0.000		0.100	Oct 2010	0.000		0.100	Continuing	Continuing	Continuing
JTRS Modeling and Simulation	MIPR	USAIC Ft. Huachuca, AZ	0.650	0.100	Jul 2010	0.000		0.000		0.000	0.000	0.750	0.750
JTRS Test In-house Support & Government	MIPR	PEO C3T Ft. Monmouth, NJ	9.889	10.340	Oct 2009	2.230	Oct 2010	0.000		2.230	Continuing	Continuing	Continuing
Phase 1 T&E (CDT, GDT, LUT, OT)	MIPR	PEO C3T Ft. Monmouth, NJ	6.025	5.900	Dec 2009	0.000		0.000		0.000	0.000	11.925	11.925
Phase 2 T&E (CDT, GDT, LUT, OT)	MIPR	PEO C3T Ft. Monmouth, NJ	0.250	5.750	Nov 2009	5.500	Oct 2010	0.000		5.500	Continuing	Continuing	Continuing
		Subtotal	17.114	22.090		7.830		0.000		7.830			

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
Project Management Office Support	MIPR	PEO C3T Ft. Monmouth, NJ	25.415	8.941	Oct 2009	3.341	Oct 2010	0.000		3.341	Continuing	Continuing	Continuing
JTRS Business/ Engineering Management	MIPR	PEO C3T Ft. Monmouth, NJ	10.452	2.661	Oct 2009	0.814	Oct 2010	0.000		0.814	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3075: *HMS JTRS*

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
Acquistion Workforce Fund	C/FP	Not Specified Not Specified	0.634	0.000		0.000		0.000		0.000	0.000	0.634	0.634
		Subtotal	36.501	11.602		4.155		0.000		4.155			

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	411.156	132.438		40.689		0.000		40.689			

Remarks

PYs column only reflects prior year Navy HMS costs for FY07-09. Prior to FY07, HMS JTRS funding resided in Army PE 0604805A, Project 61A.
In FY10-11, Project No. 3075 represents the total HMS JTRS RDT&E budget.
In FY12-14 Project No. 3075 represents one-third of the total HMS JTRS RDT&E budget. As part of the JTRS joint program acquisition strategy, each MILDEP budgets for one-third of the total program. Thus, one-third of HMS is represented in this PE, one-third is represented in Army PE 0604280A, and one-third in Air Force PE 0604280F.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3075: *HMS JTRS*

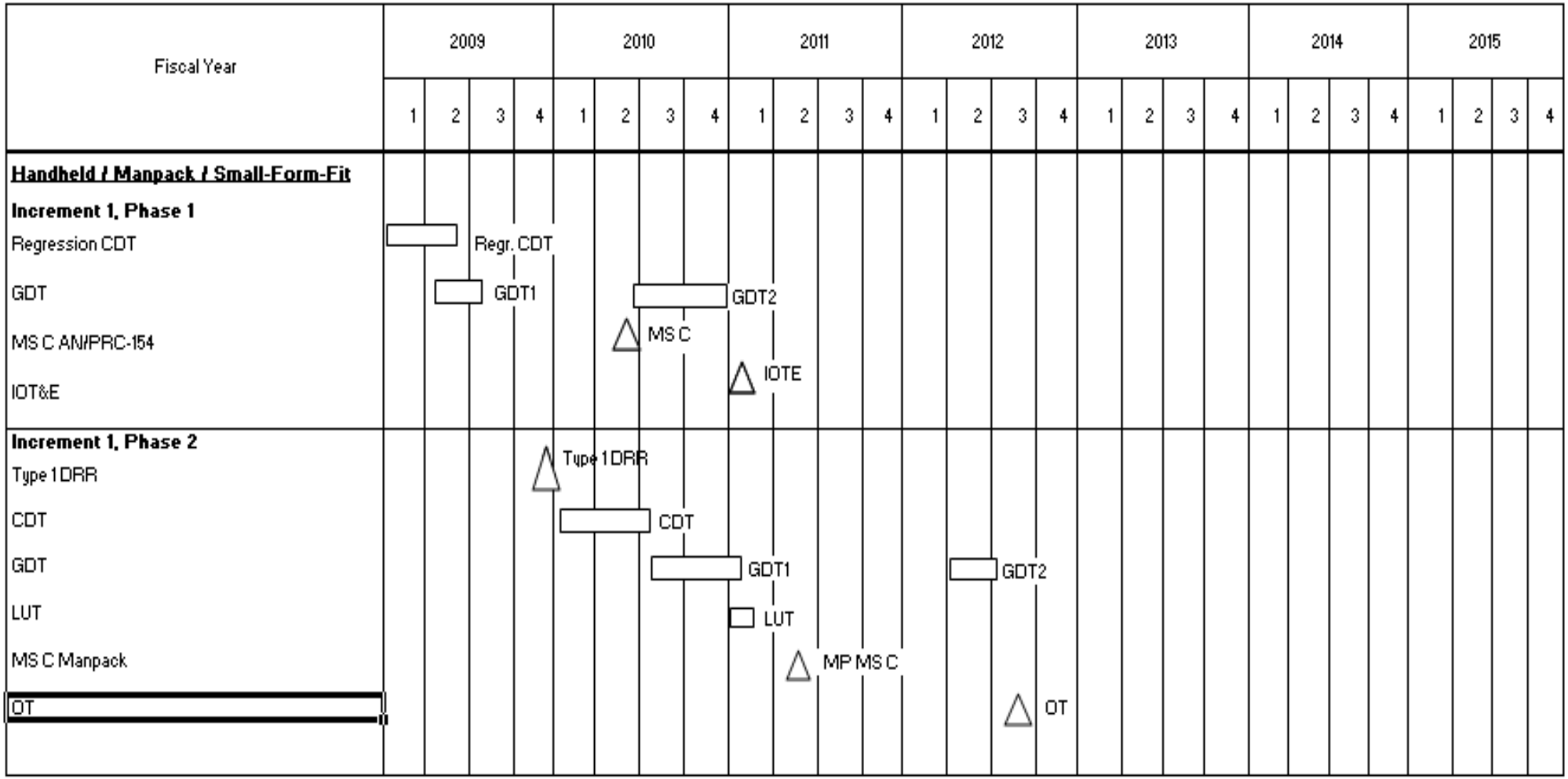


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604280N: *JT Tact Radio Sys (JTRS)*	**PROJECT** 3075: *HMS JTRS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Increment 1, Phase 1 Regression CDT	1	2009	2	2009
Increment 1, Phase 1 GDT	2	2009	3	2009
Increment 1, Phase 2 Type 1 DRR	4	2009	4	2009
Increment 1, Phase 2 CDT	1	2010	3	2010
Increment 1, Phase 1 MS C	2	2010	2	2010
Increment 1, Phase 1 GDT2	2	2010	4	2010
Increment 1, Phase 2 GDT	3	2010	1	2011
Increment 1, Phase 1 IOT&E	1	2011	1	2011
Increment 1, Phase 2 LUT	1	2011	1	2011
Increment 1, Phase 2 MS C	2	2011	2	2011
Increment 1, Phase 2 GDT2	2	2012	3	2012
Increment 1, Phase 2 OT	3	2012	3	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*				PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*			
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**
3076: *JTRS Network Enterprise Domain (JNED)*	205.525	201.131	117.574	0.000	117.574	36.967	23.144	20.410	22.596	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

In FY09-FY11, Project No. 3076 represents the total JNED RDT&E budget.

In FY12-FY15, Project No. 3076 represents the Navy share (1/3) of the funding associated with the JNED program. As part of the JTRS joint program acquisition strategy, each Military Department (MILDEP) budgets for one-third of the total program. Thus, one-third of JTRS Common Development is represented in this PE, one-third is represented in Army PE 0604280A and one-third in Air Force PE 0604280F.

A. Mission Description and Budget Item Justification

JTRS is the Department of Defense (DoD) family of common software-defined programmable radios that will form the foundation of information radio frequency transmission for Joint Vision 2020. The JTRS family of products will be multifunctional, multiband, multimode, network capable, capable of providing communications through a range of low probability of intercept, low probability of detection and anti-jam waveforms. JTRS products will provide transformational communication capabilities for the warfighter. JTRS is intended to support communications readiness and mission success, in the 2 MegaHertz (MHz) to 2 GigaHertz (GHz) operating frequency range, by providing military commanders with the ability to command, control and communicate with their forces via secure voice/video/data media forms. JTRS products are hardware-configurable and software-programmable radio systems that provide increased interoperability, flexibility and adaptability to support varied mission requirements.

(JNED) JNED is responsible for the development and delivery of software-defined, legacy radio waveforms and networking waveforms that support Net-Centric operational warfare at sea, air and on the ground. Networking waveforms extend the Global Information Grid (GIG) to the last tactical mile and to the warfighter. The JNED team is responsible for (1) the overall management and oversight of the JTRS Waveform program, (2) development, validation, and evolution of a common JTRS Software Communications Architecture (SCA), (3) development and evolution of waveform software applications, (4) development of software cryptographic algorithms and equipment applications, (5) testing and certification of JTRS waveforms, network services, network management, and software products, and (6) JTRS networking and network management software components. Services are responsible for acquiring and fielding host radio hardware and integrating JTRS into Service platforms.

Networking Waveforms:

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*

- Wideband Networking Waveform (WNW) is a high data rate networking waveform application that provides the lower tactical Internet backbone and connects tactical forces across the battle sphere. WNW will feature two signals-in-space (SiS), which are the Orthogonal Frequency Division Multiplexing (OFDM) and Anti-Jam (AJ). WNW will provide high throughput, dynamically adaptable connectivity for the exchange of Internet Protocol (IP) based voice, data, and video traffic. WNW will support network nodes on mobile, airborne, and maritime platforms. WNW includes networking services, security, High Assurance IP Equipment (HAIPE) capabilities, red-black switching, and internal routing of other WNW signals. Platforms include: GMR and AMF.

- Soldier Radio Waveform (SRW) will operate on JTR sets to provide a networked battlefield communications capability for disadvantaged users engaged in land combat operations and will support voice, data, and video communications on and over the immediate battlefield. These forces include vehicles, rotary wing, dismounted soldiers, munitions, sensors, and unmanned air vehicles (UAV). Functional software applications will use SRW enabled JTR sets over IP capable networks and sub-networks. SRW will be interoperable with higher throughput, IP-based network waveforms, such as WNW. As applicable, these IP-based networking waveforms will enable information exchanges through the GIG to the soldier and provide entirely new capabilities for battlefield communications and information sharing. Platforms include: GMR, AMF and HMS.

- Mobile User Objective System (MUOS) will enable MUOS satellites to provide worldwide communication satellite coverage for DoD requirements. MUOS will provide functionality comparable to commercial mobile phone systems. MUOS offers secure streaming video, netted communications, and voice/data in real time to provide essential connectivity. JNED program will modify this waveform, making it compatible and certifiable to meet DoD security requirements plus enable porting to JTR sets. Platforms include: HMS and AMF.

- Joint Airborne Networking - Tactical Edge (JAN-TE) will operate on JTR airborne sets to provide a networked tactical communications capability for tactical aircraft. JAN-TE will provide increased throughput, highly responsive connectivity, and ad hoc mobile networking for fighters engaged in air operations. This networking waveform is uniquely designed and engineered for highly maneuverable, fast moving aircraft for rapidly establishing networks to share high value data communications. USD(AT&L) directed that the development of the JAN-TE waveform be discontinued after Critical Design Review in October 2008.

Network Enterprise Services (NES): Includes development and acquisition of JTRS Network Enterprise Services (JNES) to include JTRS WNW Network Manager (JWNM), JTRS Enterprise Network Manager (JENM), Soldier Radio Waveform Network Manager (SRWNM), and Enterprise Network Services (ENS).

Legacy Radio Waveforms: Includes the development and acquisition of legacy software and other related activities to support the legacy waveform development.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
JTRS Network Enterprise Domain (JNED)	204.495	201.131	117.574	0.000	117.574

Continued development and acquisition of Increment 1 networking waveforms that support Net-Centric operational warfare at sea, air and on the ground to extend the GIG to the last tactical mile and the warfighter. Continued JNED program support and other related activities.

FY 2009 Accomplishments:

Networking Waveforms:

- WNW (35.363) Completed development and delivered WNW v3.5 in 1Q FY09 and v3.6 in 3Q FY09. Continued development of WNW for v4.0.

- SRW (19.325) Completed development and performed FQT for v1.0c Soldier Systems (SS) in 2Q FY09. Completed development and performed FQT for v1.01c in 3QFY09 and continued integration of v1.0c into HMS.

- MUOS ($31.664) Continued development effort of MUOS v3.1 in FY09.

- JAN-TE ($0.386) USD(AT&L) directed that the development of the JAN-TE waveform be discontinued after Critical Design Review in October 2008.

Network Enterprise Services ($55.247): Continued development and acquisition of JTRS Network Enterprise Services (JNES) to include JTRS WNW Network Manager (JWNM), JTRS Enterprise Network Manager (JENM), Soldier Radio Waveform Network Manager (SRWNM), and Enterprise Network Services (ENS). Continued to provide JNED technical support, including waveform development, systems engineering, spectrum allocation, system security engineering and problem resolution and support of Software Communications Architecture (SCA) activities. Completed development of JWNM v3.5 in 1Q FY09. Continued development of JWNM v4.0 and SRWNM 1.0R. Began development for ENS Phase 1 Software Internet Controller (SoftINC) and Tactical Data Controller (TDC).

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Legacy Radio Waveforms ($62.510) Continued the development and acquisition of legacy software and other related activities to support the legacy waveform development of High Frequency (HF). Completed the development and performed FQT for Link 16 in 3Q FY09. Continued development of UHF SATCOM v4.1. Continued to provide JNED technical support, including waveform development, systems engineering, spectrum allocation, system security engineering and problem resolution and support of Software Communications Architecture (SCA) activities. Provided technical guidance to the Platform Program Management offices (PMO). Continued to support waveform integration, test and evaluation to include hardware and software waveform certification process (SCA compliance testing) to meet program requirements. Continued JNED program management office support. Provided post FQT support to platforms during Legacy Waveform porting activities.					
FY 2010 Plans: Networking Waveforms: - WNW (14.197) Complete development and perform FQT for WNW v4.0 in 1QFY10. Provide post FQT support to platforms during WNW porting activities.					
- SRW ($5.745) Complete integration of v1.0c into HMS and conduct Delta-FQT in Q1 FY10. Provide post FQT support to platforms during SRW v1.0c porting activities.					
- MUOS ($34.036) Continue development of MUOS v3.1.					
Network Enterprise Services ($82.438): Continued development and acquisition of JTRS Network Enterprise Services (JNES) to include JTRS WNW Network Manager (JWNM), JTRS Enterprise Network Manager (JENM), Soldier Radio Waveform Network Manager (SRWNM), and Enterprise Network Services (ENS). Continue to provide JNED technical support, including waveform development, systems engineering, spectrum allocation, system security engineering, problem resolution and support of Software Communications Architecture (SCA) activities. Complete					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
development and perform FQT for JWNM v4.0 in 2Q FY10. Complete development and perform FQT for JENM Phase 1 in 4Q FY10. Complete development and perform FQT for SRWNM 1.0R in 2Q FY10, and SRWNM 1.0+ in 3Q FY10. Continue development for ENS Phase 1 (SoftINC and TDC). Legacy Radio Waveforms ($64.715) Continue to support waveform integration, test and evaluation to include hardware and software waveform certification process (SCA compliance testing) to meet program requirements. Complete development and perform FQT for HF v4.0 in 1Q FY10. Complete development and perform FQT for UHF SATCOM v4.1 in 1Q FY10. Continue JNED program management office support. Continue to provide post FQT support to platforms during Legacy Waveform porting activities. Begin enhancements to legacy waveforms. *FY 2011 Base Plans:* - MUOS ($20.730) Complete development and perform FQT of MUOS v3.1 in 2Q FY11. Network Enterprise Services ($50.470): Continued development and acquisition of JTRS Network Enterprise Services (JNES) to include JTRS WNW Network Manager (JWNM), JTRS Enterprise Network Manager (JENM), Soldier Radio Waveform Network Manager (SRWNM), and Enterprise Network Services (ENS). Continue to provide JNED technical support, including waveform development, systems engineering, spectrum allocation, system security engineering and problem resolution and support of Software Communications Architecture (SCA) activities. Complete development and perform FQT for JENM Phase 2 in 4Q FY11. Complete development and perform FQT for ENS Phase 1 SoftINC in 1Q FY11 and ENS Phase 1 TDC in 3Q FY11. Legacy Radio Waveforms ($46.374) Continue to support waveform integration, test and evaluation to include hardware and Software Waveform Certification Process (SCA compliance testing) to meet program requirements. Continue JNED program management office support. Continue enhancements to legacy waveforms.					
Aquisition Workforce Fund	1.030	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Funded acquisition workforce fund.					
Accomplishments/Planned Programs Subtotals	205.525	201.131	117.574	0.000	117.574

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
• RDTEA/0604280A: *JNED*	0.000	0.000	0.000	0.000	0.000	41.535	28.777	19.637	19.441	Continuing	Continuing
• RDTEF/0604280F: *JNED*	0.000	0.000	0.000	0.000	0.000	41.141	25.084	18.284	18.970	Continuing	Continuing
• O&M, 4A6M: *Service Wide Communications (JNED)*	1.823	6.654	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy

(JNED) JNED, formerly Joint Waveforms Program Office, is responsible for common core activities including developing and evolving the software-defined legacy and networking waveforms that operate on multiple hardware sets and in all operational environments that support network-centric operational warfare, as well as common networking services solutions. Waveform developments will be procured through full and open contract competitions, except when special circumstances support sole source acquisition. The JNED program is developing waveforms and Cryptographic Equipment applications (CEAs) for use within the JTRS community. The module developer will develop CEAs. The FY11 Budget supports continued development of waveforms, supporting software, and testing support, as well as the National Security Agency (NSA) evaluation of software crypto libraries.

E. Performance Metrics

The five ACAT 1D JTRS programs are employing mature, software-defined radio technologies and developing more than 10 million lines of code as part of the Increment 1 baseline. Early on, a JTRS enterprise software metrics requirements effort established a baseline of standard software metrics which are monitored on each JTRS contract involving software development. Example metrics are: the number of requirements and the number of use cases required for design are estimated during the requirement and design phase and analyzed for trend-actual vs. scheduled; the software lines of code (SLOC) counts are used to determine progress during the coding phase; and the execution of test cases as well as trouble reports are monitored during the integration and test phase. Further, a software complexity product metric is collected which demonstrates the testability of the code and is an important criterion for software certification. These software metrics are used to quantify

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*

the quality and progress of each software product's development over time. Additionally, JNED employs Earned Value Metrics to monitor contract performance on its Prime Development Contracts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*

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
Architecture Development and Validation, Evolve and Provide CM Mgmt of SCA	WR	Johns Hopkins Laurel, MD	1.650	0.250	Oct 2009	0.439	Dec 2010	0.000		0.439	Continuing	Continuing	Continuing
Wideband Networking Waveform (WNW)	C/CPAF	BOEING Huntington Beach, CA	95.524	8.197	Oct 2009	0.000		0.000		0.000	0.000	103.721	103.721
Soldier Radio Waveform (SRW)	C/CPIF	ITT Clifton, NJ	84.110	5.745	Dec 2009	0.000		0.000		0.000	0.000	89.855	89.555
Mobile User Objective System (MUOS)	C/Various	Lockheed Martin Sunnyvale, CA	35.956	34.036	Dec 2009	20.730	Dec 2010	0.000		20.730	0.000	90.722	90.722
Joint Airborne Networking -Tactical Edge (JAN-TE)	C/CPFF	Rockwell Collins Cedar Rapids, IA	36.260	0.000		0.000		0.000		0.000	0.000	36.260	36.260
Legacy Software-Defined Radio Waveforms	C/CPAF	BOEING Huntington Beach, CA	43.221	5.743	Oct 2009	12.190	Dec 2010	0.000		12.190	Continuing	Continuing	Continuing
Network Enterprise Services Development	C/Various	BOEING / ITT Huntington Beach, CA / Clifton, NJ / TBD	198.499	75.315	Oct 2009	50.031	Dec 2010	0.000		50.031	Continuing	Continuing	Continuing
Post FQT / Software Sustainment	C/Various	Raytheon / ITT MA / Clifton, NJ / TBD	1.877	14.740	Nov 2009	1.747	Dec 2010	0.000		1.747	Continuing	Continuing	Continuing
	MIPR	NSA Ft. Meade, MD	9.064	2.940	Nov 2009	2.157	Dec 2010	0.000		2.157	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*	

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
Certification (Interim SCA Compliance Testing)													
		Subtotal	506.161	146.966		87.294		0.000		87.294			

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
FFRDC - MITRE Technical Support	MIPR	MITRE Ft. Monmouth, NJ	7.941	1.595	Oct 2009	0.744	Dec 2010	0.000		0.744	Continuing	Continuing	Continuing
		Subtotal	7.941	1.595		0.744		0.000		0.744			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*

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	SRA / SSC PAC / SSC LANT San Diego, CA / San Diego, CA / Charleston, SC	153.426	52.570	Oct 2009	29.536	Dec 2010	0.000		29.536	Continuing	Continuing	Continuing
Acquisition Workforce Fund	C/FP	Not Specified Not Specified	1.030	0.000		0.000		0.000		0.000	0.000	1.030	1.030
		Subtotal	154.456	52.570		29.536		0.000		29.536			

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	668.558	201.131		117.574		0.000		117.574			

Remarks

Remarks: PYs column only reflects prior year Navy JNED costs for FY07-08. Prior to FY07, funding for JNED resided in Army PE 0604280A, Project 162. In FY09-11, Project No. 3076 represents the total JNED RDT&E budget. In FY12-FY15, Project No. 3076 represents one-third of the total JNED RDT&E budget. As part of the JTRS joint program acquisition strategy, each MILDEP budgets for one-third of the total program. Thus, one-third of JNED is represented in this PE, one-third is represented in Army PE 0604280A, and one-third in Air Force PE 0604280F.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*

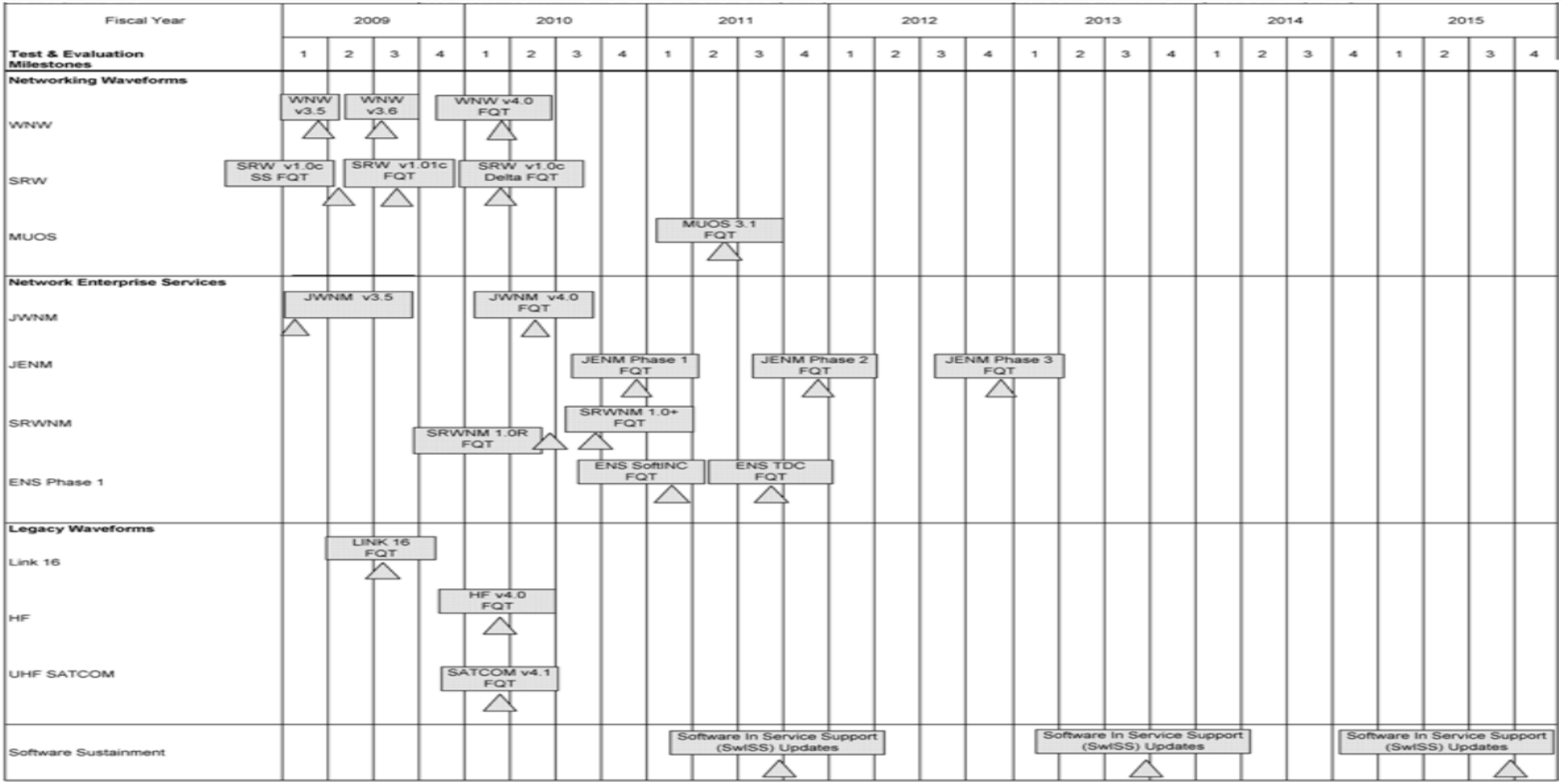


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
WNW v 3.5	1	2009	1	2009
WNW v 3.6	3	2009	3	2009
WNW v 4.0	1	2010	1	2010
SRW v1.0c (SS)	2	2009	2	2009
SRW v1.01c	3	2009	3	2009
SRW v1.0c Delta for HMS	1	2010	1	2010
MUOS 3.1	2	2011	2	2011
JWNM v 3.5	1	2009	1	2009
JWNM v 4.0	2	2010	2	2010
JENM Phase I	4	2010	4	2010
JENM Phase II	4	2011	4	2011
JENM Phase III	4	2012	4	2012
SRWNM 1.0R	2	2010	2	2010
SRWNM 1.0+	3	2010	3	2010
ENS Phase 1 SoftINC	1	2011	1	2011
ENS Phase 1 TDC	3	2011	3	2011
Link 16	3	2009	3	2009
HF v4.0	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	PROJECT 3076: *JTRS Network Enterprise Domain (JNED)*

	Start		End	
Event	Quarter	Year	Quarter	Year
UHF SATCOM v4.1	1	2010	1	2010
Software In Service Support (SwISS) Update I	3	2011	3	2011
Software In Service Support (SwISS) Update II	3	2013	3	2013
Software In Service Support (SwISS) Update III	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604280N: *JT Tact Radio Sys (JTRS)*	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*	13.463	3.585	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.346
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(HMS) HMS provides the JTRS capability to meet Joint Ground Mounted, Dismounted & Embedded Radio Requirements. Increment 1, Phase 1 will develop SFF-A (1 and 2 Channel), SFF-D, and SFF-C(v)1 (AN/PRC-154) running Soldier Radio Waveform (SRW) for use in a sensitive but unclassified environment (Type 2). Increment 1, Phase 2 will develop the 2 Channel Manpack, SFF-B, SFF-J, and 2 Channel Handheld. Phase 2 radios are all Type 1 compliant for use in a classified environment running Ultra High Frequency (UHF), Satellite Communications (SATCOM), High Frequency (HF), Enhanced Position Location and Reporting System (EPLRS), Soldier Radio Waveform (SRW), Mobile User Objective System (MUOS), and Single Channel Ground to Air Radio System (SINCGARS) waveforms.

(DMR) The Digital Modular Radio (DMR) provides improvements for fleet radio requirements in the HF, VHF, and UHF frequency band. The DMR replaces and will be interoperable and backwards compatible with legacy systems. The DMR is a digital, modular, software programmable, multi-channel, multi-function and multi-band (2MHz-2 GHz) radio system.

(Army Tactical Radios for FCS) JTRS GMR will provide networking capability using the Wideband Networking Waveform and Soldier Radio Waveform to connect unmanned sensors to decision makers "On-The-Move" (OTM) which will significantly reduce the decision cycle. JTRS GMR will provide the warfighter with mobile Internet-like capabilities such as voice, data, networking and video communications, as well as interoperability with current force and other JTRS radios across the battle space using new networking Waveforms and current Waveforms.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: JTRS Handheld Small Form Radio Sys	0.000	3.585
FY 2010 Plans: Conduct study to determine the technical feasability of adding the wide-band networking waveform to HMS products.		

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604280N: *JT Tact Radio Sys (JTRS)*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Digital Modular Radio (DMR) *FY 2009 Accomplishments:* Developed Workstation Authentication and Software Signature version 6.4.4 for a DMR security enhancement required by the National Security Agency (NSA).	1.995	0.000
Congressional Add: Army Tactical Radios for FCS *FY 2009 Accomplishments:* Supported the design, development, manufacture and delivery of GMR Engineering Design Models (EDM).	11.468	0.000
Congressional Adds Subtotals	13.463	3.585

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.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*							
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	506.798	7.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6,150.883
2464: *DD(X) Sys Design, Dev & Integration*	332.440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5,220.597
2735: *VSR - Volume Search Radar*	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	274.868
3106: *Combat System Integration*	13.102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.895
3107: *CG(X) Development*	54.066	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	172.536
4009: *Advanced Gun System (AGS) on DD(X)*	95.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	367.247
9999: *Congressional Adds*	6.283	7.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	92.740

A. Mission Description and Budget Item Justification

This Program Element (PE) provides funds for development of the DDG 1000 Class of U.S. Navy surface combatants and CG(X), future cruiser development. The mission of the DDG 1000 class is to provide affordable and credible independent forward presence/deterrence and operate as an integral part of Naval, Joint or Combined Maritime Forces. DDG 1000 will provide advanced land attack capability in support of the ground campaign and contribute to Naval, Joint or Combined battlespace dominance in littoral operations. DDG 1000 will establish and maintain surface and sub-surface superiority, provide local air defense, and incorporate signature reduction to operate in all threat environments. DDG 1000 will have seamless Joint Interoperability to integrate all source information for battlespace awareness and weapons direction. CG(X) development efforts will mature the CG(X) design through Milestone B. Beginning in FY 10 all funding was realigned to PE 0204202N for DDG 1000 and to PE 0204201N for CG(X).

The following Congressional adds are contained in this Program Element:

FY09 Congressional Adds:
Floating Area Network (FAN) and Bio Nano Micro-Electro-Mechanical Systems (MEMS) Center for Defense Applications.

FY10 Congressional Adds:
FAN and Guidance, Navigation, Control and Targeting

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604300N: *SC-21 Total Ship System Eng*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	596.109	0.000	0.000	0.000	0.000
Current President's Budget	506.798	7.966	0.000	0.000	0.000
Total Adjustments	-89.311	7.966	0.000	0.000	0.000
• Congressional General Reductions		-0.034			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		8.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.319	0.000			
• SBIR/STTR Transfer	-16.030	0.000			
• Program Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional Recision Adjustments	-73.600	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: *Guidance, Navigation, Control, and Targeting*	0.000	3.983
Congressional Add: *FLOATING AREA NETWORK (FAN) INSTALLATION OF WIRELE*	4.787	3.983
Congressional Add: *BIO/NANO-MEMS CTR FOR DEFENSE APPLICATIONS*	1.496	0.000
Congressional Add Subtotals for Project: 9999	6.283	7.966
Congressional Add Totals for all Projects	6.283	7.966

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 2464: *DD(X) Sys Design, Dev & 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
2464: *DD(X) Sys Design, Dev & Integration*	332.440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5,220.597
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project encompasses DDG 1000 development efforts required to deliver the Flight I DDG 1000 Class Ships. Major efforts include software requirements analysis, architectural and design code and unit testing, integration, qualification testing, and Independent Verification and Validation (IV&V) for software releases 5-6; hull form testing at Naval Surface Warfare Center, Carderock; conducting testing communication and sensor aperture cosite and electromagnetic interference risk reductions testing for critical arrays; planning for Integrated Power Systems (IPS) and ship control system testing and integration; Tomahawk restrained firing test; integration of Line of Sight (LOS)/Below Line of Site (BLOS) communication capability. In FY 10, funding was realigned to PE 0204202N.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
DD(X) Sys Design, Dev & Integration	292.267	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Development of the DDG 1000 Flight 1 software, Commercial Off the Shelf/Government Off the Shelf (COTS/GOTS) software acquisition, code and unit testing, integration, qualification testing, and Independent Verification and Validation (IV&V). Development of a total system software architecture that defines the relationships and interfaces among the software segments, elements, components and/or configuration items using an incremental release process (Software (SW) Releases 5-6). Conduct the following events for the remaining software releases: Software Release 5 - complete the Design, Code, Test and Integration phase; conduct Software Integration and Test (SWIT) and Software Integration Readiness Review (SIRR) activities in FY09; Software Release 6 - conduct Software Specification Review (SSR) and begin preliminary design activities in FY09; Conduct all developmental software test planning, conduct test data analysis and reporting in accordance with					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 2464: *DD(X) Sys Design, Dev & Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
the DDG 1000 TEMP. Perform total ship system design analysis. Perform systems engineering, develop, and fully integrate into the DDG 1000 System an Electric Ship (ES) system for DDG 1000. Integrate Next Generation Command and Control Processor (NGC2P) by finalizing Data Link Concept of Operations, complete hardware engineering, finalize software requirements definition, commence software development and integration, plan for software testing and certification. Develop, test and integrate the Common Display System (CDS) consoles and medium/large screen displays.					
Test and Evaluation *FY 2009 Accomplishments:* Completion and testing of ship and warfare system engineering development models. Complete hull form testing at Naval Surface Warfare Center (NSWC)Carderock. Planning for IPS and ship control system (SCS) testing and integration at NSWC Philadelphia. Conduct communication and sense aperture cosite and electromagnetic interference risk reduction testing for critical arrays at the Wallops Island Test Facility. Conducted Tomahawk restrained firing test to verify Advanced Vertical Launching System (AVLS) protection measures. Conduct developmental testing and operation evaluation in accordance with TEMP. Conduct Live Fire Testing & Vulnerability Analysis in accordance with TEMP. Conduct signature range Non-Recurring Engineering (NRE) to upgrade ranges to support DDG 1000 test and evaluation.	33.519	0.000	0.000	0.000	0.000
Self Defense Test Ship (SDTS) *FY 2009 Accomplishments:* Funding is to support DDG 1000 specific testing on the Self Defense Test Ship.	5.000	0.000	0.000	0.000	0.000
Defense Acquisition Workforce Development Fund (DAWDF) *FY 2009 Accomplishments:* Defense Acquisition Workforce Development Fund (DAWDF)	1.654	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	332.440	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 2464: *DD(X) Sys Design, Dev & 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
• RDTEN/0204202N: *DDG 1000*	0.000	524.269	549.241	0.000	549.241	337.564	124.079	177.579	171.945	Continuing	Continuing
• SCN/2119: *DDG 1000*	1,504.297	1,378.532	186.312	0.000	186.312	139.388	133.168	126.325	50.871	Continuing	Continuing

D. Acquisition Strategy

A revised acquisition strategy is being reviewed by the Navy and OSD that supports the DDG-1000/DDG-51 restart shipyard allocation workload MOAs.

E. Performance Metrics

TBD

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 2735: *VSR - Volume Search 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
2735: *VSR - Volume Search Radar*	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	274.868
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 the development of the S-Band Volume Search Radar (VSR) in association with DDG 1000. This provides DDG 1000 and other applicable surface ships with an affordable, high performance air search radar. This system is based on solid state, active array radar technology and will provide search, detect, and track while dramatically reducing manning and life-cycle costs associated with multiple systems that perform these functions today. VSR provides long range above-the-horizon surveillance and timely cuing to Multi-Function Radar (MFR).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Volume Search Radar (VSR) Engineering	4.976	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Government Technical Engineering Services for VSR Engineering and Manufacturing Development. Perform oversight and assessment of VSR Engineering and Manufacturing Development efforts including Test and Evaluation. Support VSR Land Based Testing at the Surface Warfare Engineering Facility (SWEF) at NWSC PHD. VSR will be moved to Wallops Island Engineering Test Center (WIETC) to continue VSR Land Based Testing.					
Defense Acquisition Workforce Development Fund (DAWDF)	0.024	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Defense Acquisition Workforce Development Fund (DAWDF)					
Accomplishments/Planned Programs Subtotals	5.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 2735: *VSR - Volume Search Radar*

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/0204202N: *DDG 1000*	0.000	524.269	549.241	0.000	549.241	337.564	124.079	177.579	171.945	Continuing	Continuing
• SCN/2119: *DDG 1000*	1,504.297	1,378.532	186.312	0.000	186.312	139.388	133.168	126.325	50.871	Continuing	Continuing

D. Acquisition Strategy

A revised acquisition strategy is being reviewed by the Navy and OSD that supports the DDG-1000/DDG-51 restart shipyard allocation workload MOAs.

E. Performance Metrics

Milestone Review

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 3106: *Combat System 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
3106: *Combat System Integration*	13.102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.895
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

CG(X), the next generation cruiser, will focus on providing multi-mission capabilities as part of the 21st Century family of surface combatants. CG(X) is the follow-on to the CG-47 class as they reach the end of their 35 year service life. This project encompasses efforts for the integration of the CG(X) Combat System, C4I, Air, and Ship systems including materiel analysis, and integration of the Combat System with the CG(X) Mission System. Integration efforts will include communications, electronics, air, command and control, Combat System interface requirements, definition, system integration, and test and evaluation. In FY10, funding has been transferred to PE 0204201N which encompasses all CG(X) Projects.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Requirements Development *FY 2009 Accomplishments:* Conduct requirements development for combat system to include architecture, performance analysis, C4ISR integrated system design, air, modeling and simulation, and test planning.	11.246	0.000	0.000	0.000	0.000
Technology Risk Reduction *FY 2009 Accomplishments:* Mature combat system, C4I, and air risk reduction for technology elements including technology maturity and integration risks.	0.447	0.000	0.000	0.000	0.000
Acquisition & Requirements Documentation	1.233	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 3106: *Combat System Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continue development of top level C4I, air, and combat system acquisition and requirements documents to support CG(X) decision reviews (Gate and Milestone).					
Defense Acquisition Workforce Development Fund (DAWDF) *FY 2009 Accomplishments:* Defense Acquisition Workforce Development Fund (DAWDF)	0.176	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	13.102	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/0204201N: *CG(X)*	0.000	45.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	45.400
• RDTEN/0604501N: *Advanced Above Water Sensors (PU3186)*	92.998	189.078	228.436	0.000	228.436	123.053	132.390	141.771	141.608	Continuing	Continuing

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 3107: *CG(X) 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
3107: *CG(X) Development*	54.066	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	172.536
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

CG(X), the next generation cruiser, will focus on providing multi-mission capabilities as part of the 21st Century family of surface combatants. CG(X) is the follow-on to the CG-47 class as they reach the end of their 35 year service life. This project encompasses efforts for total ship system development and integration of Hull, Mechanical and Electrical (HM&E) and shipboard systems into the CG(X) class, as well as integration of communications, electronics, air, command and control, surveillance, shipboard systems, and mission system computer programs into the CG(X) class mission system. These development and integration efforts include materiel analysis, technology development, systems engineering, computer program development, interface design, technical documentation, and system testing to ensure a fully functional CG(X) system design. This project will mature the CG(X) design through several ship design cycles and baselines. Preparation and execution of a program level Preliminary Design Review (PDR) and Critical Design Review (CDR) will occur through these efforts. In FY10, funding was transferred to PE 0204201N.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Advanced Nuclear Propulsion Systems	14.250	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Conduct research and development of Advanced Nuclear Propulsion Systems for CG(X).					
Technology Risk Reduction	2.977	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Continued risk reduction for Technology Elements including technology maturity and manufacturing feasibility.					
Acquisition Documentation	36.320	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 3107: *CG(X) Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continue development of program documentation to support CG(X) decision reviews (Gate and Milestone). Continue to refine requirements, capabilities, cost, and technical feasibility of the total ship system.					
Defense Acquisition Workforce Development Fund (DAWDF) *FY 2009 Accomplishments:* Defense Acquisition Workforce Development Fund (DAWDF)	0.519	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	54.066	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/0204201N: *CG(X)*	0.000	45.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	45.400
• RDTEN/0604501N: *Advanced Above Water Sensors (PU3186)*	92.998	189.078	228.436	0.000	228.436	123.053	132.390	141.771	141.608	Continuing	Continuing

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 4009: *Advanced Gun System (AGS) on DD(X)*	

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
4009: *Advanced Gun System (AGS) on DD(X)*	95.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	367.247
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

These funds provide for the development of the Advanced Gun System (AGS) and the development and qualification of the Long Range Land Attack Projectile (LRLAP) associated with the development of DDG 1000. The AGS will consist of a major caliber gun, an automated ammunition handling system, and a family of munitions/propelling charges. The AGS will, at a minimum, meet the Land Attack and Surface Dominance Missions assigned to the gun system. The system will provide a high rate of fire (approximately 10 rounds per minute) with a magazine capacity sufficient in size for meeting USMC operational requirements. LRLAP will be stored throughout its life cycle in an 8 round pallet which is handled by the AGS magazine. By palletizing the munition, AGS is able to significantly reduce manning and improve munition reliability, safety and resupply. The LRLAP Engineering Development Model (EDM) guided flight tests began in Dec 2004. System Design and Development began in FY06 with final land based qualification testing planned in FY09. LRLAP will deliver a high explosive unitary payload with Global Positioning System (GPS) accuracy. In FY 10, funding has been realigned to PE 0204202N.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Advanced Gun System (AGS) Qualification Test assets *FY 2009 Accomplishments:* Procurement of AGS Qualification test assets.	26.542	0.000	0.000	0.000	0.000
Long Range Land Attack Projectile (LRLAP) System Design & Test *FY 2009 Accomplishments:* LRLAP System Design, Development and qualification testing.	47.830	0.000	0.000	0.000	0.000
LRLAP Test Round Procurement	21.058	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 4009: *Advanced Gun System (AGS) on DD(X)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Procurement of LRLAP rounds for qualification testing.					
Defense Acquisition Workforce Development Fund (DAWDF) *FY 2009 Accomplishments:* Defense Acquisition Workforce Development Fund (DAWDF)	0.477	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	95.907	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/0204202N: *DDG 1000*	0.000	524.269	549.241	0.000	549.241	337.564	124.079	177.579	171.945	0.000	1,884.677
• SCN/2119: *DDG 1000*	1,504.297	1,378.532	186.312	0.000	186.312	139.388	133.168	126.325	50.871	0.000	3,518.893

D. Acquisition Strategy

A revised acquisition strategy is being reviewed by the Navy and OSD that supports the DDG-1000/DDG-51 restart shipyard allocation workload MOAs.

E. Performance Metrics

TBD

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	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*	6.283	7.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	92.740
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

As a result of all other funding within this PE being realigned in FY 2010 and in order to meet Congressional intent the Navy plans to request a realignment FY 2010 Congressional Add funding for the Floating Area Network (FAN) and the Guidance, Navigation, Control and Targeting to PE0204202N.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Guidance, Navigation, Control, and Targeting *FY 2010 Plans:* Congressional Add will fund the design, development, and flight test of a high performance Guidance Navigation Control and Targeting System that provides the capability to guide future Navy and Army projectiles to within 1 meter of a maneuvering surface target in adverse weather.	0.000	3.983
Congressional Add: FLOATING AREA NETWORK (FAN) INSTALLATION OF WIRELE *FY 2009 Accomplishments:* Congressional add funds the development of a Floating Area Network (FAN) enabling a direct Line of Sight (LOS), wireless, Transmission Control Protocol/Internet Protocol (TCP/IP) network among intra-battle group ships.	4.787	3.983

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604300N: *SC-21 Total Ship System Eng*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2010 Plans: Congressional add funds the development of a Floating Area Network (FAN) enabling a direct Line of Sight (LOS), wireless, Transmission Control Protocol/Internet Protocol (TCP/IP) network among intra-battle group ships.		
Congressional Add: BIO/NANO-MEMS CTR FOR DEFENSE APPLICATIONS *FY 2009 Accomplishments:* Congressional add funds the University of Louisville Bio/Nano-MEMS Center that will create a multi-disciplinary science and engineering team to carry out comprehensive research, design and testing directed toward insertion of advanced, reliable MEMS devices into fielded military systems.	1.496	0.000
Congressional Adds Subtotals	6.283	7.966

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional adds.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*							
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	196.993	183.275	193.933	0.000	193.933	212.064	223.936	219.051	179.551	Continuing	Continuing
1447: *Surf Combatant Combat System Imp*	192.206	177.699	193.933	0.000	193.933	212.064	223.936	219.051	179.551	Continuing	Continuing
9999: *Congressional Adds*	4.787	5.576	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	28.936

A. Mission Description and Budget Item Justification

This project provides Cruiser & Destroyer ACS upgrades and integrates new equipment and systems to pace the threat and capture advances in technology. Examples of captured advanced technologies are: fiber optics, distributed architecture, and high performance computing, all of which require corresponding AWS and ACS changes. The ACS capabilities have continually evolved. Baseline (B/L) 2 (CG 52-58) introduced the Vertical Launching System, TOMAHAWK Weapon System, and Anti-Submarine Warfare upgrades. B/L 3 (CG 59-64) introduced the AN/SPY-1B Radar, AN/UYQ-21 consoles, and UYK-43 "low boy" computers. B/L 4 (CG 65-73) introduced the production of AN/UYK-43/44 computers with superset computer programs developed for the DDG 51. Baseline 5 was introduced in FY1992 DDGs included the Joint Tactical Information Distribution System (JTIDS) [Tactical Data Information Link (TADIL)16], Command and Control Processor (C2P), Combat Direction Finding, Tactical Data Information Exchange System, AN/SLQ-32 (V)3 Active Electronic Counter Countermeasures, and Aegis Extended Range (ER) Missile. B/L 5 was developed in two steps (Phases): Phase 1 integrated AEGIS ER and supported the missile Initial Operational Capability; Phase 3 integrated system upgrades including Defensive Electronic Attack, Track Load Control Algorithms, and Track Initiation Processor (integrated on 5.3, DDGs 68+); JTIDS and the OJ-663 color display Tactical Graphics capability into the ACS. B/L 5 Phase 3 is now resident on baseline 3 and 4 CGs and DDG 51-78. Baseline 6 Phase 1 introduced COTS, Fiber Distributed Data Interface (FDDI), Local Area Network (LAN), UYQ-70 consoles, Cooperative Engagement Capability (CEC) for CGs, and an adjunct COTS computer for AEGIS Display System (ADS). It supported OPEVAL of CEC in CGs 66 and 69 and was introduced in the DDG 51 class beginning with DDG 79. B/L 6 Phase 1 is now resident on CGs 59, 65, 66, 68, 69, and 71. B/L 6 Phase 3 was introduced on DDGs 85-90 and is being backfit onto DDGs 79-84. B/L 6 Phase 3 upgrades included embarked helicopters, Fiber Optics as applied to Data Multiplexing (FODMS), implementation of affordability initiatives, adjunct computers for all AWS elements, CEC for DDGs and Battle Force Tactical Trainer (BFTT), Advanced Display System, Evolved Sea Sparrow Missile (ESSM) Identification (ID) upgrades Phase 1, Advanced TOMAHAWK Weapon System (ATWCS) Phase II, Fire Control System Upgrades, and the Joint Maritime Command Information System (JMCIS). B/L 7 Phase 1 is installed in the DDG 51 class beginning with DDG 91-102 Major Baseline 7 upgrades include but are not limited to introduction and integration of new radar (AN/SPY-1D (V) upgrade), all UYK-43 and adjunct computers to be replaced with COTS-based advanced computer processing, AN/SQQ-89(V)15, and the Remote Mine Hunting System. B/L 7P1R (DDG 103-112) upgrades the computer infrastructure, Close In Weapon System (CIWS), Air Control, and introduced OA products into the main development line. The Modernization Baselines will provide new technology to replace aging military equipment and extend service life to provide viable combatant for naval use into the future. These baselines should reduce the life cycle costs to maintain combat systems and streamline the development of capabilities. Advanced Capability Build - 08 / Technical Insertion - 08 (ACB-08/TI-08)(Cruiser Modernization) Baseline consists of an upgraded

computing infrastructure and computer program enhancements to existing warfighting capabilities on CG 52-58. Advanced Capability Build - 12 / Technical Insertion - 12 (ACB-12/TI-12) (AEGIS Modernization) baseline will consists of an upgraded computing infrastructure and computer program enhancements to provide increased warfighting capabilities which will modernize CG 59-73 and DDG 51-78. ACB-12 Destroyer upgrades will consist of Naval Integrated Fire Control with new computing architecture, upgraded display consoles, computer program enhancements and introduce Control - Common Air (NIFC-CA), Standard Missile-6 (SM-6), Common Display System (CDS), Common Processor System (CPS), Multi Mission Signal Processor (MMSP), and Ballistic Missile Defense (BMD). ACB-12 Cruiser Upgrades will consist of NIFC-CA, Standard Missile-6 (SM-6), Common Display System (CDS), and Common Processor System (CPS). Aegis Advanced Capability Build 14 (ACB14) will be limited to a combination of capabilities outlined in OPNAV's ACB14 Development Guidance Letter: Integration of MMSP for Baseline IV CG's, Aegis BMD, MH-60R, IFF Mode S, DWC, SEWIP BLK II, C5I updates, training and selected Small Business Innovation Research (SBIR).

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	200.271	178.459	0.000	0.000	0.000
Current President's Budget	196.993	183.275	193.933	0.000	193.933
Total Adjustments	-3.278	4.816	193.933	0.000	193.933
• Congressional General Reductions		-0.764			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.020			
• Congressional Adds		5.600			
• Congressional Directed Transfers		0.000			
• Reprogrammings	2.184	0.000			
• SBIR/STTR Transfer	-5.462	0.000			
• Program Adjustments	0.000	0.000	193.933	0.000	193.933

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Advanced Capability Build 12 and 14*	0.000	1.593
Congressional Add: *Aegis Research and Development*	0.000	3.983
Congressional Add: *Adaptive Diagnostic Electronic Portable Testset (A*	0.798	0.000
Congressional Add: *Aegis Combat Information Center Modernization*	3.989	0.000
	4.787	5.576

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604307N: *Surface Combatant Cmbt Sys Eng*

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	4.787	5.576

Change Summary Explanation

FY09 SBIR/STTR Transfer -5.462
Program Adjustment 2.184
Total -3.278

FY10 Congressional Add 5.600
Congressional Adjustment -0.784
Total 4.816

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	PROJECT 1447: *Surf Combatant Combat System Imp*	

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
1447: *Surf Combatant Combat System Imp*	192.206	177.699	193.933	0.000	193.933	212.064	223.936	219.051	179.551	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 Cruiser & Destroyer ACS upgrades and integrates new equipment and systems to pace the threat and capture advances in technology. Examples of captured advanced technologies are: fiber optics, distributed architecture, and high performance computing, all of which require corresponding AWS and ACS changes. The ACS capabilities have continually evolved. Baseline (B/L) 2 (CG 52-58) introduced the Vertical Launching System, TOMAHAWK Weapon System, and Anti-Submarine Warfare upgrades. B/L 3 (CG 59-64) introduced the AN/SPY-1B Radar, AN/UYQ-21 consoles, and UYK-43 "low boy" computers. B/L 4 (CG 65-73) introduced the production of AN/UYK-43/44 computers with superset computer programs developed for the DDG 51. Baseline 5 was introduced in FY1992 DDGs included the Joint Tactical Information Distribution System (JTIDS) [Tactical Data Information Link (TADIL)16], Command and Control Processor (C2P), Combat Direction Finding, Tactical Data Information Exchange System, AN/SLQ-32 (V)3 Active Electronic Counter Countermeasures, and Aegis Extended Range (ER) Missile. B/L 5 was developed in two steps (Phases): Phase 1 integrated AEGIS ER and supported the missile Initial Operational Capability; Phase 3 integrated system upgrades including Defensive Electronic Attack, Track Load Control Algorithms, and Track Initiation Processor (integrated on 5.3, DDGs 68+); JTIDS and the OJ-663 color display Tactical Graphics capability into the ACS. B/L 5 Phase 3 is now resident on baseline 3 and 4 CGs and DDG 51-78. Baseline 6 Phase 1 introduced COTS, Fiber Distributed Data Interface (FDDI), Local Area Network (LAN), UYQ-70 consoles, Cooperative Engagement Capability (CEC) for CGs, and an adjunct COTS computer for AEGIS Display System (ADS). It supported OPEVAL of CEC in CGs 66 and 69 and was introduced in the DDG 51 class beginning with DDG 79. B/L 6 Phase 1 is now resident on CGs 59, 65, 66, 68, 69, and 71. B/L 6 Phase 3 was introduced on DDGs 85-90 and is being backfit onto DDGs 79-84. B/L 6 Phase 3 upgrades included embarked helicopters, Fiber Optics as applied to Data Multiplexing (FODMS), implementation of affordability initiatives, adjunct computers for all AWS elements, CEC for DDGs and Battle Force Tactical Trainer (BFTT), Advanced Display System, Evolved Sea Sparrow Missile (ESSM) Identification (ID) upgrades Phase 1, Advanced TOMAHAWK Weapon System (ATWCS) Phase II, Fire Control System Upgrades, and the Joint Maritime Command Information System (JMCIS). B/L 7 Phase 1 is installed in the DDG 51 class beginning with DDG 91-102 Major Baseline 7 upgrades include but are not limited to introduction and integration of new radar (AN/SPY-1D (V) upgrade), all UYK-43 and adjunct computers to be replaced with COTS-based advanced computer processing, AN/SQQ-89(V)15, and the Remote Mine Hunting System. B/L 7P1R (DDG 103-112) upgrades the computer infrastructure, Close In Weapon System (CIWS), Air Control, and introduced OA products into the main development line. The Modernization Baselines will provide new technology to replace aging military equipment and extend service life to provide viable combatant for naval use into the future. These baselines should reduce the life cycle costs to maintain combat systems and streamline the development of capabilities. Advanced Capability Build - 08 / Technical Insertion - 08 (ACB-08/TI-08)(Cruiser Modernization) Baseline consists of an upgraded computing infrastructure and computer program enhancements to existing warfighting capabilities on CG 52-58. Advanced Capability Build - 12 / Technical Insertion -

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604307N: *Surface Combatant Cmbt Sys Eng*	**PROJECT** 1447: *Surf Combatant Combat System Imp*

12 (ACB-12/TI-12) (AEGIS Modernization) baseline will consists of an upgraded computing infrastructure and computer program enhancements to provide increased warfighting capabilities which will modernize CG 59-73 and DDG 51-78. ACB-12 Destroyer upgrades will consist of NIFC-CA, SM-6, CDS, CPS, MMSP, and BMD. ACB-12 Cruiser Upgrades will consist of NIFC-CA, SM-6, CDS, and CPS. Aegis ACB14 will be limited to a combination of capabilities outlined in OPNAV's ACB14 Development Guidance Letter: Integration of MMSP for Baseline IV CG's, Aegis BMD, MH-60R, IFF Mode S, DWC, SEWIP BLK II, C5I updates, training and selected SBIR.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ADVANCED CAPABILITY BUILD-12 DELTA CONFIGURATION (DDG 113)	0.000	9.859	34.200	0.000	34.200
FY 2010 Plans: Evaluate and update Aegis specification for the integration of ship specific configuration changes identified for DDG 113. Start Computer Program development. *FY 2011 Base Plans:* Continue Code development and start land-based testing to evaluate computer program maturity for Aegis ACB12 DDG 113 delta configuration.					
AEGIS DEVELOPMENT SUPPORT	20.079	38.522	33.916	0.000	33.916
FY 2009 Accomplishments: Provided AEGIS Development Support for the following: Combat Systems Engineering Development Site (CSEDS), Program Generation Center, and Computer Program Test Site (CPTS) in support of AEGIS Computer Program development, testing, and integration for all AEGIS Weapon System (AWS) products. Continue to provide Systems Engineering for labs and field activities to support services; provide Program Management support, Modeling & Simulation, Requirements Management, Warfighting Capability Integration Impacts, and Conceptual Studies. Provides Computer Program License funding to support Land Based Test Site installation, development and test efforts. Provide Commercial Off the Shelf (COTS) Obsolescence issue resolution to support in-service AEGIS Ships and address computer program modification to enable integration of replacement parts. AEGIS Development Support in FY09 is primary support of ACB-12 / TI-12 Development and Test Programs.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	PROJECT 1447: *Surf Combatant Combat System Imp*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue to provide AEGIS Development Support for the following: Combat Systems Engineering Development Site (CSEDS), Program Generation Center, and Computer Program Test Site (CPTS) in support of AEGIS Computer Program development, testing, and integration for all AEGIS Weapon System (AWS) products. Continue to provide Systems Engineering for labs and field activities to support services; provide Program Management support, Modeling & Simulation, Requirements Management, Warfighting Capability Integration Impacts, and Conceptual Studies. Provides Computer Program License funding to support Land Based Test Site installation, development and test efforts. Provide Commercial Off the Shelf (COTS) Obsolescence issue resolution to support in-service AEGIS Ships and address computer program modification to enable integration of replacement parts. AEGIS Development Support in FY09 is primary support of ACB-12 / TI-12 Development and Test Programs. *FY 2011 Base Plans:* Continue to provide AEGIS Development Support for the following: Combat Systems Engineering Development Site (CSEDS), Program Generation Center, and Computer Program Test Site (CPTS) in support of AEGIS Computer Program development, testing, and integration for all AEGIS Weapon System (AWS) products. Continue to provide Systems Engineering for labs and field activities to support services; provide Program Management support, Modeling & Simulation, Requirements Management, Warfighting Capability Integration Impacts, and Conceptual Studies. Provides Computer Program License funding to support Land Based Test Site installation, development and test efforts. Provide Commercial Off the Shelf (COTS) Obsolescence issue resolution to support in-service AEGIS Ships and address computer program modification to enable integration of replacement parts. AEGIS Development Support in FY09 is primary support of ACB-12 / TI-12 Development and Test Programs.					
TECHNOLOGY INSERTION (TI08) *FY 2009 Accomplishments:* Integration of Technology Insertion-08 (TI-08) within Aegis Advanced Capability Build - 08 (ACB-08).	8.730	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	PROJECT 1447: *Surf Combatant Combat System Imp*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continued integration testing of Technology Insertion - 08 (TI-08) and resolve all issues related to Combat System Integration.					
ADVANCED CAPABILITY BUILD-ACB 08 *FY 2009 Accomplishments:* Completed Computer Program development for upgraded capabilities and functionality. Continued Computer Program Testing of Advanced Capability Build - 08 (ACB-08) in support of Certification. Development and Evaluate RCIP capabilities for potential ACB-08 integration. *FY 2010 Plans:* Computer Program Certification completed in October FY10. Evaluate RCIP Approved Capabilities for fielding in ACB 08 platforms and following development efforts. *FY 2011 Base Plans:* Evaluate RCIP Approved Capabilities for fielding in ACB-08 platforms and following development efforts.	24.050	6.970	1.600	0.000	1.600
TECHNOLOGY INSERTION (TI 12) *FY 2009 Accomplishments:* Completed Preliminary Design Review (PDR) and supported the Critical Design Review (CDR) for Common Display Systems (CDS). Supported TI-12 System Specification. Reviewed (SSR) and PDR to address Common Processor System (CPS). Continued CDS and CPS Integration within TI 12. *FY 2010 Plans:* Support Aegis ACB 12 Test efforts to address and resolve hardware related issues.	6.913	9.566	3.175	0.000	3.175

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	PROJECT 1447: *Surf Combatant Combat System Imp*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Support Aegis ACB 12 / TI 12 Development effort focusing on the integration of various hardware components including CDS, CPS, Network and LAN to ensure all hardware requirements are understood and implemented for Combat System equipment.					
ADVANCED CAPABILITY BUILD-ACB 12 *FY 2009 Accomplishments:* Completed ACB12 Preliminary Design Review and started Combat System code development efforts. Completed Test Program Review (TPR) to define development test effort. Completed technical efforts required to support the successful completion of Critical Design Review in Nov 2009. *FY 2010 Plans:* Complete Critical Design Review and execute Test Program. Continue Computer Program development efforts and integration of new functionality. *FY 2011 Base Plans:* Complete Test Readiness Review (TRR) and start initial system test of Aegis Advanced Capability Build - 12.	70.557	79.459	72.405	0.000	72.405
ADVANCED CAPABILITY BUILD-ACB 14 *FY 2010 Plans:* Commence development efforts for MH-60R, MMSP, and Aegis BMD capabilities within the Aegis ACB14 Combat System. Aegis ACB14 scope will be limited to a combination of capabilities outlined in OPNAV's ACB14 Development Guidance Letter: Integration of MMSP for Baseline IV CG's, Aegis BMD, MH-60R, IFF Mode S, DWC, SEWIP BLK II, C5I updates, training and selected SBIR.	0.000	8.645	27.140	0.000	27.140

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604307N: *Surface Combatant Cmbt Sys Eng*	**PROJECT** 1447: *Surf Combatant Combat System Imp*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Complete System Specification Review (SSR) and System Design Review (SDR) to support and address ACB14 system requirements.					
MULTI MISSION SIGNAL PROCESSOR *FY 2009 Accomplishments:* FY09 Accomplishment: Completed Critical Design Review (CDR). Provide Multi Mission signal processor to Land Based Test Site.	41.549	0.000	0.000	0.000	0.000
NAVAL INTEGRATED FIRE CONTROL-COUNTER AIR *FY 2009 Accomplishments:* Completed In-Progress Review (IPR). Conducted performance analysis and trade studies, modeling studies SM-6 algorithmic studies and complete simulation to assist in design development. Supported the NIFC-CA Critical Design Review development efforts for Aegis ACB-12. *FY 2010 Plans:* Support the ACB-12 Critical Design Review. Complete ACB-12 computer program modifications to achieve NIFCCA capability. Initiate computer program test. Commence upgrade to White Sands Missile Range (WSMR) Aegis Desert Ship Fire Control System (FCS) to support NIFC-CA test. *FY 2011 Base Plans:* Support the NIFC-CA development and integration and test within Aegis ACB-12. Support Desert Ship upgrade and NIFC-CA System of System test events.	19.421	24.678	21.497	0.000	21.497
DAWDF Defense Acquisition Workforce Development Fund	0.907	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	PROJECT 1447: *Surf Combatant Combat System Imp*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Defense Acquisition Workforce Development Fund					
Accomplishments/Planned Programs Subtotals	192.206	177.699	193.933	0.000	193.933

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
• R&D 0604501N: *Multi Mission Signal Processor*	0.000	32.961	32.607	0.000	32.607	30.948	27.806	16.500	19.476	Continuing	Continuing
• SCN 2122: *DDG 51*	199.403	2,483.579	2,970.174	0.000	2,970.174	2,171.638	3,414.686	2,059.603	3,802.227	Continuing	Continuing
• OPN 0960: *CG Modernization*	165.165	313.149	356.958	0.000	356.958	448.737	575.985	632.640	253.809	Continuing	Continuing
• OPN 5246: *AEGIS Support Equipment*	87.120	101.420	162.307	0.000	162.307	63.039	58.516	81.060	63.485	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
• R&D 0603879N PU 3031: *SIAP (IABM Integration for DDG*	40.385	52.497	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	92.882
• R&D 0604378N PU 3159: *NIFC-CA*	9.287	11.678	21.517	0.000	21.517	19.910	21.791	4.916	5.016	Continuing	Continuing
• OPN 2980: *Multi Mission Signal Processor*	0.200	18.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy

Combat System Improvements are implemented in Baselines as described in the project mission statement. In FY 1998, Lockheed Martin was awarded an omnibus contract (sole source) to develop and integrate combat system improvements, which supported AEGIS Baseline Upgrade Development efforts. After the combat system is completed and tested, the

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	PROJECT 1447: *Surf Combatant Combat System Imp*

computer program and associated equipment are delivered to the new construction shipbuilders and modernization shipyards where the program and equipment are installed and tested along with all other elements of the shipboard combat system and associated combat support systems. The computer program is a Government Furnished Equipment (GFE)
deliverable to the Production Test Center for equipment test and check out. Future Combat System delivery will be provided in Advanced Capability Builds (ACBs) and Technical Insertions (TIs) using a sole source contract to provide the Platform System Engineering Agent (PSEA). Additional Contracts will be awarded to address ACB-12 development,
Sites Management, and Multi-Mission Signal Processor (MMSP) development.

E. Performance Metrics

Combat System development efforts will complete major development milestones. Major milestones for Advanced Capability Build (ACB) 12 include successful completion of Critical design Review in first quarter of FY10, In-Progress Review (IPR) #4 in third quarter of FY10, In-Progress Review (IPR) in first quarter of FY11, Test Readiness Review (TRR) #1 in fouth quarter of FY11, Test Readiness Review (TRR) #2 in fourth Quarter of FY12, and Final Certification in second quarter of FY14. Major milestones for ACB 14 include System Requirements Review (SRR) in second quarter FY11, System Design Review (SDR) in fourth quarter of FY11, Preliminary Design Review (PDR) in third quarter of FY12, and Critical Design Review (CDR) in second Quarter of 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	PROJECT 1447: *Surf Combatant Combat System Imp*	

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	SS/CPAF	Lockheed Martin Moorestown, NJ	1,444.969	101.868	Dec 2009	117.989	Dec 2010	0.000		117.989	0.000	1,664.826	Continuing
Systems Engineering	SS/CPFF	APL Baltimore, MD	31.928	6.520	Nov 2009	6.520	Nov 2010	0.000		6.520	0.000	44.968	Continuing
Systems Engineering	WR	NSWC Dahlgren, VA	210.586	27.949	Nov 2009	28.112	Nov 2010	0.000		28.112	0.000	266.647	Continuing
Systems Engineering	SS/CPAF	BAE Systems Rockville, MD	28.984	3.315	Feb 2010	3.315	Feb 2011	0.000		3.315	0.000	35.614	Continuing
Systems Engineering	WR	NSWC Port Hueneme, CA	39.246	5.853	Nov 2009	6.145	Nov 2010	0.000		6.145	0.000	51.244	Continuing
Systems Engineering	WR	NWAS Corona, CA	25.607	0.600	Nov 2009	0.600	Nov 2010	0.000		0.600	0.000	26.807	Continuing
System Engineering	WR	SPAWAR San Diego, CA	8.719	0.380	Nov 2009	0.390	Nov 2010	0.000		0.390	0.000	9.489	Continuing
Systems Engineering	WR	Various Various	59.248	17.523	Dec 2009	17.120	Dec 2010	0.000		17.120	0.000	93.891	Continuing
Award fees	SS/CPAF	Lockheed Martin Moorestown, NJ	184.223	7.436	Jul 2010	7.490	Dec 2010	0.000		7.490	0.000	199.149	Continuing
Award fees	SS/CPAF	BAE Systems Rockville, MD	1.875	0.087	Feb 2010	0.089	Feb 2011	0.000		0.089	0.000	2.051	Continuing
Award fees	SS/CPAF	Alion Science Washington DC	1.250	0.290	Dec 2009	0.290	Dec 2010	0.000		0.290	0.000	1.830	Continuing
Award fees	WR	Various Various	4.590	1.644	Jul 2010	1.644	Jul 2011	0.000		1.644	0.000	7.878	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	PROJECT 1447: *Surf Combatant Combat System Imp*

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
		Subtotal	2,041.225	173.465		189.704		0.000		189.704	0.000	2,404.394	

Remarks

Consist of multiple performing activities with funding for each no greater than $1 million per year.

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	WR	Department of Interior Various	36.990	0.150	Jul 2010	0.150	Jul 2011	0.000		0.150	0.000	37.290	Continuing
Test and Evaluation	WR	NAVAIR Pax River, MD	11.216	0.095	Nov 2009	0.095	Nov 2010	0.000		0.095	0.000	11.406	Continuing
Test and Evaluation	WR	Various Various	22.749	0.147	Jul 2010	0.229	Jul 2011	0.000		0.229	0.000	23.125	Continuing
		Subtotal	70.955	0.392		0.474		0.000		0.474	0.000	71.821	

Remarks

Consist of multiple performing activities with funding for each no greater that $1 million 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	PROJECT 1447: *Surf Combatant Combat System Imp*

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	SS/CPAF	Alion Science Washington DC	19.176	1.115	Feb 2010	1.115	Feb 2011	0.000		1.115	0.000	21.406	Continuing
Program Management Support	SS/CPAF	BAE Systems Rockville, MD	9.626	0.000		0.000		0.000		0.000	0.000	9.626	Continuing
Program Management Support	SS/CPAF	Miscellaneous Various	0.000	1.377	Dec 2009	1.290	Dec 2010	0.000		1.290	0.000	2.667	Continuing
Program Management Support	SS/CPAF	SAIC Mclean, VA	0.000	1.350	Dec 2009	1.350	Dec 2010	0.000		1.350	0.000	2.700	Continuing
DAWDF	Various/ Various	Various Various	0.907	0.000		0.000		0.000		0.000	0.000	0.907	Continuing
		Subtotal	29.709	3.842		3.755		0.000		3.755	0.000	37.306	

Remarks

Consist of multiple performing activities with funding no greater than $1 million per year.

	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	2,141.889	177.699		193.933		0.000		193.933	0.000	2,513.521	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604307N: *Surface Combatant Cmbt Sys Eng*	**PROJECT** 1447: *Surf Combatant Combat System Imp*

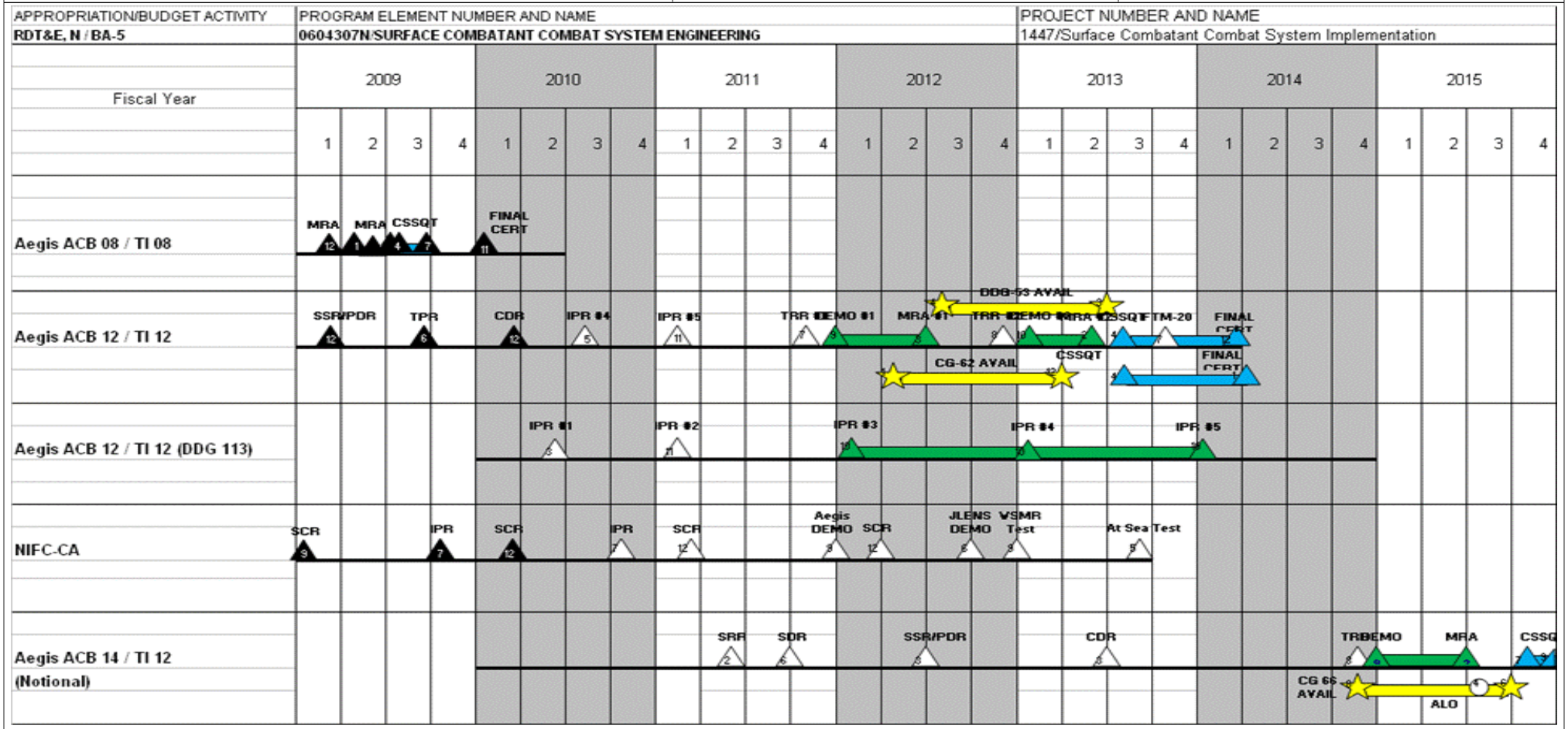


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	PROJECT 1447: *Surf Combatant Combat System Imp*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
ADVANCED CAPABILITY BUILD-08: MISSION READINESS ASSESSMENT (MRA) FOR DEC 08 unc	1	2009	3	2009
ADVANCED CAPABILITY BUILD-08: MISSION READINESS ASSESSMENT for CSSQT	3	2009	3	2009
ADVANCED CAPABILITY BUILD-08: COMBAT SYSTEM SHIP QUALIFICATION TEST (CSSQT)	3	2009	3	2009
ADVANCED CAPABILITY BUILD-08: FINAL CERTIFICATION/COMPUTER PROGRAM ACCEPTANCE PA	1	2010	1	2010
ADVANCED CAPABILITY BUILD-12: SYSTEM SPECIFICATION REVIEW (SSR)	1	2009	1	2009
ADVANCED CAPABILITY BUILD-12: PRELIMINARY DESIGN REVIEW (PDR)	1	2009	1	2009
ADVANCED CAPABILITY BUILD-12: TEST PROGRAM REVIEW (TPR)	3	2009	3	2009
ADVANCED CAPABILITY BUILD-12: CRITICAL DESIGN REVIEW (CDR)	1	2010	1	2010
ADVANCED CAPABILITY BUILD-12: TEST READINESS REVIEW (TRR)	4	2011	4	2011
ADVANCED CAPABILITY BUILD 12: TEST READINESS REVIEW (TRR) #2	2	2013	2	2013
ADVANCED CAPABILITY BUILD-12: MISSION READINESS REVIEW (MRA)	2	2012	2	2012
ADVANCED CAPABILITY BUILD-12: MISSION READINESS REVIEW (MRA) #2	2	2013	2	2013
ADVANCED CAPABILITY BUILD-12: CSSQT (DDG 53 & CG 52)	3	2013	3	2013
ADVANCED CAPABILITY BUILD-12: COMBAT SYSTEM SHIP QUALIFICATION TEST	3	2013	4	2013
ADVANCED CAPABILITY BUILD-12: FLIGHT TEST MISSION	4	2013	4	2013
ADVANCED CAPABILITY BUILD-12: FINAL CERTIFICATION (DDG 53)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	PROJECT 1447: *Surf Combatant Combat System Imp*

	Start		End	
Event	Quarter	Year	Quarter	Year
ADVANCED CAPABILITY BUILD-12: FINAL CERTIFICATION (CG 62)	2	2014	2	2014
ADVANCED CAPABILITY BUILD-12: (DDG 113) IN PROGRESS REVIEW (IPR) #1	2	2010	2	2010
ADVANCED CAPABILITY BUILD-12: (DDG 113) IN PROGRESS REVIEW (IPR) #2	1	2011	1	2011
ADVANCED CAPABILITY BUILD-12: (DDG 113) IN PROGRESS REVIEW (IPR) #3	1	2012	1	2012
ADVANCED CAPABILITY BUILD-12: (DDG 113) IN PROGRESS REVIEW (IPR) #4	1	2013	1	2013
ADVANCED CAPABILITY BUILD-12: (DDG 113) IN PROGRESS REVIEW (IPR) #5	1	2014	1	2014
NIFC-CA IN PROCESS REVIEW (IPR) 3	4	2009	4	2009
NIFC-CA IN PROCESS REVIEW (IPR) 4	4	2010	4	2010
NIFC-CA AEGIS DEMONSTRATION	4	2011	4	2011
NIFC-CA: JLENS DEMONSTRATION	3	2012	3	2012
NIFC-CA: WSMR TEST	4	2012	4	2012
ADVANCED CAPABILITY BUILD 14: SYSTEM REQUIREMENTS REVIEW (SRR)	2	2011	2	2011
ADVANCED CAPABILITY BUILD 14: SYSTEM DESIGN REVIEW (SDR)	3	2011	3	2011
ADVANCED CAPABILITY BUILD 14: PRELIMINARY DESIGN REVIEW (PDR)	2	2012	2	2012
ADVANCED CAPABILITY BUILD 14: CRITICAL DESIGN REVIEW (CDR)	2	2013	2	2013
ADVANCED CAPABILITY BUILD 14: TEST READINESS REVIEW (TRR)	4	2014	4	2014
ADVANCED CAPABILITY BUILD 14: COMBAT SYSTEM SHIP QUALIFICATION TEST (CSSQT)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604307N: *Surface Combatant Cmbt Sys Eng*	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*	4.787	5.576	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	28.936
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: Advanced Capability Build 12 and 14 *FY 2010 Plans:* FY10 Congressional add supports research and development efforts in conjuction with Aegis Advanced Capability Builds (ACB)12 and 14.	0.000	1.593
Congressional Add: Aegis Research and Development *FY 2010 Plans:* FY10 Congressional add supports research and development efforts in conjuction with future Aegis implementations.	0.000	3.983
Congressional Add: Adaptive Diagnostic Electronic Portable Testset (A	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604307N: *Surface Combatant Cmbt Sys Eng*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: FY09 Congressional add supports development of Display Systems throughout the Surface Navy Fleet beginning with Aegis Class ships. This effort will standardize aging provide funding for improved distance support capabilities.		
Congressional Add: Aegis Combat Information Center Modernization *FY 2009 Accomplishments:* FY09 Congressional add supports development of Display Systems throughout the Surface Navy Fleet beginning with Aegis Class ships. This effort will standardize aging hardware display components and replace them with state of the art software applications for implementation within the Common Display System (CDS).	3.989	0.000
Congressional Adds Subtotals	4.787	5.576

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604311N: *LPD-17 Class Systems 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**
Total Program Element	0.950	5.282	1.373	0.000	1.373	2.780	12.054	17.752	19.652	Continuing	Continuing
2283: *LPD-17 Class System Integration*	0.950	5.282	1.373	0.000	1.373	2.780	12.054	17.752	19.652	Continuing	Continuing

A. Mission Description and Budget Item Justification

The LPD 17 Class ships are functional replacements for 41 ships of four classes of amphibious ships. These new ships embark, transport, and land elements of Marine landing forces in an amphibious assault by helicopters, landing craft, and amphibious vehicles. Tactics, techniques, and tools for naval expeditionary warfare continue to evolve. The LPD 17 Class configuration must continue to adapt to this evolutionary process as theses ships are expected to be in service until almost 2050. The LPD 17 design includes system configurations that reduce operating and support costs and facilitate operational performance improvements. The RDT&E,N funding will be used for system engineering and integration efforts to resolve obsolescence issues facing the LPD 17 class components, as well as develop further reductions in life cycle costs, and will integrate performance upgrades in a rapid, affordable manner. These efforts will result in well-defined specifications and drawings in system integration design packages that provide technical baselines for follow-on ship procurements. This program is funded under Engineering and Manufacturing Development because it encompasses engineering and manufacturing development of new end-items prior to production approval decision. Additionally, although operational testing ends in FY2008, funding is required in FY2010 for Follow On Test and Evaluation(FOT&E) as outlined in the Test and Evaluation Master Plan. Finally, LSD(R) Integration efforts begin 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604311N: *LPD-17 Class Systems Integration*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.982	5.304	0.000	0.000	0.000
Current President's Budget	0.950	5.282	1.373	0.000	1.373
Total Adjustments	-0.032	-0.022	1.373	0.000	1.373
• Congressional General Reductions		-0.022			
• 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	-0.032	0.000			
• Program Adjustments	0.000	0.000	1.373	0.000	1.373

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604311N: *LPD-17 Class Systems Integration*	PROJECT 2283: *LPD-17 Class System 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
2283: *LPD-17 Class System Integration*	0.950	5.282	1.373	0.000	1.373	2.780	12.054	17.752	19.652	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The LPD 17 Class ships are functional replacements for 41 ships of four classes of amphibious ships. These new ships embark, transport, and land elements of Marine landing forces in an amphibious assault by helicopters, landing craft, and amphibious vehicles. Tactics, techniques, and tools for naval expeditionary warfare continue to evolve. The LPD 17 Class configuration must continue to adapt to this evolutionary process, because these ships are expected to be in service until almost 2050. The LPD 17 design includes system configurations that reduce operating and support costs and facilitate operational performance improvements. System engineering and integration efforts that began in FY 1997 will develop further reductions in life cycle costs and will integrate performance upgrades in a rapid, affordable manner. Possible improvements include advanced sensors, advanced computers, advanced command and control software, advanced information systems technologies, and ship based logistics concepts. Cost reduction and improved performance will be accomplished through sustained modeling and simulation efforts, continued personnel reductions efforts, system performance tradeoff evaluation, and naval expeditionary warfare systems engineering. Feedback from the operational forces for integrating system configurations will be accomplished through the Naval Expeditionary Warfare Centers in Quantico, Dahlgren, and Little Creek, Virginia. These efforts will result in well-defined specifications and drawings in system integration design packages that provide technical baselines for follow-on ship procurements. Additionally, although operational testing ends in FY2008, funding is required in FY2010 for Follow On Test and Evaluation (FOT&E) as outlined in the Test and Evaluation Master Plan. Finally, LSD(R) Integration efforts begin in FY 2010.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
LSD(R) Systems Integration	0.000	0.228	0.421	0.000	0.421
LSD(R) Systems Integration. LSD(R) is a replacement for the retiring LSD 41 and LSD 49 Classes (that may be based in the LPD 17 hull form). RDTEN profiles supports necessary preliminary efforts.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604311N: *LPD-17 Class Systems Integration*	PROJECT 2283: *LPD-17 Class System Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Preparation of documentation for Gate process and Defense Acquisition Board(DAB) to define the way ahead for LSD(R). *FY 2011 Base Plans:* Continue development of documentation for Gate Process and Defense Acquisition Board(DAB).					
Systems Engineering/Integration Continuing Naval Expeditionary Warfare Systems Engineering efforts and integration efforts for unique LPD 17 Class systems, including efforts to resolve obsolescence issues impacting the class. *FY 2009 Accomplishments:* Marine gas (MOGAS) Rack Production and Test, 4000 AMP Circuit Breaker Replacement Qualification, Air and Surface Defense Combat System Capabilities and Limitation Documents, Operational Test Plan Development, Operational Test Support, Demonstration and Procedures Plan(DPP), and USMC Communication Exercise Support. *FY 2010 Plans:* Conducting Bipolar Power Amplifier Unit(BPAU) Degaussing Controller Unit Reliability Study, SMART/ SAN Antonio Study, and Ship Control System(SCS) Electronic Data Recorder(EDR) Analysis. Training System and Gap Analysis to identify and validate manpower and training, Operational Test Plan Development, Demonstration and Procedures Plan(DPP) Support, USMC Communication Exercise Support, LPD 17 JITC Certification/OPEVAL Support, FOT&E MARCORSYSCOM Support, Advanced Enclosed Mast/Sensor(AEM/S) Access Study, and Radar Cross-Section Reduction(RCSR) Testing of MOGAS Rack.	0.945	0.954	0.952	0.000	0.952

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604311N: *LPD-17 Class Systems Integration*	PROJECT 2283: *LPD-17 Class System Integration*

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 Bipolar Power Amplifier Unit(BPAU) Degaussing Controller Unit Reliability Study, SMART/SAN Antonio Study, and Ship Control System(SCS) Electronic Data Recorder(EDR) Analysis. Continue the Training System process and GAP Analysis to identify and validate manpower and training, Operational Test Plan Development, Demonstration and Procedures Plan(DPP) Support, USMC Communication Exercise Support, LPD 17 JITC Certification/OPEVAL Support, Follow On Test and Evaluation (FOT&E) MARCORSYSCOM Support, Advanced Enclosed Mast/Sensor(AEM/S) Access Study, and Radar Cross-Section Reduction(RCSR) Testing of MOGAS Rack.					
OT&E Funding allows for operational test force support, range time, procurement of rounds/targets for testing, and other related costs as defines by the Test and Evaluation Master Plan (TEMP). FY2010 funding is for Follow On Test & Evaluation (FOT&E). *FY 2010 Plans:* Completion of OPEVAL Report corrections, and designated FOT&E test events.	0.000	4.100	0.000	0.000	0.000
Defense Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded Defense Acquisition Workforce Fund	0.005	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.950	5.282	1.373	0.000	1.373

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
• BLI3036001: *LPD 17*	963.011	869.394	0.000	0.000	0.000	1,856.587	0.000	0.000	0.000	0.000	3,688.992

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604311N: *LPD-17 Class Systems Integration*	PROJECT 2283: *LPD-17 Class System 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
• BLI3036002: *LPD 17 SCN AP*	0.000	183.986	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	183.986

D. Acquisition Strategy

N/A

E. Performance Metrics

LPD17 Class ships will conduct Follow On Test and Evaluation(FOT&E) as outlined in the test and evaluation Master Plan, with LSD(R) Integration efforts to follow.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604311N: *LPD-17 Class Systems Integration*	PROJECT 2283: *LPD-17 Class System 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
Systems Engineering and Integration	C/Various	Various Various	10.759	0.954	Dec 2009	0.952		0.000		0.952	0.000	12.665	Continuing
LSD(R) Systems Integration (Next Gen.)	C/Various	Various Various	0.000	0.228		0.421		0.000		0.421	0.000	0.649	Continuing
DAWF	C/Various	Various Various	0.005	0.000		0.000		0.000		0.000	0.000	0.005	Continuing
		Subtotal	10.764	1.182		1.373		0.000		1.373	0.000	13.319	

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
OT&E/Interoperability	WR	OPTEVFOR WR	11.392	4.100		0.000		0.000		0.000	0.000	15.492	Continuing
		Subtotal	11.392	4.100		0.000		0.000		0.000	0.000	15.492	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604311N: *LPD-17 Class Systems Integration*	PROJECT 2283: *LPD-17 Class System 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	22.156	5.282		1.373		0.000		1.373	0.000	28.811	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604311N: *LPD-17 Class Systems Integration*	PROJECT 2283: *LPD-17 Class System Integration*

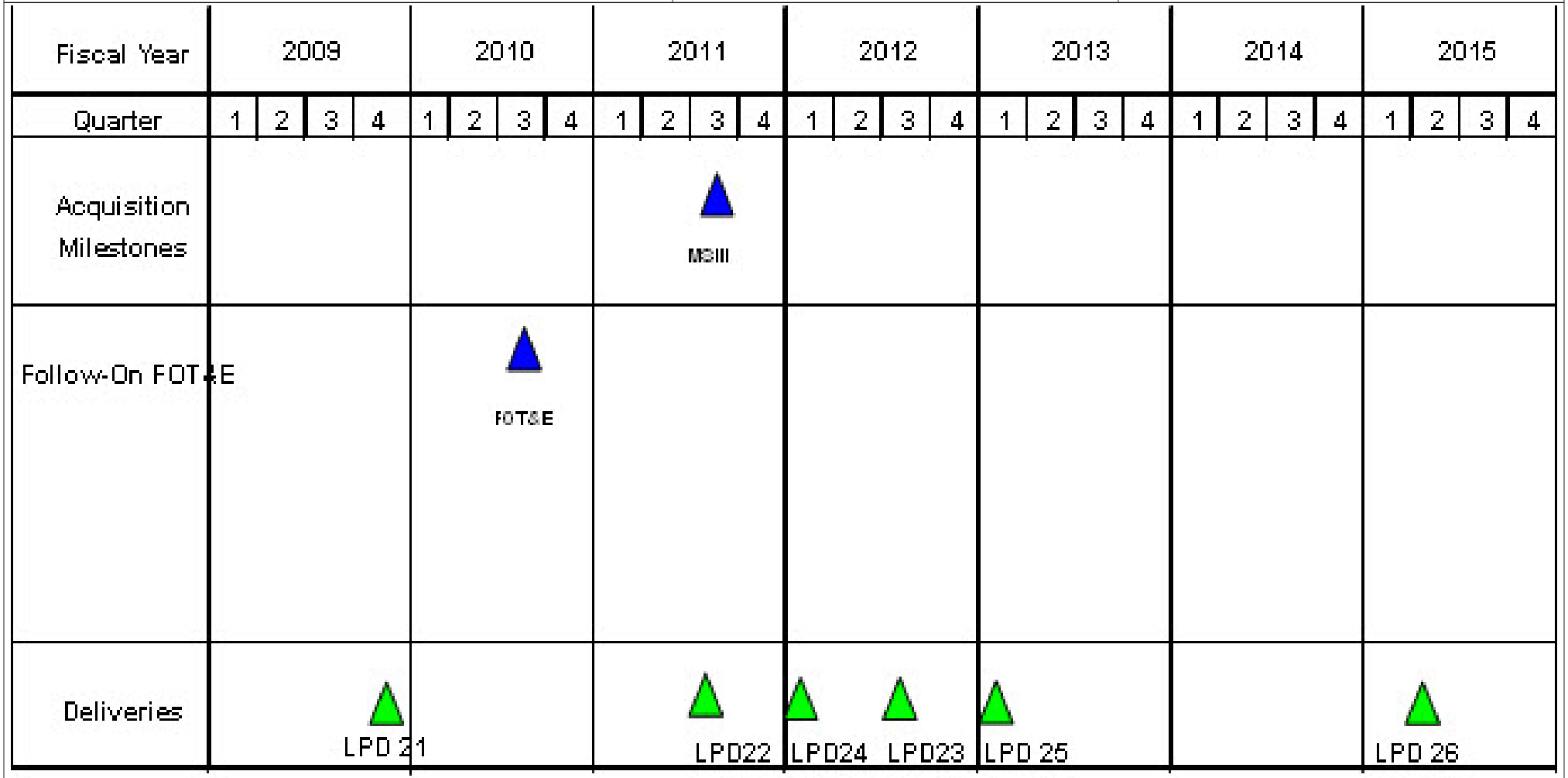


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604311N: *LPD-17 Class Systems Integration*	**PROJECT** 2283: *LPD-17 Class System Integration*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Deliverables (LPD 21)	4	2009	4	2009
Deliverables (LPD 22)	3	2011	3	2011
Dleiverables (LPD 23)	1	2012	1	2012
Deliverables (LPD 24)	3	2012	3	2012
Deliverables (LPD 25)	1	2013	1	2013
Deliverables (LPD 26)	2	2015	2	2015
FOT&E	2	2010	3	2010
Milestone III	3	2011	3	2011

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604329N: *Small Diameter Bomb (SDB)*							
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	18.918	43.717	44.091	0.000	44.091	74.918	37.598	42.912	39.964	Continuing	Continuing
3072: *Small Diameter Bomb (SDB)*	18.918	43.717	44.091	0.000	44.091	74.918	37.598	42.912	39.964	Continuing	Continuing

Note

In FY 2010, funding for Hard Target Void Sensing Fuze (HTVSF) and Joint Surface Warfare (JSuW) have been moved to PE 0604659N, PU 3214 and PU 3215, respectively.

A. Mission Description and Budget Item Justification

Small Diameter Bomb (SDB) Increment II is an ACAT ID program providing the warfighter a capability to attack mobile targets in all weather from Stand-Off. The Air Force is the executive service. SDB Increment II addresses the following warfighter requirements: attack mobile targets; multiple kills per pass; multiple ordnance carriage; all weather operations; near-precision munitions capability; capability against fixed targets; reduced munitions footprint; increased weapons effectiveness; minimized potential for collateral damage; reduced susceptibility of munitions to countermeasures; and a migration path to net centric ops capability. Threshold aircraft is the F-15E for the Air Force and F-35 B and F-35 C for the Navy. Objective aircraft include the F/A-22, B-1, B-2, F-117, F-16, B-52, Predator B, and F/A-18 E/F . SDB II must be operable on the Miniature Munitions Smart Rack BRU-61/A . This rack is currently in production in the USAF, but has never been qualified to DoN environments, nor flown internally in any variant of F-35. Efforts include a Dual Power modification, ensuring adequate power supplied to BRU-61 to meet the SDBII operating environment. SDB Increment II will continue incremental development to pursue network CENTRIC interoperability. SDB increment II is a key component of the Air Force's Global Strike Task Force CONOP.

Navy funding will provide for risk reduction activities, participation in common efforts, F-35B and F-35C integration efforts, to include Operational Flight Plan (OFP) development, and development and evaluation of Navy-unique and interoperability requirements, to include BRU-61/A efforts. Navy SDB II Initial Operating Capability is scheduled for FY 2016 on JSF Short Take-Off Vertical Landing (STOVL) F-35B and Navy Variant (F-35C) aircraft. Additionally, FY 2009 and prior year Navy funding is provided to conduct weapons data link message development and testing through Joint Capability Technology Demonstration (JCTD) efforts to achieve risk reduction efforts and weapons interoperability. The Joint Surface Warfare (JSuW) is one current JCTD being conducted to analyze weapons data link message development.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604329N: *Small Diameter Bomb (SDB)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	19.485	43.902	0.000	0.000	0.000
Current President's Budget	18.918	43.717	44.091	0.000	44.091
Total Adjustments	-0.567	-0.185	44.091	0.000	44.091
• Congressional General Reductions		-0.182			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.003			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.567	0.000			
• Program Adjustments	0.000	0.000	44.091	0.000	44.091

Change Summary Explanation

Technical: Ship Suitability is more accurately defined as the BRU-61/A efforts. Included in those are the Dual Power and SDB II Qualification efforts.

Schedule: As a result in the delay of the approved Acquisition Strategy the following milestones have changed : Milestone B from 1Q FY10 to 2Q FY10, Critical Design Review (CDR) from 1Q FY10 to 3Q FY10, EMD Downselect from 1Q FY10 to 2Q FY10 and Engineering Manufacturing and Development (EMD) from 1Q FY10 to 2Q FY10. Additionally, System Development and Demonstration changed terminology to EMD per new DoDI 5000.02 instruction.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604329N: *Small Diameter Bomb (SDB)*	PROJECT 3072: *Small Diameter Bomb (SDB)*	

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
3072: *Small Diameter Bomb (SDB)*	18.918	43.717	44.091	0.000	44.091	74.918	37.598	42.912	39.964	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Small Diameter Bomb (SDB) Increment II is an ACAT ID program providing the warfighter a capability to attack mobile targets in all weather from Stand-Off. The Air Force is the executive service. SDB Increment II addresses the following warfighter requirements: attack mobile targets; multiple kills per pass; multiple ordnance carriage; all weather operations; near-precision munitions capability; capability against fixed targets; reduced munitions footprint; increased weapons effectiveness; minimized potential for collateral damage; reduced susceptibility of munitions to countermeasures; and a migration path to net centric ops capability. Threshold aircraft is the F-15E for the Air Force and F-35 B and F-35 C for the Navy. Objective aircraft include the F/A-22, B-1, B-2, F-117, F-16, B-52, Predator B, and F/A-18 E/F . SDB II must be operable on the Miniature Munitions Smart Rack BRU-61/A . This rack is currently in production in the USAF, but has never been qualified to DoN environments, nor flown internally in any variant of F-35. Efforts include a Dual Power modification, ensuring adequate power supplied to BRU-61 to meet the SDBII operating environment. SDB Increment II will continue incremental development to pursue network CENTRIC interoperability. SDB increment II is a key component of the Air Force's Global Strike Task Force CONOP.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Contractor Risk Reduction	2.380	0.000	0.000	0.000	0.000
Funding provides for SDB risk reduction efforts. *FY 2009 Accomplishments:* Participate in the 42-month risk reduction phase with Boeing and Raytheon. The Navy's participation is to ensure Navy-unique requirements are included in SDB II design and development and to understand interoperability requirements.					
Conduct Weapon Data Link Testing/JSUW/HTVSF	9.900	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604329N: *Small Diameter Bomb (SDB)*	PROJECT 3072: *Small Diameter Bomb (SDB)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Funding provides for Joint Surface Warfare (JSuW) and Hard Target Void Sensing Fuze (HTVSF) weapon data link testing. *FY 2009 Accomplishments:* Conduct Weapons Data Link message development and testing. This will facilitate the incorporation of these new message sets into the JSF when the aircraft becomes available. In FY09, funding is provided to accomplish JSuW efforts and HTVSF efforts. Both efforts will enhance Strike Warfare survivability in development of Small Diameter Bomb II.					
SDB II Weapon Support and Integration Funding provides for design, development, integration and testing of SDB for the F35 B and C. *FY 2009 Accomplishments:* Government and Support Contractor participation in risk reduction activities to include Seeker and Other Trade Studies, Joint Strike Fighter fit checks, Shipboard Suitability, Electromagnetic Environmental Effects, System Safety, Climatic/Dynamic Environments, catapulted/arrested landings testing, multiple weapon carriage system requirements, and other risk reduction activities. Efforts include F-35 Lockheed Martin and JPO support of SDB II integration on JSF OFP Block 3.X. 3.X was created to ensure SDB II would maintain its FY16 IOC date. *FY 2010 Plans:* Support SDB II Prime contractor source selection and Engineering Manufacturing Development (EMD); begin integration of SDB II with JSF B and C, to include wind tunnel testing and BRU-61/A efforts. *FY 2011 Base Plans:* Continue support of EMD; integration of SDB II with JSF B and C.	6.638	43.717	44.091	0.000	44.091
Accomplishments/Planned Programs Subtotals	18.918	43.717	44.091	0.000	44.091

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604329N: *Small Diameter Bomb (SDB)*	PROJECT 3072: *Small Diameter Bomb (SDB)*

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/223800: *Small Diameter Bomb II*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.341	898.500	914.841
• 0604329F: *Small Diameter Bomb*	122.568	155.415	153.505	0.000	153.505	162.393	128.606	69.545	68.529	0.000	1,115.894
• MPAF/0207327F: *Small Diameter Bomb*	0.000	0.000	0.000	0.000	0.000	0.000	39.408	57.122	74.184	1,583.416	1,754.130

D. Acquisition Strategy

The SDB Increment II acquisition strategy is to conduct a full and open competition to select up to two contractors to compete during a planned 42-month risk reduction phase prior to entering EMD. This competition began April 17, 2006 with the signature of contracts to the competing contractors: 1) Raytheon and 2) the team of Boeing and Lockheed Martin. An EMD and Production Fixed Price-type contract is planned to be awarded in FY 2010.

The Navy funding will support Navy-unique efforts for SDB Increment II, such as aircraft integration, ship suitability, studies and analysis, and program management and government in-house support. These efforts will be performed on several cost-type contracts or through cost reimbursable work requests to government activities and contractors.

E. Performance Metrics

Earned Value Management (EVM) will be implemented on the EMD contract with the winning weapon contractor after Milestone B, currently scheduled for April 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604329N: *Small Diameter Bomb (SDB)*	PROJECT 3072: *Small Diameter Bomb (SDB)*	

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	McDonnell Douglas Corp St. Louis, MO	4.393	0.000		0.000		0.000		0.000	0.000	4.393	4.393
Primary Hardware Development	C/CPFF	Raytheon Missile Systems Tucson, AZ	4.393	0.000		0.000		0.000		0.000	0.000	4.393	4.393
Aircraft Integration	C/CPFF	Lockheed Martin Fort Worth, TX	6.579	13.077	May 2010	9.027	Nov 2010	0.000		9.027	46.344	75.027	75.027
Primary Hardware Development (JSuW)	C/CPFF	Raytheon Missile Systems Tucson, AZ	2.600	0.000		0.000		0.000		0.000	0.000	2.600	2.600
Ship Suitability	C/CPFF	McDonnell Douglas Corp St. Louis, MO	7.799	18.278	Dec 2009	4.000	Dec 2010	0.000		4.000	17.079	47.156	47.156
Primary Hardware Development	C/CPFF	TBD TBD	0.000	2.622	May 2010	10.330	Dec 2010	0.000		10.330	20.659	33.611	33.611
Aircraft Integration	C/FFP	TBD TBD	0.000	0.000		2.131	Dec 2010	0.000		2.131	11.314	13.445	13.445
		Subtotal	25.764	33.977		25.488		0.000		25.488	95.396	180.625	180.625

Remarks

McDonnell Douglas Corp and Raytheon Missile Systems Primary H/W Development Prior Year through FY09 includes costs for the 42-month risk reduction phase. Funding for McDonnell Douglas represents the Boeing/Lockheed Martin team. Primary H/W and Aircraft Integration TBD in FY10 and out reflects the winning SDB II contractor. FY09 Primary H/W RMS, Tucson, AZ supports the JSuW efforts. Ship suitability efforts for McDonnell Douglas Corp include efforts for BRU-61 Carriage System. Award dates for Primary Hardware Development and Aircraft Integration in FY 2010 have slipped to May to correspond with the SDB II Milestone B decision.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604329N: *Small Diameter Bomb (SDB)*	PROJECT 3072: *Small Diameter Bomb (SDB)*

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/CPFF	McDonnell Douglas St. Louis, MO	5.935	0.000		0.000		0.000		0.000	0.000	5.935	5.935
Software Development	SS/CPFF	Various Various	7.290	0.000		0.000		0.000		0.000	0.000	7.290	7.290
Software Development	WR	NAWC WD China Lake, CA	1.490	0.000		0.000		0.000		0.000	0.000	1.490	Continuing
Software Development	C/CPFF	Lockheed Martin Ft. Worth, TX	0.000	0.000		4.381	Nov 2010	0.000		4.381	13.679	18.060	18.060
Studies & Analyses	C/CPFF	Johns Hopkins University Baltimore, MD	2.695	0.000		0.000		0.000		0.000	0.000	2.695	2.695
		Subtotal	17.410	0.000		4.381		0.000		4.381	13.679	35.470	33.980

Remarks

Studies and Analyses include Navy activities to define CONOPS and better define Navy-specific and interoperability requirements, such as Weapon Data Link ACTD, Seeker Trade Studies, and Data Link Trade Studies. Software Development efforts are in support of JSuW JCTD incorporation of J.11 Message Set into Strike Weapons. Software Development for JSF is the Block 3.X OFP which supports the SDB II program.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604329N: *Small Diameter Bomb (SDB)*	PROJECT 3072: *Small Diameter Bomb (SDB)*

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	0.364	2.500	Jan 2010	0.000		0.000		0.000	1.250	4.114	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR China Lake, CA	0.710	0.300	Oct 2009	0.000		0.000		0.000	8.811	9.821	Continuing
Developmental Test & Evaluation	C/CPFF	Lockheed Martin Ft. Worth, TX	0.000	0.000		1.600	Nov 2010	0.000		1.600	29.187	30.787	30.787
Test Assets	C/FFP	TBD TBD	0.000	0.000		1.674	Jan 2011	0.000		1.674	24.814	26.488	26.488
Test Assets	C/CPFF	McDonnell Douglas St. Louis, MO	0.000	0.000		0.100	Nov 2010	0.000		0.100	0.500	0.600	0.600
		Subtotal	1.074	2.800		3.374		0.000		3.374	64.562	71.810	57.875

Remarks

Developmental T&E Various in FY2010 supports wind tunnel testing. Test assets include weapon assets (TBD - dependent upon winning SDB II weapon contractor) and BRU-61 Smart Racks (McDonnell Douglas) required for DT and OT.

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 Services	C/CPFF	TBD Not Specified	0.371	0.767	Jan 2010	0.000		0.000		0.000	0.000	1.138	1.138

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604329N: *Small Diameter Bomb (SDB)*	PROJECT 3072: *Small Diameter Bomb (SDB)*

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	NAWC WD China Lake	12.839	3.739	Nov 2009	3.095	Nov 2010	0.000		3.095	15.111	34.784	Continuing
Government Engineering Support	WR	Various Various	6.401	2.034	Nov 2009	4.490	Nov 2010	0.000		4.490	19.333	32.258	Continuing
Program Management Support	WR	Various Various	0.681	0.200	Nov 2009	3.063	Dec 2010	0.000		3.063	14.977	18.921	Continuing
Program Management Support - MSS	C/CPFF	Various Various	0.409	0.000		0.000		0.000		0.000	0.000	0.409	0.409
Travel	MIPR	ASC20OG Eglin AFB, FL	1.006	0.200	Oct 2009	0.200	Oct 2010	0.000		0.200	1.000	2.406	Continuing
		Subtotal	21.707	6.940		10.848		0.000		10.848	50.421	89.916	1.547

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	65.955	43.717		44.091		0.000		44.091	224.058	377.821	274.027

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604329N: *Small Diameter Bomb (SDB)*	PROJECT 3072: *Small Diameter Bomb (SDB)*

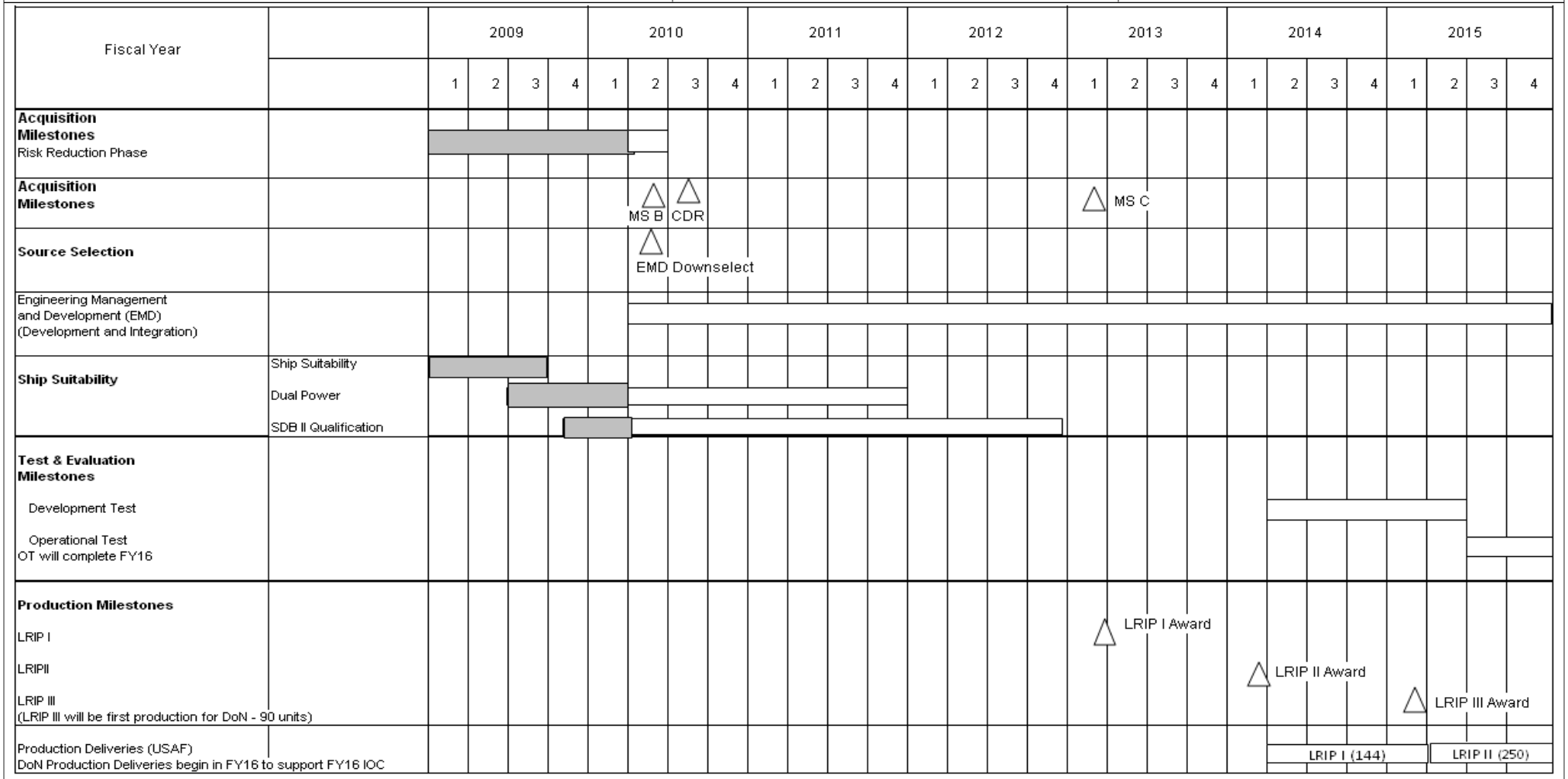


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604329N: *Small Diameter Bomb (SDB)*	PROJECT 3072: *Small Diameter Bomb (SDB)*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Risk Reduction Phase	1	2009	2	2010
Milestone B (MS B)	2	2010	2	2010
Critical Design Review	3	2010	3	2010
EMD Downselect	2	2010	2	2010
Engineering Manufacturing and Design (EMD)	2	2010	4	2015
Ship Suitability	1	2009	3	2009
Ship Suitability Dual Power	3	2009	4	2011
Ship Suitability SDB II Qualification	4	2009	4	2012
Developmental Test	2	2014	2	2015
Operational Test	3	2015	4	2015
MS C	1	2013	1	2013
LRIP I Contract Award (USAF Only)	1	2013	1	2013
LRIP II Contract Award (USAF Only)	1	2014	1	2014
LRIP III Contract Award (USAF and DoN)	1	2015	1	2015
LRIP I Deliveries (USAF only)	2	2014	1	2015
LRIP II Deliveries (USAF only)	2	2015	4	2015

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy											DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile 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	222.937	167.200	96.186	0.000	96.186	57.474	28.191	10.578	7.689	Continuing	Continuing
0439: *Standard Missile Improvement*	11.894	30.227	26.054	0.000	26.054	20.473	4.919	0.255	0.263	Continuing	Continuing
3092: *Standard Missile 6 Program*	208.051	136.176	70.132	0.000	70.132	37.001	23.272	10.323	7.426	Continuing	Continuing
9999: *Congressional Adds*	2.992	0.797	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.682

A. Mission Description and Budget Item Justification

Standard Missile (SM) is the Navy's premier Anti-Air Warfare (AAW) missile, providing both area air defense for the fleet and self defense for individual Aegis CGs and DDGs, as required by the Joint Theater Air Missile Defense (TAMD), Mission Need Statement (MNS), Defense Planning Guidance (DPG), Quadrennial Defense Review (QDR), and Ship Class AAW Self Defense Capstone Requirements Document. Agility, fuzing, and computer modifications to SM are in development to restore performance in the near term against a specific existing proliferating Anti-Ship Cruise Missile (ASCM) threat. Continuous analysis of missile capabilities vs. ever-evolving and proliferating aircraft and ASCM threats and long-range
planning are required to keep pace with the threat.

In FY04 the STANDARD Missile 6 (SM-6) program was started to develop an advanced surface missile system with an active seeker and an extended range. The SM-6 missile system will leverage the Navy investment in the AEGIS Weapon System (AWS), Cooperative Engagement Capability (CEC), and airborne early warning systems, which will be upgraded in concert with missile development to support a fully integrated extended range detect-to-engage capability. SM-6 is the enabler for Integrated Fire Control (IFC). Funding to support those upgrades are also included in this line. SM-6 is currently executing the ground based flight test program and planning for the DT/OT flight test phase of the SD&D effort.
Together, this family of systems will provide the air superiority and the umbrella of protection against the full spectrum of projected future cruise missile (anti-ship and land attack) and manned aircraft threats discussed in the Joint TAMD MNS, DPG, QDR, and TAMD Capstone Requirements Document.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604366N: *Standard Missile Improvements*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	236.976	182.197	0.000	0.000	0.000
Current President's Budget	222.937	167.200	96.186	0.000	96.186
Total Adjustments	-14.039	-14.997	96.186	0.000	96.186
• Congressional General Reductions		-0.697			
• Congressional Directed Reductions		-15.000			
• Congressional Rescissions	0.000	-0.100			
• Congressional Adds		0.800			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-7.471	0.000			
• SBIR/STTR Transfer	-6.569	0.000			
• Program Adjustments	0.000	0.000	96.186	0.000	96.186
• 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: *Automated Missile Tracking*	0.000	0.797
Congressional Add: *Extensible Launching Systems*	2.992	0.000
Congressional Add Subtotals for Project: 9999	2.992	0.797
Congressional Add Totals for all Projects	2.992	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 0439: *Standard Missile 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
0439: *Standard Missile Improvement*	11.894	30.227	26.054	0.000	26.054	20.473	4.919	0.255	0.263	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Modifications to SM-2 BLK IIIB are required for use on DDG-1000 class destroyers. The Joint Universal Waveform Link (JUWL) will be integrated with ESSM and Standard Missile to communicate with the DDG-1000 SPY-3 radar. SM-2 missile software will be updated with interrupted continuous wave illumination (ICWI) in order to allow operation with
DDG-1000.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Standard Missile Improvement	11.894	30.227	26.054	0.000	26.054
DDG-1000 Pre Plan Product Improvement (P3I)Link Integration/Interrupted Continuous Wave Illuminator (ICWI) *FY 2009 Accomplishments:* ESSM takes lead role in P3I Link implementation. After requirements definition, ESSM designs, reviews and orders Proof of Design (POD) hardware from suppliers. *FY 2010 Plans:* ESSM assembles POD assets, conducts testing, holds Critical Design Review, and orders hardware for Production Representative Model of ESSM. SM-2 finalizes requirements, designs, reviews and orders POD hardware.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 0439: *Standard Missile Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: ESSM assembles and tests PRMs and orders missiles to support flight test program. SM-2 assembles POD assets, conducts testing, holds Critical Design Review, and orders hardware for Production Representative Model of SM-2.					
Accomplishments/Planned Programs Subtotals	11.894	30.227	26.054	0.000	26.054

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Development is expected to conclude by FY15 for the X-band (JUWL) and SM-2 IIIB ICWI. Production representative missiles will be built between FY11 & FY13 for the 86 ESSM missiles and 48 SM-2 missiles required to support Developmental Test & Operational Test (DT&OT) in FY13 through FY15.

E. Performance Metrics

- ESSM initial engineering design for X-Band Joint Universal Weapons Link (JUWL) capability was completed and Engineering Development Models (EDMs) were built and tested.
- ESSM successfully completed its Preliminary Design Review in October 2009.
- ESSM will order material/parts and assemble Proof of Design units to conduct design verification tests.
- In October 2010 ESSM will conduct its Critical Design Review.
- SM-2 begins full scale engineering development of X-Band JUWL capability and implementation of interrupted continuous wave illumination (ICWI) functionality.
- SM-2 PDR is planned for December 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 0439: *Standard Missile 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
Design and Analysis1	SS/CPAF	RAYTHEON Tucson, AZ	165.205	30.227	Nov 2009	26.054	Nov 2010	0.000		26.054	Continuing	Continuing	Continuing
Design and Analysis2	C/CPFF	JHU/APL Laurel, MD	3.750	0.000		0.000		0.000		0.000	0.000	3.750	Continuing
Design and Analysis3	MIPR	MIT/Lin Lab Lexington, MA	0.050	0.000		0.000		0.000		0.000	0.000	0.050	Continuing
Design and Analysis4	WR	NSWC Dahlgren	787.314	0.000		0.000		0.000		0.000	0.000	787.314	Continuing
Design and Analysis5	WR	NSWC Indian Head	0.940	0.000		0.000		0.000		0.000	0.000	0.940	Continuing
Design and Analysis6	WR	NAWC China Lake	3.030	0.000		0.000		0.000		0.000	0.000	3.030	Continuing
Design and Analysis7	Various/ CPFF	LOCKHEED MARTIN Moorestown, NJ	17.775	0.000		0.000		0.000		0.000	0.000	17.775	Continuing
Design and Analysis8	WR	CNO Washington, DC	0.010	0.000		0.000		0.000		0.000	0.000	0.010	Continuing
Design and Analysis9	WR	CMDP Phoenix, AZ	4.795	0.000		0.000		0.000		0.000	0.000	4.795	Continuing
Design and Analysis11	WR	NSWC Crane	0.257	0.000		0.000		0.000		0.000	0.000	0.257	Continuing
Design and Analysis12	WR	DOI&CNAP Washington, DC	0.487	0.000		0.000		0.000		0.000	0.000	0.487	Continuing
Design and Analysis13	WR	COMPTEVFOR Norfolk, VA	0.100	0.000		0.000		0.000		0.000	0.000	0.100	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 0439: *Standard Missile 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
Design and Analysis14	Various/ CPFF	LOCKHEED MARTIN Moorestown, NJ	2.000	0.000		0.000		0.000		0.000	0.000	2.000	Continuing
Design and Analysis15	WR	CARDEROCK Bethesda, MD	0.050	0.000		0.000		0.000		0.000	0.000	0.050	Continuing
Design and Analysis16	WR	NWAS Corona	0.325	0.000		0.000		0.000		0.000	0.000	0.325	Continuing
Design and Analysis17	Various/ CPFF	CORVID Mooresville, NC	0.100	0.000		0.000		0.000		0.000	0.000	0.100	Continuing
Design and Analysis18	Various/ CPFF	BAE Rockville, MD	0.101	0.000		0.000		0.000		0.000	0.000	0.101	Continuing
Design and Analysis19	MIPR	MDA Dahlgren,VA	1.257	0.000		0.000		0.000		0.000	0.000	1.257	Continuing
		Subtotal	987.546	30.227		26.054		0.000		26.054			

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 & EVALUATION1	WR	NSWC PHD	0.185	0.000		0.000		0.000		0.000	0.000	0.185	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 0439: *Standard Missile 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
DEVELOPMENTAL TEST & EVALUATION2	WR	WSMR New Mexico	1.600	0.000		0.000		0.000		0.000	0.000	1.600	Continuing
DEVELOPMENTAL TEST & EVALUATION3	WR	NAWC Pt Mugu	0.098	0.000		0.000		0.000		0.000	0.000	0.098	Continuing
DEVELOPMENTAL TEST & EVALUATION4	WR	PMRF Hawaii	0.338	0.000		0.000		0.000		0.000	0.000	0.338	Continuing
DEVELOPMENTAL TEST & EVALUATION5	WR	NSWC PHD	0.567	0.000		0.000		0.000		0.000	0.000	0.567	Continuing
		Subtotal	2.788	0.000		0.000		0.000		0.000	0.000	2.788	

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/CPAF	VARIOUS VARIOUS	1.993	0.000		0.000		0.000		0.000	0.000	1.993	Continuing
PROGRAM MANAGEMENT SUPPORT	C/CPAF	VARIOUS VARIOUS	2.294	0.000		0.000		0.000		0.000	0.000	2.294	Continuing
TRAVEL	Allot	IWS3	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
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 0439: *Standard Missile 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
		Arlington, VA											
		Subtotal	4.343	0.000		0.000		0.000		0.000	0.000	4.343	

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	994.677	30.227		26.054		0.000		26.054			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 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
3092: *Standard Missile 6 Program*	208.051	136.176	70.132	0.000	70.132	37.001	23.272	10.323	7.426	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 leverages existing missile technology and advanced missile technology. It aligns missile technology roadmaps across the Services (NAVSEA, NAVAIR, USAF, USMC and USA) and missile variants within the Services, taking advantage of the Navy's investment in the AEGIS Weapon System (AWS), CEC, and airborne early warning systems. This
missile will provide an extended range engagement capability to provide the air superiority and the umbrella of protection for joint U.S. forces and allies against the full spectrum of manned-fixed and rotary-wing aircraft, unmanned aerial vehicles, and land attack and anti-ship cruise missiles in flight, thereby contributing to the continuous protection of forward deployed ground maneuver forces as well as theater rear assets as discussed in the Joint TAMD MNS, DPG, QDR, TAMD Capstone Requirements Document, Forward From the Sea, Joint Vision 2010/2020, the 2002/2003 Naval Transformational Roadmap and the Operational Requirements Document for SM-6 Extended Range Active Missile (ERAM).

This project addresses the Navy's requirement for an extended range area air defense missile. The SM-6 Extended Range Active Missile (ERAM) is the Navy's transformational enabler for the Sea Shield Operational Concept and enables the opportunity for Sea Basing Sea Strike. This effort includes risk reduction, System Development and Demonstration (SD&D) design, insensitive munitions improvement, transition to production and operational test of the latest STANDARD Missile with the kinematic performance to defeat current and projected threats that possess low altitude, high altitude, and high velocity and maneuver characteristics at the max kinematic range of the missile. SM-6 is currently executing the ground based flight test program and planning for the DT/OT flight test phase of the SD&D effort.

The Joint Integrated Fire Enhancement funding is JROC directed for the integration of the Joint Land Attack Elevated Netted Sensor (JLENS) into the Naval Integrated Fire Control-Counter Air (NIFC-CA) kill chain; specifically, SM-6 integration with the JLENS and the AEGIS Weapon System (AWS). The funding identified in this budget is part of an integrated funding package that also includes funding for PEO IWS 1.0, PEO IWS 6.0, PEO IWS 7.0 and the Army's Cruise Missile Defense Systems JLENS Product Office.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 Program*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Joint Integrated Fire Enhancement	1.220	2.581	4.579	0.000	4.579
Joint Integrated Fire Enhancement *FY 2009 Accomplishments:* Modeling and Simulation Integration. *FY 2010 Plans:* Initial scenario and test planning development and integration and test efforts. *FY 2011 Base Plans:* Scenario and test planning development and integration and test activities and end-to-end scenario test predictions.					
SM 6 Missile Development	164.543	111.202	54.422	0.000	54.422
Missile development *FY 2009 Accomplishments:* CTV-1 (Control Test Vehicle) Low Rate Initial Production (LRIP) Milestone C prep and execution; DT/OT Flight test preparation and targets prep. *FY 2010 Plans:* GTV-3; DT/OT Flight Test execution at Pacific Missile Range Facility (PMRF); 17 flight tests planned. *FY 2011 Base Plans:* OT Flight Test analysis; ACB 12 and CSEDS integration and test; Captive Carry Flight Test; Integrated Fire Control (IFC) integration and test; FOT&E prep					
Insensitive Munitions (IM)	27.136	10.100	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 Program*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SM-6 Insensitive Munitions (IM) *FY 2009 Accomplishments:* Perform system design and development activities on the IM designs. Begin testing of the MK72 composite case including ambient and environmental tests and a propellant mitigation capable MK72. Start forward dome demonstrations. *FY 2010 Plans:* Perform (3) Slow Cook Off (SCO) tests: (1) strip down demo with MK104/MK72 with dual chemical sensor initiators and (2) with warhead-full up missile. Perform tactical MK72 composite case tests with forward dome functionality, then with forward dome capable cases.					
SM6/AWS & VLS Integration	14.022	12.293	2.700	0.000	2.700
SM6/AWS & VLS Integration *FY 2009 Accomplishments:* AEGIS Weapons System and MK 41 Vertical Launch Integration of SM-6. *FY 2010 Plans:* AEGIS Weapons System and MK 41 Vertical Launch Integration of SM-6. *FY 2011 Base Plans:* AEGIS Weapons System and MK 41 Vertical Launch Integration of SM-6.					
SM6 OT&E Support	0.000	0.000	8.431	0.000	8.431
FY 2011 Base Plans: This effort will complete activities related to the SM-6 OT Flight Testing and analyzing test results to support COTF.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 Program*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Defense Acquisition Workforce Development Fund	1.130	0.000	0.000	0.000	0.000
Defense Acquisition Workforce Development Fund *FY 2009 Accomplishments:* Defense Acquisition Workforce Development Fund					
Accomplishments/Planned Programs Subtotals	208.051	136.176	70.132	0.000	70.132

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 2234: *Standard Missile*	118.471	90.734	285.977	0.000	285.977	496.670	651.591	655.818	637.392	2,498.429	5,435.082

D. Acquisition Strategy

The Navy awarded a contract for SM-6 development, design, testing, production and support (including spares) to Raytheon using other than full and open competition pursuant to the authority of 10 U.S.C. 2304(c)(1).

The active seeker guidance section for the SM-6 will be built in a joint production facility with the Advance Medium Range Air to Air Missile (AMRAAM).

The remainder of the SM-6 AUR components will be produced in existing production facilities that are currently producing other variants of the STANDARD missile.

No new facilities will be required for SM-6 production, and existing equipment will be used whenever possible.

No source other than Raytheon is capable of producing a shipboard ERAM missile within the Navy's schedule.

SM-6 Acquisition Strategy signed by OSD AT&L 3 March 2004.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 Program*

E. Performance Metrics

Accomplishments
- SM-6 PABT WSESRB Executive Board - 12 May 09
- ASN (RDA) Gate 6 - 14 May 09
- ASN (RDA) OIPT - 2 Jun 09
- ASN (RDA) DAB - 29 Jul 09
- CTV-1A Flight Test - 28 Aug 09
- LRIP Lot Contract Award - 4 Sep 09
- DT/OT SSSTRP - 7 Dec 09
- DT/OT WSESRB - 16 Dec 09

SM-6 SD&D Contract SPI is currently at 0.978 and CPI at 0.976

Upcoming Milestones
- GTV-3 Flight Test - 11 Jan 10
- DT/OT TRR - Feb 10
- OIPT (Cost Certification) - Mar 10
- DAB (Cost Certification) - Mar 10
- DT/OT Flight Tests @ PMRF - Mar/Apr 10
- OT TRR - Aug 10
- OT Flight Tests at PMRF - Sep/Oct 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 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
Design & Analysis	C/CPIF	Raytheon Tucson, AZ	559.764	73.736	Nov 2009	42.692	Nov 2010	0.000		42.692	0.000	676.192	Continuing
Design & Analysis	C/CPFF	JHU/APL Laurel MD	31.881	6.041	Jan 2010	2.759	Nov 2010	0.000		2.759	0.000	40.681	Continuing
Design & Analysis	MIPR	MIT/Lin Lab Leington, MA	0.550	0.000		0.000		0.000		0.000	0.000	0.550	Continuing
Design & Analysis	WR	NAWC China Lake	2.907	0.300	Nov 2009	0.015	Nov 2010	0.000		0.015	0.000	3.222	Continuing
Design & Analysis	WR	NSWC Dahlgren	7.735	1.102	Nov 2009	0.403	Nov 2010	0.000		0.403	0.000	9.240	Continuing
Design & Analysis	WR	NSWC Iindian Head	2.734	0.527	Nov 2009	0.010	Nov 2010	0.000		0.010	0.000	3.271	Continuing
Design & Analysis	WR	NSWC PHD	7.125	0.471	Nov 2009	0.221	Nov 2010	0.000		0.221	0.000	7.817	Continuing
Design & Analysis	WR	NSWC Crane	0.891	0.150	Nov 2009	0.150	Nov 2010	0.000		0.150	0.000	1.191	Continuing
Design & Analysis	MIPR	JSPO Eglin AFB	11.922	10.800	Nov 2009	7.600	Nov 2010	0.000		7.600	0.000	30.322	Continuing
Design & Analysis	C/CPFF	LOCKHEED Martin Moorestown, NJ	5.794	0.000		0.000		0.000		0.000	0.000	5.794	Continuing
Design & Analysis	WR	NSWC Corona	12.334	3.604	Nov 2009	0.621	Nov 2010	0.000		0.621	0.000	16.559	Continuing
Design & Analysis	Reqn	ONR Arlington, VA	5.150	0.000		0.000		0.000		0.000	0.000	5.150	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 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
Design & Analysis	Reqn	NRL Washingoton, DC	0.090	0.000		0.000		0.000		0.000	0.000	0.090	Continuing
Design & Analysis	WR	COMPTEVFOR Norfolk, VA	1.194	0.711	Nov 2009	0.250	Nov 2010	0.000		0.250	0.000	2.155	Continuing
Design & Analysis	WR	CARDEROCK Philadelphia, PA	2.149	0.200	Nov 2009	0.200	Nov 2010	0.000		0.200	0.000	2.549	Continuing
Design & Analysis	WR	NSWC Pt Mugu	0.213	0.400	Nov 2009	0.000		0.000		0.000	0.000	0.613	Continuing
Design & Analysis	C/CPFF	BAE Rockville, MD	5.793	0.653	Nov 2009	0.000		0.000		0.000	0.000	6.446	Continuing
Design & Analysis	MIPR	ARMY Redstone	0.050	0.000		0.000		0.000		0.000	0.000	0.050	Continuing
Design & Analysis	WR	NAWCAD Pax River, MD	0.392	0.000		0.000		0.000		0.000	0.000	0.392	Continuing
Design & Analysis	C/CPFF	CORVID Mooresville, NC	2.050	0.450	Nov 2009	0.450	Nov 2010	0.000		0.450	0.000	2.950	Continuing
Design & Analysis	C/CPFF	RNB Arlington, VA	0.010	0.000		0.000		0.000		0.000	0.000	0.010	Continuing
Design & Analysis	WR	SPAWAR Arlington, VA	0.007	0.000		0.000		0.000		0.000	0.000	0.007	Continuing
Design & Analysis	WR	ARMY Cecom	0.066	0.000		0.000		0.000		0.000	0.000	0.066	Continuing
Design & Analysis	C/FP	General Dynamics Falls Church, VA	1.660	0.000		0.000		0.000		0.000	0.000	1.660	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 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
Design & Analysis	Various/ Various	VARIOUS (IWS 1A)	43.797	8.916	Nov 2009	3.000	Nov 2010	0.000		3.000	0.000	55.713	Continuing
Design & Analysis	Various/ Various	VARIOUS (VLS)	21.646	2.065	Nov 2009	0.805	Nov 2010	0.000		0.805	0.000	24.516	Continuing
		Subtotal	727.904	110.126		59.176		0.000		59.176	0.000	897.206	

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
Develpomental Test & Evaluation	WR	NSWC PHD	0.200	0.000		0.000		0.000		0.000	0.000	0.200	Continuing
Develpomental Test & Evaluation	WR	NSWC WSMR	16.321	1.000	Jan 2010	1.000	Nov 2010	0.000		1.000	0.000	18.321	Continuing
Develpomental Test & Evaluation	WR	PMRF Hawaii	3.089	20.000	Jan 2010	0.000		0.000		0.000	0.000	23.089	Continuing
Develpomental Test & Evaluation	WR	NAWC Pt Mugu	0.369	0.400	Jan 2010	0.000		0.000		0.000	0.000	0.769	Continuing
Develpomental Test & Evaluation	C/CPAF	Raytheon Tucson, AZ	0.000	0.000		5.431	Dec 2010	0.000		5.431	0.000	5.431	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 Program*

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
Develpomental Test & Evaluation	C/CPFF	JHU/APL Laurel, MD	0.000	0.000		1.250	Nov 2010	0.000		1.250	0.000	1.250	Continuing
Develpomental Test & Evaluation	WR	NSWC Corona	0.000	0.000		1.000	Nov 2010	0.000		1.000	0.000	1.000	Continuing
Develpomental Test & Evaluation	WR	COMPTEVFOR Norfolk	0.000	0.000		0.250	Nov 2010	0.000		0.250	0.000	0.250	Continuing
Develpomental Test & Evaluation	WR	NSWC Dahlgren	0.000	0.000		0.500	Nov 2010	0.000		0.500	0.000	0.500	Continuing
		Subtotal	19.979	21.400		9.431		0.000		9.431	0.000	50.810	

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 Services	C/CPAF	Various Various	15.905	4.500	Jan 2010	1.500	Nov 2010	0.000		1.500	0.000	21.905	Continuing
Travel	Various/ Various	IWS3 Arlington, VA	0.728	0.150	Dec 2009	0.025	Nov 2010	0.000		0.025	0.000	0.903	Continuing
DAWDF	C/FP	Not Specified Not Specified	1.130	0.000		0.000		0.000		0.000	0.000	1.130	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 Program*

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			17.763	4.650		1.525		0.000		1.525	0.000	23.938	

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	765.646	136.176		70.132		0.000		70.132	0.000	971.954	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604366N: *Standard Missile Improvements*	**PROJECT** 3092: *Standard Missile 6 Program*

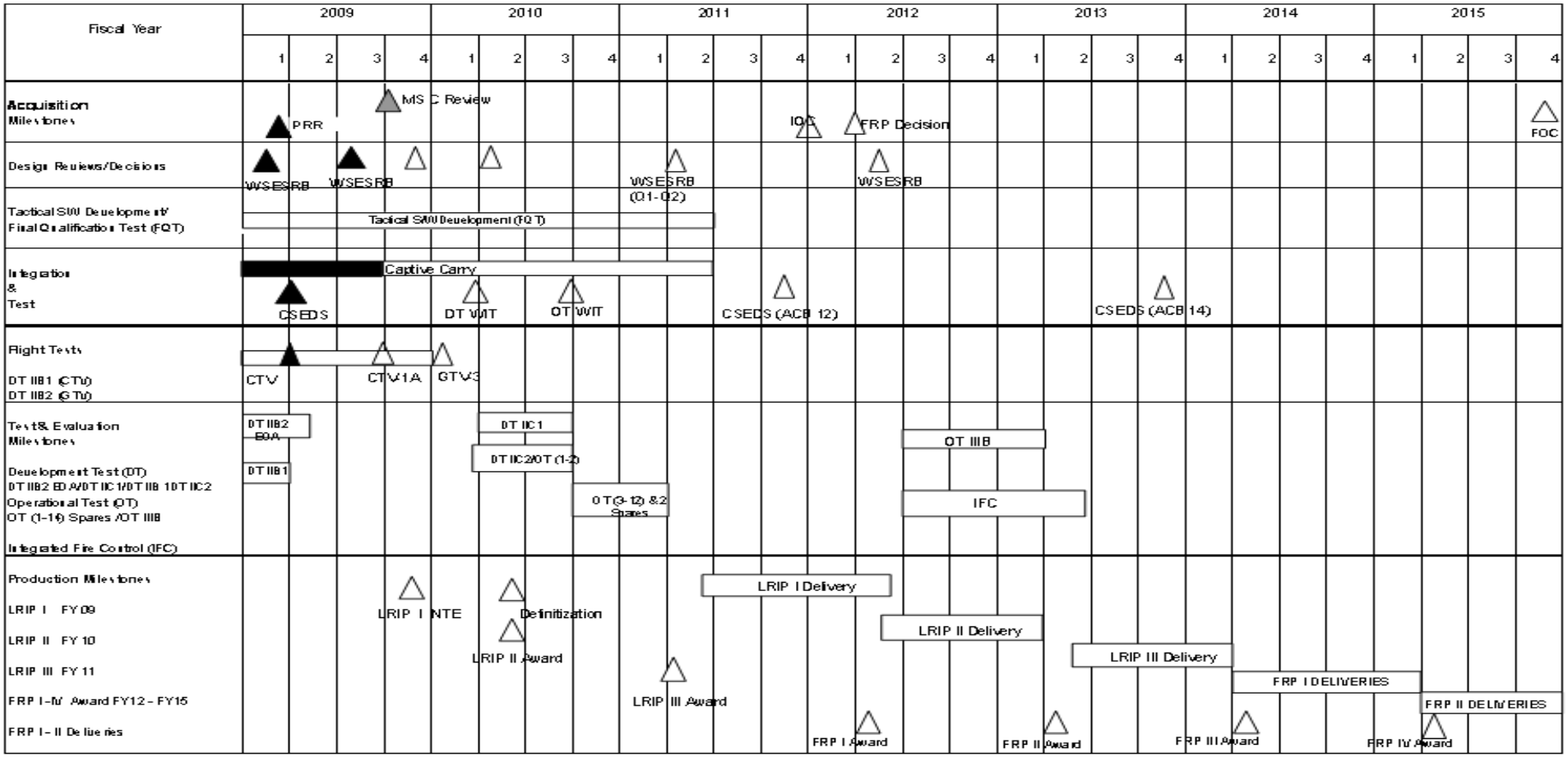


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 Program*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Preproduction Readiness Review (PRR)	1	2009	1	2009
Milestone C (MS C) Review	3	2009	4	2009
IOC/Deployment	4	2011	1	2012
Full-Rate Production (FRP) Decision	1	2012	2	2012
Full Operational Capability (FOC)	4	2015	4	2015
WSESRB	1	2009	2	2012
Software Design/Final Qualification Test (FQT)	1	2009	2	2011
Captive Carry	1	2009	2	2011
CSEDS (ACB 12) (ACB 14)	1	2009	4	2013
DT WIT, OT WIT	1	2010	4	2010
Flight Test (CTV), (CTV1A), (GTV3)	1	2009	1	2010
Developmental Testing (DT-IIB2) Early Operational Assessment	1	2009	2	2009
Developmental Testing (DT-IIC1)	2	2010	3	2010
Developmental Testing (DT-IIB1)	1	2009	1	2009
Developmental Testing (DT-IIC2/OT-[1&2])	1	2010	3	2010
Operational Testing (OT-[3-12 & 2 Spares])	4	2010	1	2011
OT IIIB	3	2012	1	2013
Integrated Fire Control (IFC)	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 3092: *Standard Missile 6 Program*

	Start		End	
Event	Quarter	Year	Quarter	Year
Low-Rate Initial Production I (LRIP I NTE)	4	2009	4	2009
Low-Rate Production I (Definitization)	2	2010	2	2010
Low-Rate Initial Production II (LRIP II Award)	2	2010	2	2010
Low-Rate Initial Production III (LRIP III Award)	1	2011	2	2011
Low-Rate Initial Production I Delivery	2	2011	2	2012
Low-Rate Initial Production II Delivery	2	2012	1	2013
Low-Rate Initial Production III Delivery	2	2013	1	2014
Full Rate Production (FRP) I-IV Award	2	2012	2	2015
Full Rate Production I (FRP) Deliveries	2	2014	1	2015
Full Rate Production II (FRP) Deliveries	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile 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*	2.992	0.797	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.682
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Extensible Launching System (ExLS) is a potential low cost alternative method to integrate existing certified encanistered missiles/munitions (like Nulka) into VLS equipped platforms. ExLS is a Launcher-in-a-Launcher that requires no VLS canister development. This approach maximizes the USN investment by leveraging All Up Round (AUR) and electronics development, testing, certification and associated qualification costs.

Automated Missile Tracking will evalutate a multitude of Radio Frequency Identification (RFID) passive devices to ensure that safe implementation is possible aboard a US Navy combatant.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Automated Missile Tracking *FY 2010 Plans:* N/A	0.000	0.797
Congressional Add: Extensible Launching Systems *FY 2009 Accomplishments:* N/A	2.992	0.000
Congressional Adds Subtotals	2.992	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604366N: *Standard Missile Improvements*	PROJECT 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*							
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	40.731	50.899	45.885	0.000	45.885	47.892	27.122	25.619	16.789	Continuing	Continuing
0529: *ABN Mine Hunt System*	2.423	4.739	7.139	0.000	7.139	3.940	4.663	4.666	3.444	Continuing	Continuing
2047: *ALMDS*	6.248	11.060	13.413	0.000	13.413	13.140	9.821	12.027	10.536	Continuing	Continuing
2427: *OASIS*	6.852	9.791	6.029	0.000	6.029	5.742	0.000	0.000	0.000	0.000	123.927
2473: *Airborne Mine Neutralization System*	19.831	20.026	16.597	0.000	16.597	22.324	9.869	6.088	0.000	0.000	296.947
4026: *Strat Into Medal, Tactics & Trng Organic Force*	2.716	1.938	1.798	0.000	1.798	1.820	1.846	1.895	1.845	Continuing	Continuing
9179: *Surf Navy Integ Undersea Tactical Tech*	0.666	0.955	0.909	0.000	0.909	0.926	0.923	0.943	0.964	Continuing	Continuing
9999: *Congressional Adds*	1.995	2.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.327

A. Mission Description and Budget Item Justification

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Airborne Mine Countermeasures (AMCM) programs will deploy to the fleet as sensors integrated into the MH-53E and MH-60S platforms in order to provide Mine-Like Object Detection/classification/localization, Mine Identification, mine reacquisition and neutralization, and influence clearance capabilities. The "Next Generation" AMCM systems will provide this set of capabilities to the Littoral Combat Ship (LCS) Mine Warfare Mission Module. This capability will be of critical importance in littoral zones, confined straits, choke points, and the Amphibious Objective Area (AOA). Some interest in the following areas has been expressed: search and rescue; surface fire support; ASW operations; protection/offense against small craft/vehicles; air to air operations; very shallow water MCM; swimmer defense and torpedo defense. Surface Navy Inegrated Undersea Tactical Technology (SNIUTT) will be used to develop an AN/SQQ-32, AN/AQS-14, AN/AQS-24 and AN/AQS-20A sensor training modules and future Organic Airborne Mine Countermeasures (OAMCM) Sensor Training Modules.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604373N: *Airborne Mine Countermeasures (AMCM)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	41.740	48.712	0.000	0.000	0.000
Current President's Budget	40.731	50.899	45.885	0.000	45.885
Total Adjustments	-1.009	2.187	45.885	0.000	45.885
• Congressional General Reductions		-0.213			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		2.400			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.008	0.000			
• Program Adjustments	0.000	0.000	45.885	0.000	45.885
• 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: *Common Air Mine Countermeasures Tow Cable*	0.000	2.390
Congressional Add: *AIRBORNE MINE COUNTERMEASURES OPEN ARCHITECTURE TE*	1.995	0.000
Congressional Add Subtotals for Project: 9999	1.995	2.390
Congressional Add Totals for all Projects	1.995	2.390

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 0529: *ABN Mine Hunt 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
0529: *ABN Mine Hunt System*	2.423	4.739	7.139	0.000	7.139	3.940	4.663	4.666	3.444	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 a sonar for mine detection, classification and identification. The Navy does not possess a capability to conduct minefield reconnaissance (mine density and location) at high area search rates. The AN/AQS-20A is being developed to address the emergent requirements for mine identification and to integrate AMCM systems with a MH-60S platform. The AN/AQS-20A will also be the mine hunting sonar component for the Remote Minehunting System (RMS). The AN/AQS-20A will be developed to meet the requirements of the Littoral Combat Ship (LCS) Mine Warfare Mission Module.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition Workforce RDT&E Articles Quantity *FY 2009 Accomplishments:* Funded DoD Acquisition Workforce Fund.	0.012	0.000	0.000	0.000	0.000
Accomplishments/Effort/Subtotal Cost: Support RDT&E Articles Quantity *FY 2009 Accomplishments:* - Continued performance analysis identifying design efforts required to resolve interface problems - Began Tactics, Mission Planning and PMA during MH-60S OT phase - Completed Interface/integration with MH-60S, C4I Interface and MEDAL - Replenished deep minefield	0.611	0.387	0.429	0.000	0.429

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 0529: *ABN Mine Hunt System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: - Begin to develop ILS and supportability product and training materials. - Continue Tactics, mission planning, and PMA during MH-60S IT phase - Continue to replenish deep minefield *FY 2011 Base Plans:* - Continue to develop ILS and supportability product and training materials. - Continue to replenish deep minefield					
Accomplishments/Effort/Subtotal Cost: Test and Evaluation RDT&E Articles Quantity *FY 2009 Accomplishments:* - Restart MH-60S DT - Conducted testing on P3I improvements *FY 2010 Plans:* - Complete MH-60S DT - Begin MH-60S OT *FY 2011 Base Plans:* - Complete MH-60S OT	0.905	1.655	0.567	0.000	0.567
Accomplishments/Effort/Subtotal Cost: Management Services RDT&E Articles Quantity *FY 2009 Accomplishments:* - Began planning and management for the AN/AQS-20A program	0.156	0.232	0.355	0.000	0.355

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 0529: *ABN Mine Hunt System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Began documentation development in support of FRPDR in FY09 *FY 2010 Plans:* - Continue documentation development in support of FRPDR in FY11 - Continue to provide planning and management for the AN/AQS-20A program *FY 2011 Base Plans:* - Complete documentation development in support of FRPDR in FY11 - Continue to provide planning and management for the AN/AQS-20A program					
Accomplishments/Effort/Subtotal Cost: Product Development	0.739	2.465	5.788	0.000	5.788
FY 2009 Accomplishments: - Began cable design improvement - Completed Ferrule Hydrodynamic design *FY 2010 Plans:* - Continue cable design improvement - Perform Environmental Data Collection analysis - Develop Automated Target Recognition *FY 2011 Base Plans:* - Continue Environmental Data Collection analysis - Continue Automated Target Recognition Development					
Accomplishments/Planned Programs Subtotals	2.423	4.739	7.139	0.000	7.139

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 0529: *ABN Mine Hunt 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
• OPN 4248: *Airborne Mine Countermeasure*	0.000	14.520	0.000	0.000	0.000	7.720	0.000	0.000	0.000	0.000	22.240
• OPN 1600: *LCS Mission Modules*	0.000	21.780	22.650	0.000	22.650	23.160	23.700	24.294	49.800	Continuing	Continuing

D. Acquisition Strategy

AN/AQS-20A achieved Milestone C on 10 May 2005.

Sole Source to Raytheon of MH-60S systems LRIP procurement began in FY05, FY06 and FY07. Full Rate Production Decision Review (FRPDR) is expected in February 2011 with competitive contract award Q2 FY11.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 0529: *ABN Mine Hunt 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
Hardware/Software Development Q-20 on the H-53	SS/CPIF	Raytheon Portsmouth, RI	31.120	0.000		0.000		0.000		0.000	0.000	31.120	Continuing
Hardware/Software Development Q-20A on the H-60	C/CPFF	Raytheon Portsmouth, RI	60.150	0.000		0.000		0.000		0.000	0.000	60.150	Continuing
Hardware/Software Development	WR	NSWC, PC Panama City FL	9.343	2.465	Nov 2009	5.788	Nov 2010	0.000		5.788	0.000	17.596	Continuing
Hardware/Software Development	C/FP	Northrop Grumman Not Specified	4.572	0.000		0.000		0.000		0.000	0.000	4.572	Continuing
		Subtotal	105.185	2.465		5.788		0.000		5.788	0.000	113.438	

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
Engineering Services	WR	NSWC, PC Panama City, FL	30.304	0.337	Nov 2009	0.377	Nov 2010	0.000		0.377	Continuing	Continuing	Continuing
Engineering Services	C/CPFF	Raytheon Portsmouth, RI	3.686	0.000		0.000		0.000		0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 0529: *ABN Mine Hunt 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
Engineering Services	C/Various	Various VAR	54.018	0.000		0.000		0.000		0.000	0.000	54.018	Continuing
Engineering Services	SS/CPIF	Raytheon Portsmouth, RI	3.464	0.000		0.000		0.000		0.000	0.000	3.464	Continuing
ILS Function	WR	NSWC, PC Panama City FL	6.237	0.050	Nov 2009	0.052	Nov 2010	0.000		0.052	Continuing	Continuing	Continuing
ILS Function	SS/CPIF	Raytheon Portsmouth, RI	1.546	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
ILS Function	C/Various	Various VAR	0.981	0.000		0.000		0.000		0.000	0.000	0.981	Continuing
		Subtotal	100.236	0.387		0.429		0.000		0.429			

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
T&E Functions	WR	NSWC, PC Panama City FL	12.173	1.655	Dec 2009	0.567	Dec 2010	0.000		0.567	Continuing	Continuing	Continuing
T&E Functions	C/TBD	Raytheon Portsmouth, RI	4.134	0.000		0.000		0.000		0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 0529: *ABN Mine Hunt 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
T&E Functions	C/Various	Various VAR	1.583	0.000		0.000		0.000		0.000	0.000	1.583	Continuing
		Subtotal	17.890	1.655		0.567		0.000		0.567			

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 Services	C/TBD	TBD TBD	4.258	0.207	Jan 2010	0.330	Jan 2011	0.000		0.330	Continuing	Continuing	Continuing
Travel	C/TBD	Various Various	0.529	0.025	Oct 2009	0.025	Oct 2010	0.000		0.025	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various/ Various	Various Various	0.012	0.000		0.000		0.000		0.000	0.000	0.012	Continuing
		Subtotal	4.799	0.232		0.355		0.000		0.355			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 0529: *ABN Mine Hunt 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	228.110	4.739		7.139		0.000		7.139			

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	**PROJECT** 0529: *ABN Mine Hunt System*

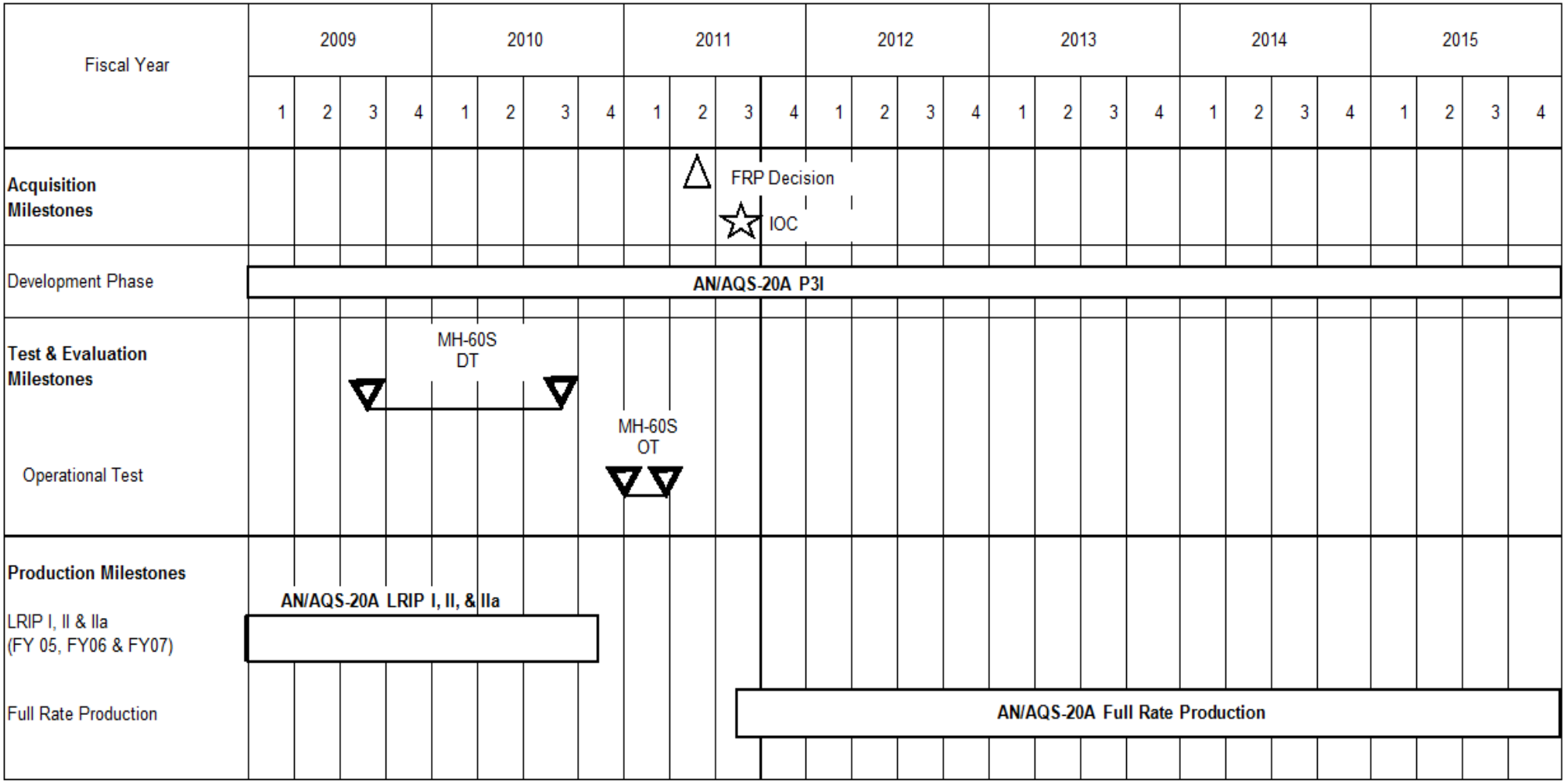


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	**PROJECT** 0529: *ABN Mine Hunt System*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
AN/AQS-20A/MH-60S DT	3	2009	3	2010
AN/AQS-20A/MH-60S OT	1	2011	1	2011
Low Rate Intial Production I & II	1	2009	4	2010
Full Rate Production Decision	2	2011	2	2011
IOC	3	2011	3	2011
AN/AQS-20A P3I	1	2009	4	2015
AN/AQS-20A Full Rate Production	3	2011	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2047: *ALMDS*	

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
2047: *ALMDS*	6.248	11.060	13.413	0.000	13.413	13.140	9.821	12.027	10.536	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Airborne Laser Mine Detection System (ALMDS), designation AN/AES-1, is a light detection and ranging (LIDAR) Airborne Mine Countermeasures (AMCM) high area coverage system that detects, classifies, and localizes floating and near-surface , moored sea mines. The system is deployed from the MH-60S helicopter and will provide organic airborne mine defense to the battle force. The system represents a capability that does not exist in the current Mine Countermeasures (MCM) inventory.

ALMDS first spiral development phase, very shallow water capability, begins in FY2016.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition Workforce: *FY 2009 Accomplishments:* Funded DoD Acquisition Workforce Fund.	0.031	0.000	0.000	0.000	0.000
Hardware and Software technology development and demonstration/Engineering Services: TDA Engineering/oversight/support of engineering efforts to meet baseline performance and full performance. *FY 2009 Accomplishments:* Post test engineering associated with Increment 1 Baseline	2.778	9.246	3.054	0.000	3.054

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2047: *ALMDS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY10-FY11 Implement Increment 1 Software fix, model and analyze fix. *FY 2011 Base Plans:* FY10-FY11 Implement Increment 1 Software fix, model and analyze fix.					
Integrated Logistics Support: *FY 2009 Accomplishments:* Training associated with OT IIA *FY 2010 Plans:* All TDA support of ILS Program, to include operator training, NATOPS documentation updates, and tech/maintenance manual updates. *FY 2011 Base Plans:* Upgrades to all training and logistics documentation.	0.058	0.423	0.673	0.000	0.673
Testing and Evaluation: *FY 2009 Accomplishments:* Completion of DT-IIE and OT-IIA OPEVAL. *FY 2011 Base Plans:* Completion of DT-IIE and OT-IIA OPEVAL.	3.258	0.000	7.957	0.000	7.957
Project Management: *FY 2009 Accomplishments:* TDA Program Management, Financial Management and Contractor support.	0.123	1.391	1.729	0.000	1.729

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2047: *ALMDS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: TDA Program Management, Financial Management and Contractor support. *FY 2011 Base Plans:* TDA Program Management, Financial Management and Contractor support.					
Accomplishments/Planned Programs Subtotals	6.248	11.060	13.413	0.000	13.413

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 4248: *Airborne MCM*	6.252	22.300	14.800	0.000	14.800	24.400	11.000	0.000	0.000	0.000	78.752
• OPN 1600: *LCS Mission Modules*	0.000	7.433	7.100	0.000	7.100	8.300	11.000	11.275	11.557	0.000	56.665

D. Acquisition Strategy

The first LRIP lot of two units was awarded as a new sole-source contract to the SD&D contractor in FY05. This is a Fixed-Price Incentive (FPI) contract with cost and schedule incentives. The March 2006 Program Review decision memorandum approved the ALMDS Program for LRIP 2 procurement of two units for FY07 pending successful demonstration of Engineering Change Proposal (ECP) I performance during DT-IID; DT-IID Phase B was conducted on an SH-60F helicopter and DT-IID phase C will be conducted on an MH-60S helicopter.

E. Performance Metrics

Successfully complete DT-IIE 3 and Operational Test (OT) and receive full rate production decision approval.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2047: *ALMDS*

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/Software Development	WR	NSWC PC Panama City FL	0.661	0.281		0.000		0.000		0.000	0.000	0.942	Continuing
Hardware/Software Development	MIPR	Prime Contractor Not Specified	24.261	4.800	Nov 2009	0.000	Nov 2009	0.000		0.000	0.000	29.061	Continuing
Hardware/Software Development	MIPR	Metron Not Specified	0.625	0.458	Nov 2009	0.000		0.000		0.000	0.000	1.083	Continuing
Hardware/Software Development	MIPR	SAIC Not Specified	0.200	0.000		0.000		0.000		0.000	0.000	0.200	Continuing
Engineering Services1	WR	NSWC PC Panama City FL	11.394	0.308	Nov 2009	0.563	Nov 2010	0.000		0.563	Continuing	Continuing	Continuing
Engineering Services2	MIPR	Prime Contractor Not Specified	16.095	0.077	Nov 2009	0.126	Nov 2010	0.000		0.126	0.000	16.298	Continuing
Engineering Services3	C/Various	Various Various	9.755	3.160	Nov 2009	2.203	Nov 2010	0.000		2.203	Continuing	Continuing	Continuing
Engineering Services4	MIPR	Various Various	3.922	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Engineering Services5	MIPR	Metron/Arete Not Specified	0.700	0.162		0.162		0.000		0.162	0.000	1.024	Continuing
		Subtotal	67.613	9.246		3.054		0.000		3.054			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2047: *ALMDS*

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
ILS Functions1	WR	NSWC PC Panama City FL	1.998	0.423		0.673	Nov 2009	0.000		0.673	Continuing	Continuing	Continuing
ILS Functions2	WR	NSWC PC (Prime Contractor) Panama City FL	5.725	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
ILS Functions3	C/Various	Various/NRL Stennins VAR	1.062	0.000		0.000		0.000		0.000	0.000	1.062	Continuing
ILS Functions4	WR	NSWC PC Panama City FL	0.300	0.000		0.000	Nov 2010	0.000		0.000	0.000	0.300	Continuing
		Subtotal	9.085	0.423		0.673		0.000		0.673			

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
Testing and Evaluation	C/TBD	NSWC PC (Prime Contractor) Panama City FL	12.917	0.000	Nov 2009	1.650	Nov 2010	0.000		1.650	Continuing	Continuing	Continuing
Testing and Evaluation	WR	NSWC PC Panama City FL	14.359	0.000	Nov 2009	3.671	Nov 2010	0.000		3.671	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2047: *ALMDS*

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
Testing and Evaluation	C/Various	Various VAR	0.992	0.000	Nov 2009	0.902	Nov 2010	0.000		0.902	0.000	1.894	Continuing
Testing and Evaluation	WR	NAWC AD PAX Panama City FL	0.376	0.000	Nov 2009	1.734	Nov 2010	0.000		1.734	0.000	2.110	Continuing
		Subtotal	28.644	0.000		7.957		0.000		7.957			

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 Support1	Various/ Various	Various Not Specified	1.993	0.050	Nov 2009	0.050	Nov 2010	0.000		0.050	0.000	2.093	Continuing
Management Support2	WR	NSWC PC Panama City FL	2.247	1.341	Nov 2009	1.679	Nov 2010	0.000		1.679	0.000	5.267	Continuing
Management Support3	WR	NSWC PC Panama City FL	1.559	0.000	Nov 2009	0.000	Nov 2010	0.000		0.000	0.000	1.559	Continuing
DAWDF	C/TBD	Not Specified Not Specified	0.031	0.000		0.000		0.000		0.000	0.000	0.031	Continuing
		Subtotal	5.830	1.391		1.729		0.000		1.729	0.000	8.950	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2047: *ALMDS*	

	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	111.172	11.060		13.413		0.000		13.413			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	**PROJECT** 2047: *ALMDS*

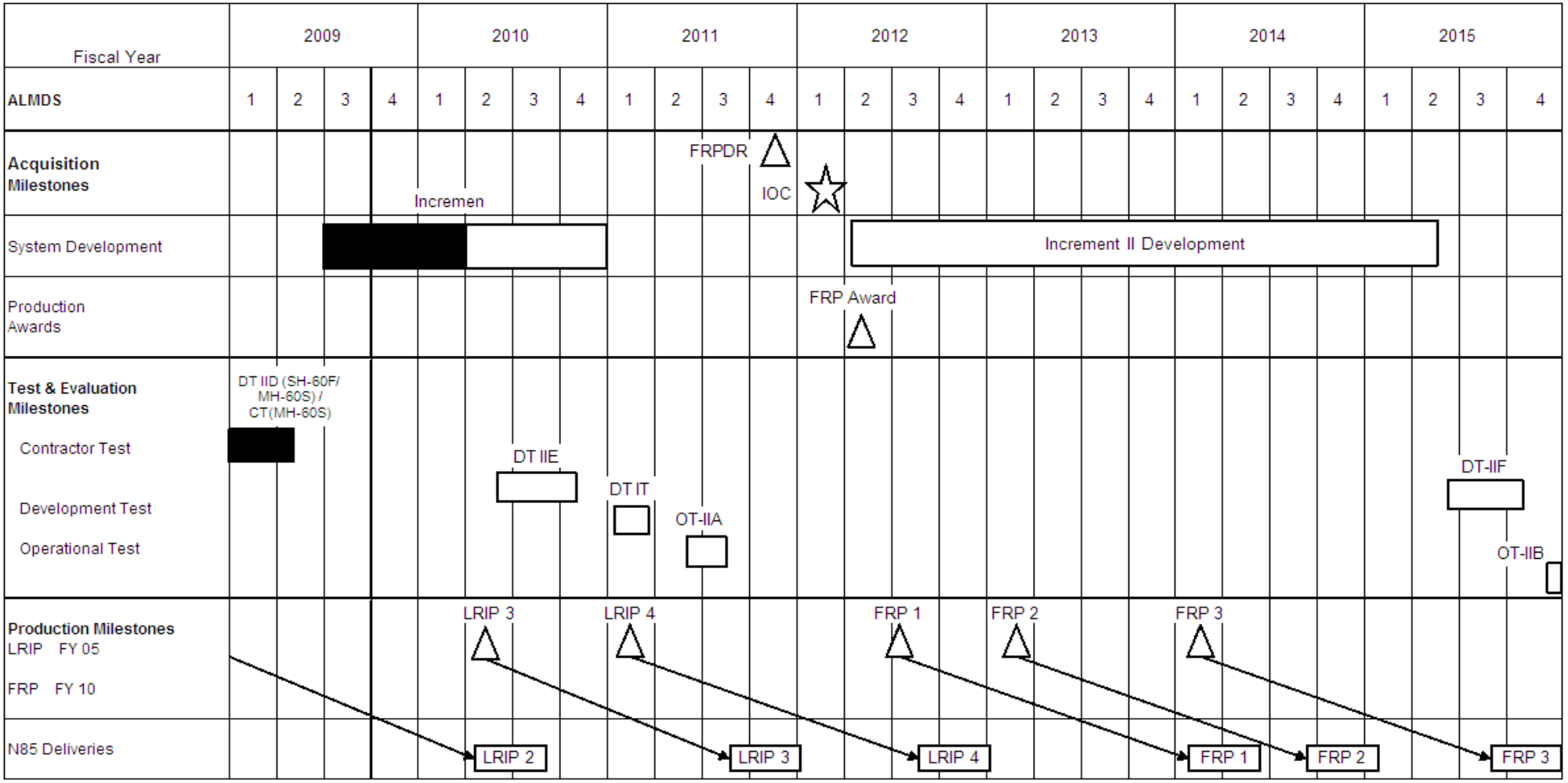


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2047: *ALMDS*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
CT/DT IID	1	2009	2	2009
Increment I Development	3	2009	4	2010
Increment II Development	2	2012	2	2015
Full Rate Production Decision	4	2011	4	2011
IOC	1	2012	1	2012
LRIP 2 Units Deliveries	2	2010	3	2010
LRIP 3 Units start	2	2010	2	2010
LRIP 3 Units Delivery Start	3	2011	4	2012
LRIP 4 Units start	1	2011	1	2011
LRIP 4 Units Delivery Start	3	2012	4	2012
Full Rate Production (FRP) Start (FRP 1)	3	2012	3	2012
Full Rate Production (FRP) Start (FRP 2)	1	2013	1	2013
Full Rate Production (FRP) Start (FRP 3)	1	2014	1	2014
Full Rate Production Delivery Start (FRP 1)	1	2014	2	2014
Full Rate Production Delivery Start (FRP 2)	3	2014	1	2015
Full Rate Production Delivery Start (FRP 3)	3	2015	4	2015
DT-IIE	2	2010	4	2010
OT-IIA OPERATIONAL TESTING (OPEVAL)	2	2011	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	**PROJECT** 2047: *ALMDS*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
DT-IIF	2	2015	4	2015
OT-IIB OPERATIONAL TESTING (OPEVAL)	4	2015	4	2015
DT-IT	1	2011	1	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2427: *OASIS*	

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
2427: *OASIS*	6.852	9.791	6.029	0.000	6.029	5.742	0.000	0.000	0.000	0.000	123.927
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Organic Airborne and Surface Influence Sweep (OASIS) system is a towed Minesweeping System to be deployed from specially configured MH-60S helicopters. The system provides a rapid response sweeping capability against bottom and moored, buried, acoustic and magnetic, or combination acoustic/magnetic influence mines in support of mine clearance operations where mine hunting is ineffective. The system consists of a towed body, tow and sweep cable systems, power inverter, power distribution unit and storage/shipping containers. System interfaces with the MH-60S helicopter via the carriage, stream, tow and recovery system and the common console. The program is currently in the SD&D phase where three Engineering Development Models (EDMs) are being developed for test and evaluation. Areas of interest for program enhancement include but are not limited to the following: A) Real-time Mission Planning B) Threat Emulation Jamming C) Improved Power Inverter D) Light weight winch drive-train E) Improved magnetic performance.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition Workforce	0.034	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Funded DoD Acquisition Workforce Fund.					
Product Development:	0.827	0.867	0.441	0.000	0.441
FY 2009 Accomplishments: Continue OASIS EDM development work issues including corrosion, forward electrode, and AFT Sweep Cable Conduct CDR for Body Mount lectrode BME design Investigate and improve sweep cable component life Prepare EDMs for Operational Assessmenyt and MH-60 CT					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2427: *OASIS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue EDM development through MH-60 CT MS C Review *FY 2011 Base Plans:* Prepare EDMs for DT and OT					
Engineering and ILS: *FY 2009 Accomplishments:* Engineering and ILS support for ORCA contract Office of Naval Research program support Support for development of OASIS Maintenance Test Sets Analysis of MIL-STD 704A Testing Issues *FY 2010 Plans:* Office of Naval Research program support Engineering and ILS support for Operational Assessment Engineering and ILS BME Design and Development *FY 2011 Base Plans:* Office of Naval Research program support Engineering and ILS support for CT and DT	4.773	5.423	3.050	0.000	3.050
Testing: *FY 2009 Accomplishments:* Begin Environmental Testing	0.765	3.039	2.093	0.000	2.093

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2427: *OASIS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Conduct Operational Assessment Conduct MH60 Worthiness Testing *FY 2011 Base Plans:* Conduct Training for WSIT CT					
Program Management *FY 2009 Accomplishments:* Monitor contractor progress with regard to schedule, cost, and technical status management Monitor contractor CDRL and other deliverables *FY 2010 Plans:* Monitor contractor progress with regard to schedule, cost, and technical status management Monitor contractor CDRL and other deliverables *FY 2011 Base Plans:* Monitor contractor progress with regard to schedule, cost, and technical status management Monitor contractor CDRL and other deliverables	0.453	0.462	0.445	0.000	0.445
Accomplishments/Planned Programs Subtotals	6.852	9.791	6.029	0.000	6.029

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2427: *OASIS*

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 4248: *Airborne MCM - OASIS*	0.000	0.000	0.000	0.000	0.000	9.400	11.200	11.300	8.500	16.000	56.400
• OPN 1600: *LCS Mission Modules*	0.000	0.000	0.000	0.000	0.000	2.600	2.600	2.732	2.800	51.200	61.932

D. Acquisition Strategy

After Milestone B review in FY02, a SD&D contract was awarded. In FY07, the program successfully completed MH-53 CT and Tower Testing. An Operational Assessment is planned for FY09 MH-60 CT in FY10 and the DT and OPEVAL in FY11.

E. Performance Metrics

Successfully complete contractor test on the Body Mounted Electrode (BME) design and receive Milestone C approval.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2427: *OASIS*

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/Software Development	C/CPFF	EDO Corp. Not Specified	1.722	0.527	Nov 2009	0.030	Nov 2010	0.000		0.030	0.000	2.279	Continuing
Hardware/Software Development for BME	C/CPIF	EDO Corp. Not Specified	12.689	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Hardware/Software Development	SS/CPFF	Aeptec Microsystems Inc. Not Specified	5.898	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Hardware/Software Development	WR	NSWC PC Panama City Fl	0.425	0.340	Nov 2009	0.411	Nov 2010	0.000		0.411	0.000	1.176	Continuing
		Subtotal	20.734	0.867		0.441		0.000		0.441			

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
Engineering Services	WR	NUWC Keyport Keyport, WA	0.659	0.000		0.000		0.000		0.000	0.000	0.659	Continuing
Engineering Services	C/CPIF	EDO Corp. C/CPIF	15.053	1.411	Nov 2009	0.811	Nov 2010	0.000		0.811	Continuing	Continuing	Continuing
Engineering Services	WR	NSWC PC Panama City Fl	15.350	2.437	Nov 2009	1.123	Nov 2010	0.000		1.123	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2427: *OASIS*

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
Engineering Services	WR	NSWC Carderock MD Bathesda, MD	0.300	0.000		0.000		0.000		0.000	0.000	0.300	Continuing
Engineer Services/ILS	C/Various	Various VAR	0.548	0.000		0.000		0.000		0.000	0.000	0.548	Continuing
Engineering Services	WR	ONR Not Specified	8.595	0.925	Nov 2009	0.440	Nov 2010	0.000		0.440	0.499	10.459	Continuing
ILS Functions	C/CPIF	EDO Corp. Not Specified	4.525	0.200	Nov 2009	0.497	Nov 2010	0.000		0.497	0.195	5.417	Continuing
ILS Functions	WR	NSWC, PC Panama City Fl	2.736	0.450	Nov 2009	0.179	Nov 2010	0.000		0.179	0.412	3.777	Continuing
		Subtotal	47.766	5.423		3.050		0.000		3.050			

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
T&E Functions	C/CPIF	EDO Corp C/CPIF	7.668	0.124	Nov 2009	0.386	Nov 2010	0.000		0.386	Continuing	Continuing	Continuing
T&E Functions	WR	NSWC PC Panama City FL	13.055	2.915	Nov 2009	1.707	Nov 2010	0.000		1.707	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2427: *OASIS*	

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
T&E Functions	C/Various	Various VAR	0.554	0.000		0.000		0.000		0.000	0.000	0.554	Continuing
		Subtotal	21.277	3.039		2.093		0.000		2.093			

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 Services	C/Various	Various VAR	5.678	0.432	Nov 2009	0.410	Nov 2010	0.000		0.410	Continuing	Continuing	Continuing
Travel	C/TBD	NAVSEA Washington, DC	0.310	0.030	Nov 2009	0.035		0.000		0.035	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various/ Various	Various Various	0.034	0.000		0.000		0.000		0.000	0.000	0.034	Continuing
		Subtotal	6.022	0.462		0.445		0.000		0.445			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2427: *OASIS*	

	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	95.799	9.791		6.029		0.000		6.029			

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	**PROJECT** 2427: *OASIS*

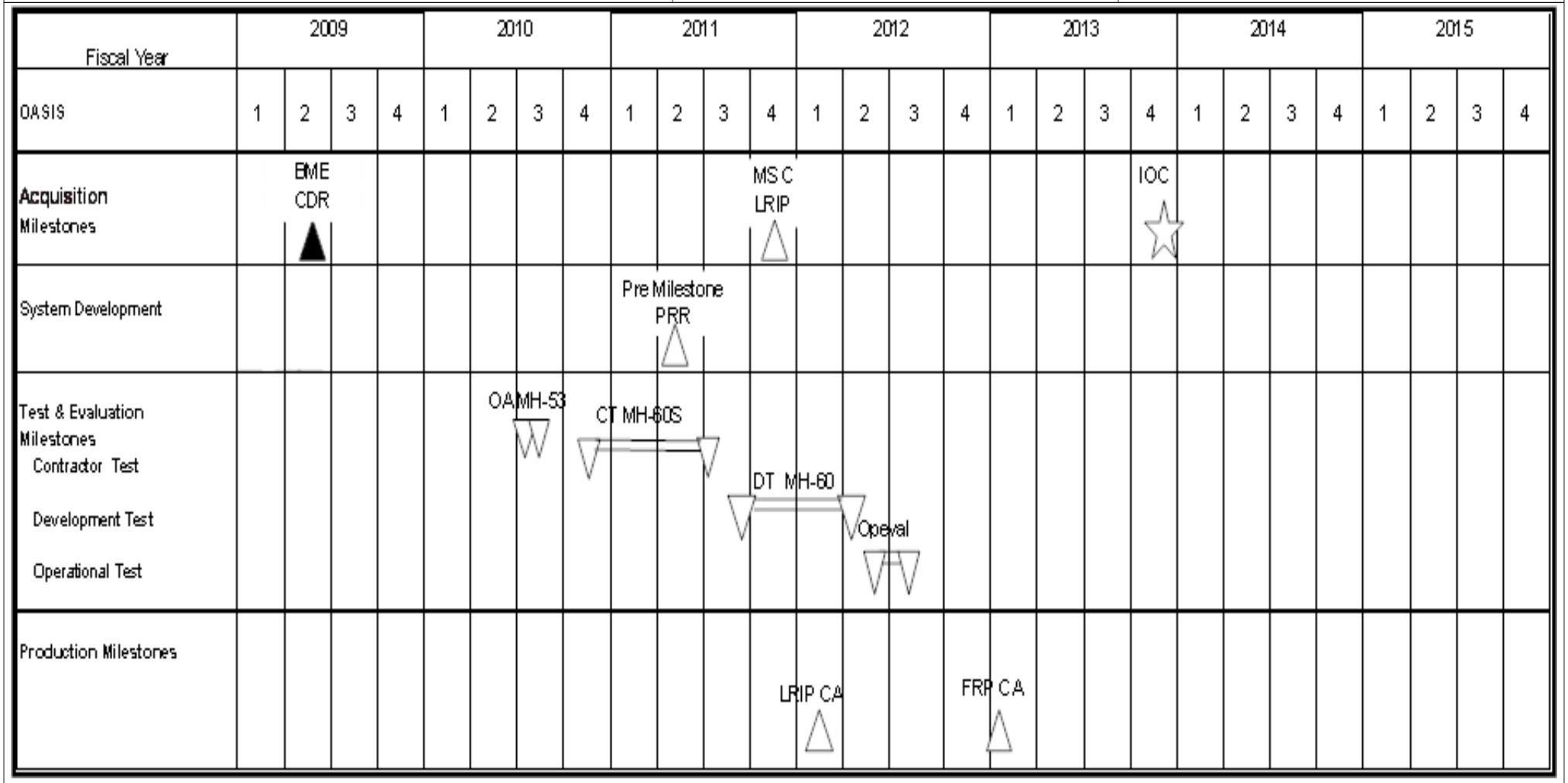


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2427: *OASIS*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
BME CDR	2	2009	2	2009
MH-53 OA	3	2010	3	2010
CT MH-60s Testing	4	2010	3	2011
DT Testing	3	2011	2	2012
OPEVAL	2	2012	3	2012
Milestone C (LRIP)	4	2011	4	2011
Pre Milestone PRR	2	2011	2	2011
LRIP Contract Award	1	2012	1	2012
FRP Contract Award	1	2013	1	2013
Initial Operational Capability (IOC)	4	2013	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization 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
2473: *Airborne Mine Neutralization System*	19.831	20.026	16.597	0.000	16.597	22.324	9.869	6.088	0.000	0.000	296.947
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

AMNS will provide the MH-60S helicopter with the capability to neutralize bottom and moored mines using an expendable mine neutralization device. The AMNS is being tested on the MH-53E helicopter to prove out the neutralization effectiveness. The system will be deployed from the MH-60S helicopter as part of the Littoral Combat Ship (LCS) Mine Warfare Mission Module. This capability will be of critical importance in littoral zones, confined straits, choke points, and the Amphibious Objective Area (AOA). Development of an Untethered Launch and Handling System (LHS) for AMNS will occur in FY11-FY15.

The AN/AWS-2 Rapid Airborne Mine Clearance System (RAMICS) MIW program began Concept & Technology Development phase in FY00. RAMICS will satisfy the U.S. Navy's need for a rapid mine clearance capability required to neutralize near-surface and surface (floating) moored sea mines. RAMICS will use geo-location data provided by other mine hunting and mine reconnaissance systems, use a laser system to reacquire targets and to direct the fire of supercavitating projectiles that will render the mines inoperable. RAMICS includes the following major subsystems:
(a) Gun Subsystem (including gun and turret)
(b) Munition Subsystem - MK258 Mod 1 Armor Piercing, Fin Stabilized, Discarding Sabot-Tracer (APFSDS-T)
(c) Targeting Sensor Subsystem.
(d) Fire Control Subsystem.

The system will be deployed from the MH-60S helicopter and will provide organic airborne mine defense as part of Littoral Combat Ship (LCS) Mine Warfare Mission Module. This capability will be of critical importance in littoral zones, confined straits, choke points, and the Amphibious Objective Area (AOA).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition Workforce;	0.098	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Acquisition Workforce					
AMNS: Hardware/Software Development *FY 2009 Accomplishments:* Develop logistics products, including training materials and interactive technical manual. Provide engineering support, including review for product development and integration. *FY 2010 Plans:* Develop logistics products, including training materials and interactive technical manual. Provide engineering support, including review for product development and integration. *FY 2011 Base Plans:* Develop logistics products, including training materials and interactive technical manual. Provide engineering support, including review for product development and integration.	2.307	2.515	1.305	0.000	1.305
AMNS: Test Events *FY 2009 Accomplishments:* Conduct Regression Testing prior to re-entry MH-60S TECHEVAL. *FY 2010 Plans:* Complete MH-60S TECHEVAL. *FY 2011 Base Plans:* Conduct MH-60S OPEVAL. Support testing on untethered LHS.	3.029	4.621	2.785	0.000	2.785

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
AMNS: Program Management *FY 2009 Accomplishments:* Provide Program Management support and travel for AMNS. *FY 2010 Plans:* Provide Program Management support and travel for AMNS. *FY 2011 Base Plans:* Provide Program Management support and travel for AMNS.	0.164	0.229	0.383	0.000	0.383
AMNS: Engineering *FY 2011 Base Plans:* Develop hardware and software for untethered LHS.	0.000	0.000	1.831	0.000	1.831
RAMICS: Hardware/Software Development Hardware and Software technology development and demonstration/Engineering Services. *FY 2009 Accomplishments:* Continue engineering associated development and demonstration/Engineering Services *FY 2010 Plans:* Continue engineering associated development and demonstration/Engineering Services *FY 2011 Base Plans:* Continue engineering and software development associated with Gun Qualification test and Pod Data Collection Testing.	3.856	2.605	5.925	0.000	5.925
RAMICS: ILS and Engineering	4.645	0.093	0.119	0.000	0.119

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Integrated Logistics Support *FY 2009 Accomplishments:* TDA support of ILS Program, to include training, documentation updates, and tech/maintenance updates. *FY 2010 Plans:* TDA support of ILS Program, to include training, documentation updates, and tech/maintenance updates. *FY 2011 Base Plans:* TDA support of ILS Program, to include training, documentation updates, and tech/maintenance updates.					
RAMICS: Engineering and Test Events Test and Evaluation of Gun Fire on the MH-60S and impacts on the airframe. *FY 2009 Accomplishments:* Conduct Initial Gun Fire and Static LIDAR Data Collection. *FY 2010 Plans:* Conduct Initial Gun Fire and Static LIDAR Data Collection. *FY 2011 Base Plans:* Final Engineering analysis of MH-60S Helicopter impact from Gun Fire Test. NSWC Crane, NSWC PC and NAVAIR Structures engineers coordination and analysis.	4.766	5.716	1.372	0.000	1.372
RAMICS: Program Management	0.966	4.247	2.877	0.000	2.877

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Project Management *FY 2009 Accomplishments:* TDA Program Management, Financial Management, Contract Management, Test and Contractor Support *FY 2010 Plans:* TDA Program Management, Financial Management, Contract Management, Test and Contractor Support *FY 2011 Base Plans:* TDA Program Management, Financial Management, Contract Management, Test and Contractor Support					
Accomplishments/Planned Programs Subtotals	19.831	20.026	16.597	0.000	16.597

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 4248 : *Airborne MCM - AMNS*	10.826	7.300	11.100	0.000	11.100	2.800	0.000	0.000	0.000	0.000	32.026
• WPN 4225/1: *Airborne MCM - AMNS*	8.551	4.439	18.936	0.000	18.936	22.427	43.802	59.701	45.053	0.000	202.909
• OPN 1600: *LCS Mission Modules*	0.000	2.822	2.800	0.000	2.800	2.800	2.800	3.000	3.000	0.000	17.222
• WPN 4225/2: *Airborne MCM - RAMICS*	0.000	0.000	0.000	0.000	0.000	0.000	12.354	18.464	6.118	0.000	36.936
• PANMC 0196: *MK 258 MOD - RAMICS*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.010	3.065	0.000	6.075
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.207	6.176	0.000	12.383

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization 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
• WPN 4221: *LCS MODULE WEAPONS-RAMICS*											

D. Acquisition Strategy

AMNS:Following a successful completion if Regression Testing on MH-60S, the Navy will award four (4) additional LRIP units to Raytheon.

Following a successful OT on an MH-60S, FRP is planned for FY10. The Navy has awarded a sole source contract for BAE for Common Neutralizer procurements.

RAMICS: Achieved MS B in July 2002 and awarded SD&D contract in August 2002 based on a full and open competition. RAMICS LRIP Award will follow MS C and an FRP Award will follow FRPDR.

E. Performance Metrics

Successfully complete Operational Test (OT) and receive Full Rate Production Decision approval.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization 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
Hardware/Software Development1	C/TBD	Lockheed Syracuse, NY Not Specified	3.331	0.000		0.000		0.000		0.000	0.000	3.331	Continuing
Hardware/Software Development2	C/Various	Various VAR	3.359	0.000		0.000		0.000		0.000	0.000	3.359	Continuing
Hardware/Software Development3	WR	NSWC PC Panama City FL	2.275	0.000		0.135	Nov 2010	0.000		0.135	0.462	2.872	Continuing
Hardware/Software Development4	C/TBD	Raytheon Portsmouth RI	16.354	0.000		0.370	Nov 2010	0.000		0.370	2.310	19.034	Continuing
Untethered Hardware Development	C/TBD	TBD C/CPIF	0.000	0.000		0.849	Nov 2010	0.000		0.849	5.366	6.215	Continuing
Untethered Hardware Development	WR	NSWC PC Panama City FL	0.000	0.000		0.170	Nov 2010	0.000		0.170	1.076	1.246	Continuing
Hardware/Software Development5	C/TBD	Northrop Grumman, FL C/CPIF	32.852	2.030	Oct 2009	4.780	Nov 2010	0.000		4.780	1.000	40.662	Continuing
Hardware/Software Development6	WR	NSWC PC Panama City FL	2.892	0.000	Oct 2009	0.012	Nov 2010	0.000		0.012	1.010	3.914	Continuing
Hardware/Software Development7	WR	NSWC Crane Crane IN	2.470	0.000	Oct 2009	0.000	Nov 2010	0.000		0.000	0.000	2.470	Continuing
		Subtotal	63.533	2.030		6.316		0.000		6.316	11.224	83.103	

Remarks

BOTH AMNS and RAMICS

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization 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
Engineering Services	C/Various	Various VAR	3.300	0.000		0.000		0.000		0.000	0.000	3.300	Continuing
Engineering Services	WR	NSWC Panama City FL	20.550	1.572	Nov 2009	0.189	Nov 2010	0.000		0.189	0.643	22.954	Continuing
Engineering Services	C/CPIF	Raytheon Portsmouth RI	9.702	0.665	Nov 2009	0.138	Nov 2010	0.000		0.138	0.472	10.977	Continuing
Untethered Engineering Services	C/CPIF	TBD Not Specified	0.000	0.000		0.330	Nov 2010	0.000		0.330	0.995	1.325	Continuing
Untethered Engineering Services	WR	NSWC PC Panama City FL	0.000	0.000		0.330	Nov 2010	0.000		0.330	1.499	1.829	Continuing
ILS Functions1	WR	NSWC PC Panama City FL	4.797	0.194	Nov 2009	0.115	Nov 2010	0.000		0.115	0.392	5.498	Continuing
ILS Functions2	SS/CPFF	Lockheed Syracuse NY	0.227	0.000		0.000		0.000		0.000	0.000	0.227	Continuing
ILS Functions3	C/CPIF	Raytheon, Portsmouth RI	2.112	0.084	Nov 2009	0.033	Nov 2010	0.000		0.033	0.112	2.341	Continuing
Untethered ILS Functions	C/CPIF	TBD Not Specified	0.000	0.000		0.085	Nov 2010	0.000		0.085	0.229	0.314	Continuing
Untethered ILS Functions	WR	NSWC PC Panama City FL	0.000	0.000		0.085	Nov 2010	0.000		0.085	1.052	1.137	Continuing
Engineering Services	C/CPIF	Northrop Grumman Melbourne FL	14.269	0.532	Oct 2009	1.090	Nov 2010	0.000		1.090	1.500	17.391	Continuing
Engineering Services	WR	NSWC PC Panama City FL	9.934	0.043	Oct 2009	0.043	Nov 2010	0.000		0.043	1.500	11.520	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization 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
Engineering Services	WR	NSWC, Crane Crane, IN	2.777	0.000	Oct 2009	0.650	Dec 2010	0.000		0.650	0.100	3.527	Continuing
Engineering Services	WR	Various Various	2.557	0.000	Oct 2009	0.000		0.000		0.000	0.100	2.657	Continuing
ILS Functions4	SS/CPIF	Northrop Grumman Melbourne FL	6.370	0.000	Oct 2009	0.000		0.000		0.000	0.500	6.870	Continuing
ILS Functions5	WR	NSWC PC Panama City FL	1.510	0.093	Oct 2009	0.119	Nov 2010	0.000		0.119	1.000	2.722	Continuing
ILS Functions6	C/Various	Various Various	2.255	0.000	Oct 2009	0.000		0.000		0.000	0.100	2.355	Continuing
		Subtotal	80.360	3.183		3.207		0.000		3.207	10.194	96.944	

Remarks

BOTH AMNS and RAMICS

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	0.300	0.000		0.000		0.000		0.000	0.000	0.300	Continuing
	WR	NSWC, PC	23.681	3.002	Nov 2009	0.000		0.000		0.000	0.000	26.683	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization 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
Development Test & Evaluation		Panama City FL											
Development Test & Evaluation	SS/CPFF	Lockheed Martin Syracuse, NY	1.254	0.000		0.000		0.000		0.000	0.000	1.254	Continuing
Development Test & Evaluation	C/CPIF	Raytheon Portsmouth RI	6.907	0.924	Nov 2009	0.000		0.000		0.000	0.000	7.831	Continuing
Operational Test & Evaluation	WR	COTF Norfolk VA	1.388	0.000		2.260	Nov 2010	0.000		2.260	0.000	3.648	Continuing
Operational Test & Evaluation	SS/CPFF	Lockheed Syracuse NY	0.767	0.000		0.000		0.000		0.000	0.000	0.767	Continuing
Test Assets	C/CPIF	Raytheon Portsmouth RI	3.065	0.000		0.000		0.000		0.000	0.000	3.065	Continuing
Untethered Test and Evaluation	C/CPIF	TBD Not Specified	0.000	0.000		0.085	Nov 2010	0.000		0.085	0.559	0.644	Continuing
Untethered Test and Evaluation	WR	NSWC PC Panama City FL	0.000	0.000		0.085	Nov 2010	0.000		0.085	2.798	2.883	Continuing
Follow on Test and Evaluation	WR	NSWC PC Panama City FL	0.000	0.000		0.289	Nov 2010	0.000		0.289	0.987	1.276	Continuing
Follow on Test and Evaluation	C/CPIF	Raytheon Portsmouth RI	0.000	0.924	Nov 2009	0.066	Nov 2010	0.000		0.066	0.224	1.214	Continuing
Test & Evaluation	C/CPIF	Northrop Grumman Melbourne FL	10.948	3.103	Oct 2009	0.726	Dec 2010	0.000		0.726	0.750	15.527	Continuing
Test & Evaluation	WR	NSWC PC Panama City FL	5.313	2.613	Oct 2009	0.646	Dec 2010	0.000		0.646	0.750	9.322	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization 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
Test & Evaluation	WR	NSWC, Crane Crane IN	1.230	0.000		0.000		0.000		0.000	1.000	2.230	Continuing
Test & Evaluation	C/Various	Various Various	7.360	0.000		0.000		0.000		0.000	0.750	8.110	Continuing
Test & Evaluation	C/FFP	QinetiQ, UK	0.000	0.000		0.000		0.000		0.000	0.000	0.000	Continuing
		Subtotal	62.213	10.566		4.157		0.000		4.157	7.818	84.754	

Remarks

BOTH AMNS and RAMICS

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/Various	Various VAR	2.902	2.147	Nov 2009	2.877	Nov 2010	0.000		2.877	0.158	8.084	Continuing
Travel	C/TBD	NAVSEA PD	0.374	0.050	Nov 2009	0.040	Nov 2010	0.000		0.040	0.040	0.504	Continuing
Untethered Program Management	C/Various	TBD VAR	0.000	0.000		0.000		0.000		0.000	0.368	0.368	Continuing
Management Support	C/Various	Various Various	4.002	2.000	Oct 2009	0.000		0.000		0.000	0.800	6.802	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization 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
Management Support	C/TBD	Travel PD	0.290	0.050	Oct 2009	0.000		0.000		0.000	0.100	0.440	Continuing
DAWDF	C/TBD	Not Specified Not Specified	0.098	0.000		0.000		0.000		0.000	0.000	0.098	Continuing
		Subtotal	7.666	4.247		2.917		0.000		2.917	1.466	16.296	

Remarks

BOTH AMNS and RAMICS

	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	213.772	20.026		16.597		0.000		16.597	30.702	281.097	

Remarks

BOTH AMNS and RAMICS

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	**PROJECT** 2473: *Airborne Mine Neutralization System*

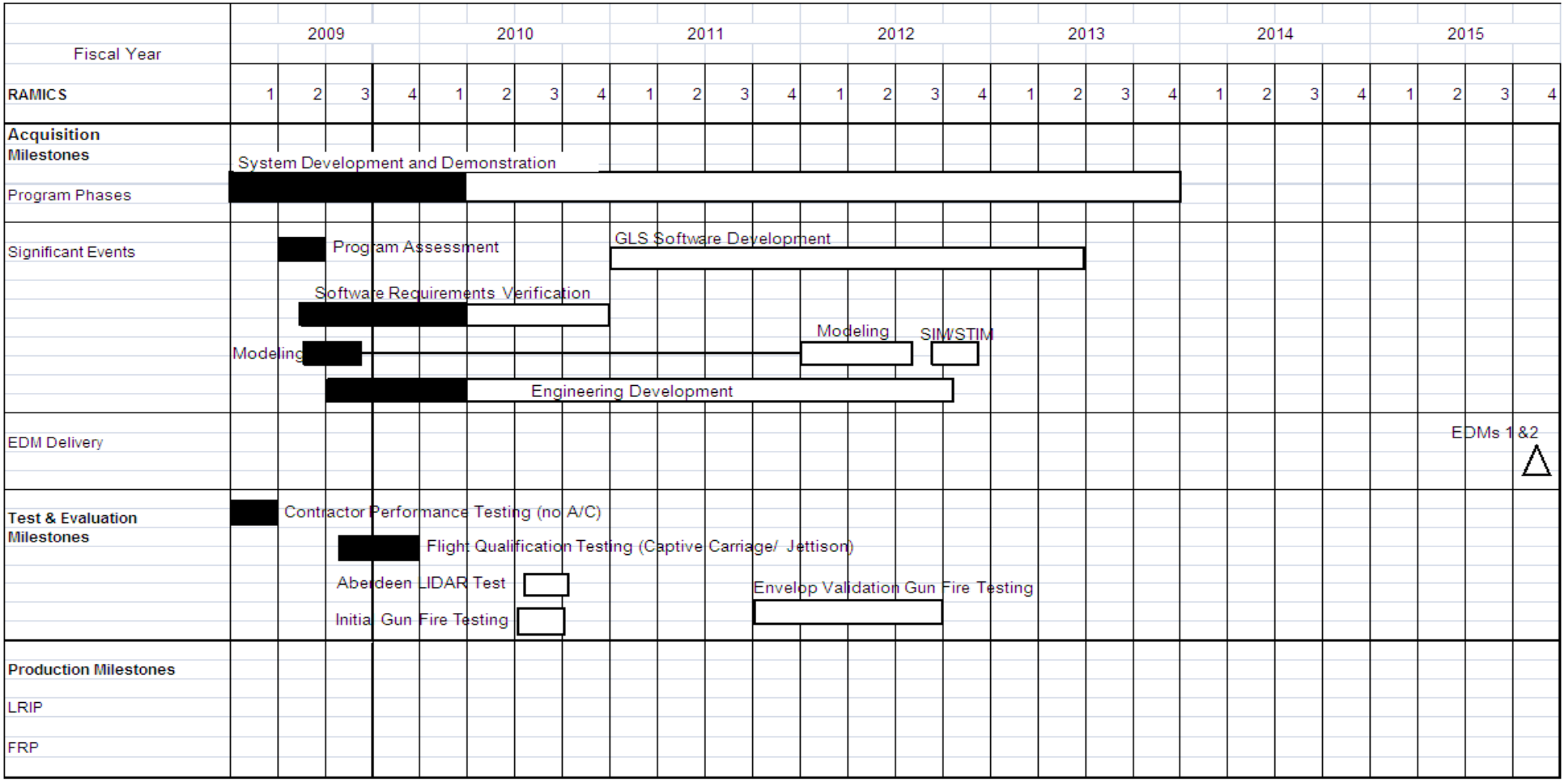


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	**PROJECT** 2473: *Airborne Mine Neutralization System*

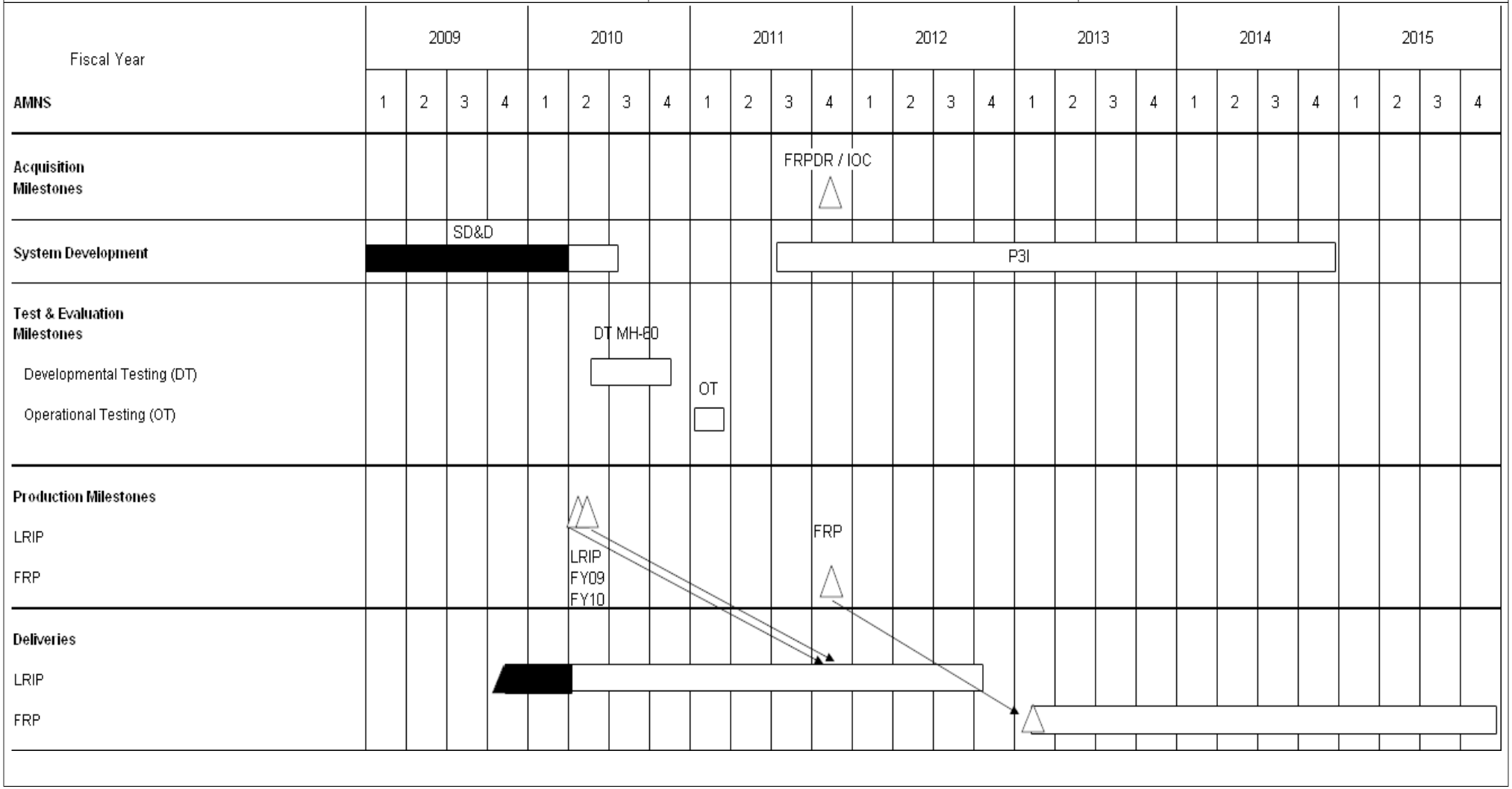


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization System*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
AMNS SD&D Phase	1	2009	3	2010
AMNS Development Testing (MH-60s)	2	2010	3	2010
AMNS Operational Testing (MH-60s) Start	1	2011	1	2011
AMNS LRIP (FY09)	2	2010	2	2010
AMNS LRIP (FY10)	2	2010	2	2010
AMNS FRPDR	4	2011	4	2011
AMNS LRIP Deliveries Start	4	2009	4	2012
AMNS FRP Deliveries Start	1	2013	4	2015
AMNS P3I Development	3	2011	4	2014
RAMICS System Development and Demonstration (SD&D) Phase	1	2009	4	2013
RAMICS Program Assessment	2	2009	2	2009
RAMICS GLS Software	1	2011	2	2013
RAMICS Software Requirements Verification	2	2009	4	2010
RAMICS Modeling	2	2009	3	2012
RAMICS SIM/STIM	3	2012	4	2012
RAMICS Engineer Development Model (EDM) Units 1 & 2	4	2015	4	2015
RAMICS Contractor Performance Testing (no A/C)	1	2009	1	2009
RAMICS Flight Qualification Testing (Captive Carriage/Jettison)	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 2473: *Airborne Mine Neutralization System*

	Start		End	
Event	Quarter	Year	Quarter	Year
LIDAR Test	3	2010	4	2010
Gun Fire Test	3	2010	3	2010
Val Gun Fire Test	4	2011	3	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 4026: *Strat Into Medal, Tactics & Trng Organic Force*	

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
4026: *Strat Into Medal, Tactics & Trng Organic Force*	2.716	1.938	1.798	0.000	1.798	1.820	1.846	1.895	1.845	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The C4I, Tactics, Mission Planning, and Post-Mission Analysis (CTMP) program began in FY97 as an initiative to provide near-real-time data linking of mine sensor data between the MH-53E aircraft and ship- and/or shore-based command centers. Additionally, the program began to develop MEDAL modules for each "Next Generation" system; and plans to develop "Next Generation" tactics; provide threat data and system requirements and capabilities to the MEDAL software development effort; and develop a common post-mission analysis tool for "Next Generation" systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ACQUISITION WORKFORCE FUND	0.013	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Funded DoD Acquisition Workforce Fund.					
Hardware/Software Development	0.762	0.816	0.844	0.000	0.844
FY 2009 Accomplishments: Code core OPMA module *FY 2010 Plans:* Code system-specific OPMA Modules *FY 2011 Base Plans:* Code system-specific OPMA Modules					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 4026: *Strat Into Medal, Tactics & Trng Organic Force*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Engineering Services/ILS: *FY 2009 Accomplishments:* Reachback Support for tactical employment of OAMCM systems *FY 2010 Plans:* Incorporate tactics lessons learned into TACMEMOs *FY 2011 Base Plans:* ILS planning for OPMA	1.765	1.007	0.849	0.000	0.849
T&E Support Support for MEDAL/PMA *FY 2010 Plans:* T&E Support for MEDAL/PMA integration during WSIT CT and DT	0.000	0.115	0.000	0.000	0.000
Management Support *FY 2009 Accomplishments:* MEDAL contractor management support to CTMP *FY 2011 Base Plans:* MEDAL contractor management support to CTMP	0.176	0.000	0.105	0.000	0.105
Accomplishments/Planned Programs Subtotals	2.716	1.938	1.798	0.000	1.798

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 4026: *Strat Into Medal, Tactics & Trng Organic Force*

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 4248: *Airborne MCM - OPMA*	0.256	0.256	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.512

D. Acquisition Strategy

The Organic Post-Mission Analysis (OPMA) capability for the OAMCM systems will be developed by NSWC PC, Panama City, FL. The OPMA project will leverage existing system-specific developmental PMA software, maximize commonality, and host the software on a common shipboard computer. OPN funding will be used to procure ruggedized portable OPMA computers for ship of opportunity deployments, land basing, and training. Development of OAMCM-system-specific MEDAL modules will be performed by SAIC, McLean, VA. This effort will include post-test updates for the system-specific MEDAL modules to allow transition to a Fleet release. NSWC-PC will contract for this work on a time and materials basis. The tactics development, tactics training, and tactics algorithms/database efforts are performed by NSWC-PC. These efforts will provide reach back support as the OAMCM systems begin to be fielded; will develop modifications to environmental databases necessary to support OAMCM mission planning; will update the MIW Tactics Continuum to address OAMCM; and will update the gear and mine database for threats addressed by the OAMCM systems.

E. Performance Metrics

Successfully integrate CTMP into the fleet.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 4026: *Strat Into Medal, Tactics & Trng Organic Force*

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/Software Development	C/TBD	SAIC Not Specified	0.792	0.275	Nov 2009	0.844	Dec 2010	0.000		0.844	Continuing	Continuing	Continuing
Hardware/Software Development	WR	NSWC PC Panama City FL	2.044	0.541	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	2.836	0.816		0.844		0.000		0.844			

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
Engineering Services	WR	NAVO Not Specified	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Engineering Services	C/Various	Various VAR	0.595	0.282	Nov 2009	0.304	Nov 2010	0.000		0.304	Continuing	Continuing	Continuing
Engineering Services	WR	NSWC PC Panama City FL	2.023	0.560	Nov 2009	0.456	Nov 2010	0.000		0.456	Continuing	Continuing	Continuing
Engineering Services	C/TBD	BAE Not Specified	0.609	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Engineering Services	C/TBD	SAIC Not Specified	0.331	0.000		0.089	Nov 2010	0.000		0.089	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 4026: *Strat Into Medal, Tactics & Trng Organic Force*

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
ILS	WR	NSWC PC Panama City FL	0.745	0.165	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	4.303	1.007		0.849		0.000		0.849			

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	WR	NSWC PC Panama City FL	0.040	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	0.040	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 4026: *Strat Into Medal, Tactics & Trng Organic Force*

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 Support	WR	NSWC PC Panama City FL	0.687	0.090	Oct 2009	0.105	Dec 2010	0.000		0.105	Continuing	Continuing	Continuing
Management Support	C/TBD	SAIC Not Specified	0.083	0.025	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various/ Various	Various Various	0.013	0.000		0.000		0.000		0.000	0.000	0.013	Continuing
		Subtotal	0.783	0.115		0.105		0.000		0.105			

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	7.962	1.938		1.798		0.000		1.798			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	**PROJECT** 4026: *Strat Into Medal, Tactics & Trng Organic Force*

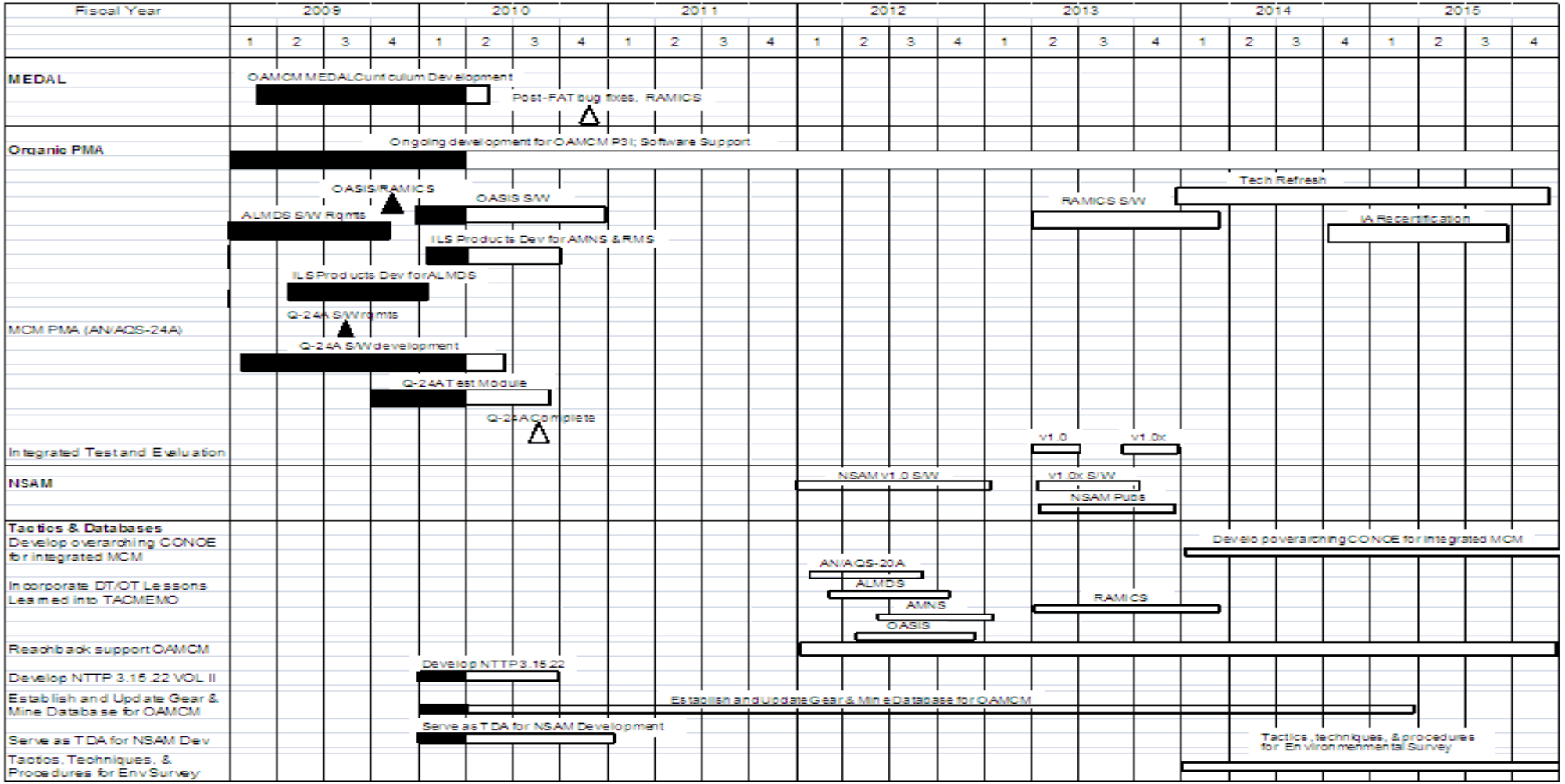


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 4026: *Strat Into Medal, Tactics & Trng Organic Force*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
MEDAL: OAMCM Medal Curriculum Development	1	2009	2	2010
MEDAL: RAMICS Post FAT Bug Fixes	4	2010	4	2010
OPMA: Ongoing Development for P3I; Software	1	2009	4	2015
OPMA: OASIS/RAMICS S/W	4	2009	4	2009
OPMA: OASIS S/W	4	2009	4	2010
OPMA: RAMICS S/W	2	2013	1	2014
OPMA: Tech Refresh	1	2014	4	2015
OPMA: ALMDS S/W Rqmts	1	2009	4	2009
OPMA: IA Recertification	4	2014	3	2015
OPMA: ILS Products Dev for AMNS & RMS	1	2010	3	2010
OPMA: ILS Products Dev for ALMDS	2	2009	1	2010
MCM PMA: Q-24A S/W Rqmts	3	2009	3	2009
MCM PMA: Q-24A S/W Development	1	2009	2	2010
MCM PMA: Q-24A Test Module	4	2009	3	2010
MCM PMA: Q-24A Complete	3	2010	3	2010
Integrated T&E: v1.0	2	2013	2	2013
Integrated T&E: v1.0x	3	2013	4	2013
NSAM: NSAM v1.0 S/W	1	2012	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 4026: *Strat Into Medal, Tactics & Trng Organic Force*

	Start		End	
Event	Quarter	Year	Quarter	Year
NSAM: NSAM v1.0x S/W	2	2013	4	2013
NSAM: NSAM Pubs	2	2013	4	2013
Develop CONOE for Integrated MCM	1	2014	4	2015
Develop NTTP 3.15.22 VOL II	1	2010	3	2010
Gear & Mine Database for OAMCM	4	2009	1	2015
Serve as TDA fo NSAM Development	1	2010	1	2011
Tactics Techniques	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 9179: *Surf Navy Integ Undersea Tactical 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
9179: *Surf Navy Integ Undersea Tactical Tech*	0.666	0.955	0.909	0.000	0.909	0.926	0.923	0.943	0.964	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Surface Navy Integrated Undersea Tactical Technology (SNIUTT) will be used to develop an AN/SQQ-32, AN/AQS-14, AN/AQS-24, AN/AQS-20A and future OAMCM sensor training modules.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ACQUISITION WORKFORCE FUND *FY 2009 Accomplishments:* Funded DoD Acquisition Workforce Fund.	0.003	0.000	0.000	0.000	0.000
Hardware and Software Development *FY 2009 Accomplishments:* Development of an AN/AQQ-32, AN/AQS-14, AN/AQS-20A sonar training module. Also development of a Scenario Generator software system for REMUS for mine like contact recognition training and ALMDS training modules. *FY 2010 Plans:* Development of an AN/AQQ-32, AN/AQS-14, AN/AQS-20A sonar training module. Also development of a Scenario Generator software system for REMUS for mine like contact recognition training and ALMDS training modules.	0.552	0.826	0.773	0.000	0.773

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 9179: *Surf Navy Integ Undersea Tactical Tech*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Development of an AN/AQQ-32, AN/AQS-14, AN/AQS-20A sonar training module. Also development of a Scenario Generator software system for REMUS for mine like contact recognition training and ALMDS training modules.					
Engineering and ILS Services *FY 2009 Accomplishments:* SNIUTT In-Service Engineering Agent (ISEA) and development support is provided by Naval Surface Warfare Center, Panama City (NSWC PC). *FY 2010 Plans:* SNIUTT In-Service Engineering Agent (ISEA) and development support is provided by Naval Surface Warfare Center, Panama City (NSWC PC). *FY 2011 Base Plans:* SNIUTT In-Service Engineering Agent (ISEA) and development support is provided by Naval Surface Warfare Center, Panama City (NSWC PC).	0.111	0.129	0.136	0.000	0.136
Accomplishments/Planned Programs Subtotals	0.666	0.955	0.909	0.000	0.909

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 9179: *Surf Navy Integ Undersea Tactical Tech*

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 4248: *Airborne MCM - SNIUTT*	0.120	0.120	0.120	0.000	0.120	0.300	0.300	0.306	0.312	0.000	1.578

D. Acquisition Strategy

Surface Navy Integrated Undersea Tactical Technology (SNIUTT) has been used to develop an AN/SQQ-32, AN/AQS-14, AN/AQS-24 and AN/AQS-20A sensor training modules. Funds will continue to support training for these four sonar systems, as well as training for the REMUS sonar systems and other OAMCM systems in the same format as previous training. The SNIUTT sensor training modules will be developed by NSWC PC, Panama City, FL, in association with Advanced Acoustic Concepts (AAC), Ronkonkoma, NY. NSWC PC will contract with AAC for this work under a Cost Plus Fixed-Fee (CPFF) scenario. Funds are being provided for development and delivery of refresher scenario based contact recognition training, and the update and modification of contact recognition training (interactive web based training and proficiency focused stand-alone training) in support of the SNIUTT program.

E. Performance Metrics

Successfully integrate SNIUTT into the school house training facility.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 9179: *Surf Navy Integ Undersea Tactical 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
Hardware Software Development	WR	NSWC PC Not Specified	0.549	0.830	Oct 2009	0.773	Oct 2010	0.000		0.773	0.000	2.152	Continuing
		Subtotal	0.549	0.830		0.773		0.000		0.773	0.000	2.152	

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
ISEA	WR	NSWC, PC Panama City FL	0.114	0.125	Oct 2009	0.136	Oct 2010	0.000		0.136	0.000	0.375	Continuing
		Subtotal	0.114	0.125		0.136		0.000		0.136	0.000	0.375	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 9179: *Surf Navy Integ Undersea Tactical Tech*

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
DAWDF	WR	Not Specified Not Specified	0.003	0.000		0.000		0.000		0.000	0.000	0.003	Continuing
		Subtotal	0.003	0.000		0.000		0.000		0.000	0.000	0.003	

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	0.666	0.955		0.909		0.000		0.909	0.000	2.530	

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	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*	1.995	2.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.327
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

9A39A - AMCM Open Architecture Technology Insertion Congressional Add - In support of Airborne Mine Countermeasure (AMCM) systems, this initiative will provide open systems migration of unique military standard sensors, electronics, and software system components to lower cost/higher performance commercial equivalent capabilities. This effort will develop and accelerate an Open Architecture Multi-static Technology Insertion solution for the Navy's Airborne Mine Countermeasures Program. The anticipated result is lower cost/higher performance equivalent capabilities based on open architecture software and hardware components.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Common Air Mine Countermeasures Tow Cable *FY 2010 Plans:* Common Air Mine Countermeasures Tow Cable - (Congressional Add); In support of Airborne Mine Countermeasure (AMCM) systems, this initiative will design/develop a common tow cable for the Airborne Mine Counter Mine (AMCM) Systems to the unique military standard sensors, electronics, and software system components for a lower cost/higher performance commercial equivalent capabilities.	0.000	2.390
Congressional Add: AIRBORNE MINE COUNTERMEASURES OPEN ARCHITECTURE TE *FY 2009 Accomplishments:* 9A39A - AMCM Open Architecture Technology Insertion Congressional Add - In support of Airborne Mine Countermeasure (AMCM) systems, this initiative will provide open systems migration of	1.995	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604373N: *Airborne Mine Countermeasures (AMCM)*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
unique military standard sensors, electronics, and software system components to lower cost/higher performance commercial equivalent capabilities. This effort will develop and accelerate an Open Architecture Multi-static Technology Insertion solution for the Navy's Airborne Mine Countermeasures Program. The anticipated result is lower cost/higher performance equivalent capabilities based on open architecture software and hardware components.		
Congressional Adds Subtotals	1.995	2.390

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*

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	12.079	11.678	21.517	0.000	21.517	19.910	21.791	4.916	5.016	Continuing	Continuing
3159: *Naval Integrated Fire Control-Counter Air SE&I*	9.287	11.678	21.517	0.000	21.517	19.910	21.791	4.916	5.016	Continuing	Continuing
9999: *Congressional Adds*	2.792	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.260

A. Mission Description and Budget Item Justification

3159 Naval Integrated Fire Control - Counter Air (NIFC-CA) Systems Engineering Integration and Test (SEI&T) project is a systems engineering effort to extend the Naval Theater Air and Missile Defense battlespace out to the maximum kinematic range of our weapons. This includes targets beyond the detection range of the shooter, including Engage On Remote (EoR) and Over the Horizon (OTH) targets. The NIFC-CA project exploits capabilities inherent in existing systems, optimizes current and emerging technologies in component system upgrades, integrates them together, performs kill chain tests, forming an interoperable System of Systems (SoS) to maximize future air defense capabilities. NIFC-CA consists of three kill chains called From the Air (FTA), From the Sea (FTS), and From the Land (FTL). As directed by OPNAV, the project is focused on SEI&T efforts to integrate the From TheSea (FTS) kill chain consisting of the E-2D Advanced Hawkeye, Cooperative Engagement Capability (CEC), AEGIS, and SM-6 missile. This PE will support efforts including system definition and architecture development, performance prediction, performance assessment, system test and risk reduction efforts, system analysis, modeling and simulation, and capability demonstrations for the FTS kill chain. The project also facilitates the development of the concept of operations with the warfighter to maximize effectiveness when deployed with the Fleet. This PE also includes SEI&T activities to integrate the US Army's Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS) into the FTS kill chain as an elevated sensor and conduct a joint demonstration of that capability when the Navy systems are mature.

9999 The AN/SPS-49 Radar received a Congressional Add in 2009. AN/SPS-49(V) radar system has become a Dimishing Manufacturing Source (DMS) issue with more than 17 Lowest Replaceable Units (LRU's) that are UTP (Unable To Procure). The AN/SPS-49(V) radar system is the Navy's primary two-dimensional (2D) long-range search radar. AN/SPS-49(V) radar systems are installed in CG, CVN, FFG, LSD, LHD classes and are planned for installation in the LHA(R) ship class. The AN/SPS-49 is scheduled to be in service another 40 years. The FY09 Congressional Add enables continued support of the SPS-49 current fielded systems in the interim period before the Radar Common Signal Data Processor is fielded. This addresses the obsolescence and DMS issues associated with the many Automated Test Equipment platforms utilized to repair the radar components and facilitates the development and implementation of an interim test and repair strategy for the current radar platforms.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	13.295	11.727	0.000	0.000	0.000
Current President's Budget	12.079	11.678	21.517	0.000	21.517
Total Adjustments	-1.216	-0.049	21.517	0.000	21.517
• Congressional General Reductions		-0.049			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.895	0.000			
• SBIR/STTR Transfer	-0.321	0.000			
• Program Adjustments	0.000	0.000	21.517	0.000	21.517

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *SUSTAINABILITY OF AN/NPS-49 COMMON SIGNAL DATA PRO*	2.792	0.000
Congressional Add Subtotals for Project: 9999	2.792	0.000
Congressional Add Totals for all Projects	2.792	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	PROJECT 3159: *Naval Integrated Fire Control-Counter Air SE&I*	

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
3159: *Naval Integrated Fire Control-Counter Air SE&I*	9.287	11.678	21.517	0.000	21.517	19.910	21.791	4.916	5.016	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

3159 Naval Integrated Fire Control - Counter Air (NIFC-CA) Systems Engineering Integration and Test (SEI&T) project is a systems engineering effort to extend the Naval Theater Air and Missile Defense battlespace out to the maximum kinematic range of our weapons. This includes targets beyond the detection range of the shooter, including Engage On Remote (EoR) and Over the Horizon (OTH) targets. The NIFC-CA project exploits capabilities inherent in existing systems, optimizes current and emerging technologies in component system upgrades, integrates them together, performs kill chain tests, forming an interoperable System of Systems (SoS) to maximize future air defense capabilities. NIFC-CA consists of three kill chains called From the Air (FTA), From the Sea (FTS), and From the Land (FTL). As directed by OPNAV, the project is focused on SEI&T efforts to integrate the From The Sea (FTS) kill chain consisting of the E-2D Advanced Hawkeye, Cooperative Engagement Capability (CEC), AEGIS, and SM-6 missile. This PE will support efforts including system definition and architecture development, performance prediction, performance assessment, system test and risk reduction efforts, system analysis, modeling and simulation, and capability demonstrations for the FTS kill chain. The project also facilitates the development of the concept of operations with the warfighter to maximize effectiveness when deployed with the Fleet. This PE also includes SEI&T activities to integrate the US Army's Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS) into the FTS kill chain as an elevated sensor and conduct a joint demonstration of that capability when the Navy systems are mature.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Defense Acquisition Workforce Development Fund DAWDF *FY 2009 Accomplishments:* DAWDF	0.051	0.000	0.000	0.000	0.000
Integration and Test (I&E) Integrated Product Team	2.064	3.500	6.463	0.000	6.463

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	PROJECT 3159: *Naval Integrated Fire Control-Counter Air SE&I*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Efforts: The Integration and Test (I&T) Integrated Product Team (IPT) develops and executes the test plan to assess the FTS operational capability, performs risk reduction testing leveraging various component system tests. Test data will be used over time to verify, validate, and accredit the FTS simulation federation. I&T IPT provides support to the Integrated Master Schedule (IMS) to include test design and planning, test security plans, data management and collection plans. *FY 2009 Accomplishments:* Developed plans for JLENS demonstration, participated in SM-6 live fire tests, provided test data to FTS simulation federation and E-2D. *FY 2010 Plans:* Participates in CEC/E-2D and CEC/AEGIS test and integration planning, SM-6 development test/operational test (DT/OT) testing, JLENS system testing and integration into FTS kill chain demonstration. *FY 2011 Base Plans:* Execute FTS tracking exercises with E-2D in conjunction with AEGIS Advanced Capability Build-12(ACB-12) Demonstration Certification Testing at Surface Combatant System Center (SCSC) Wallops Island.					
SEI&T INTEGRATED MASTER SCHEDULE Efforts: The SEI&T Integrated Master Schedule (IMS) is used as the primary tool for project planning and monitoring the efforts being performed by the SEI&T government and industry teams. This integrated engineering plan integrates the FTS Programs of Record schedules and how they relate to the FTS SEI&T effort, and the critical path to deployment. The IMS measures program performance (Earned Value (EV)-like metrics), and is used as a planning tool as the FTS contributing programs deploy at different times. The IMS contains all the tasks required to support deployment of the FTS capability.	1.906	0.400	0.350	0.000	0.350

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	PROJECT 3159: *Naval Integrated Fire Control-Counter Air SE&I*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Incorporated detailed JLENS program schedule into IMS; added JLENS demonstration activities to IMS; updated and monitored as required. *FY 2010 Plans:* Update and monitor as required. *FY 2011 Base Plans:* Update and monitor as required.					
ENGINEERING MANAGMENT AND SYSTEM DEFINITION Efforts: Engineering management and system definition including the development of the Systems Performance Document (SPD), SoS functional allocations, requirements, traceability, SoS trades studies, SoS information exchange requirements, interface specifications, and sensor network capability analysis. Provides for complete FTS kill chain performance analysis and interface verification through development of a federation of simulations provided directly from the FTS Programs of Record. Federated SoS simulations support architecture development, scenario development, predictive analysis for testing, and define capabilities and limitations of FTS kill chain performance analysis and interface verification through development of a federation of simulations provided directly from the FTS Programs of Record. Federated SoS simulations support architecture development, scenario development, predictive analysis for testing, and define capabilities and limitations of FTS kill chain for deployment. *FY 2009 Accomplishments:* Updated Measure of Effectiveness (MOE) and Measure of Performance (MOP), updated SoS interface requirement specs, continued builds for SoS Federation, conducted Performance Assessment Reports (system performance analysis), continued risk management and mitigation efforts, supported JLENS	4.942	7.507	4.498	0.000	4.498

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	PROJECT 3159: *Naval Integrated Fire Control-Counter Air SE&I*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SDD program for IFC issues, updated SoS Requirements Verification Matrix, supported development of Fleet TacMemos. *FY 2010 Plans:* Update MOE/MOPs, update SoS interface requirement specifications, continue builds for SoS Federation based on SoS test programs and results, conduct Performance Assessment Reports (SoS performance analysis), continue risk management and mitigation efforts, performs JLENS integration for demonstration. *FY 2011 Base Plans:* Update MOE/MOPs, update SoS interface requirement specifications, continue builds for SoS Federation based on SoS test programs and results, conduct Performance Assessment Reports (SoS performance analysis), conduct FoS tracking exercise leveraging AEGIS ACB-12 Demonstration/ Certification, continue risk management and mitigation efforts, performs JLENS integration for demonstration.					
SYSTEMS ENGINEERING, INTEGRATION AND TEST WITH ARMY JLENS PROGRAM Efforts: Perform Systems Engineering, Integration and Test with Army JLENS program. Supports modeling and simulation and predictive analysis with JLENS as airborne sensor in the FTS kill chain. Provides for demonstration planning, execution, and data analysis. *FY 2009 Accomplishments:* Continued participation in JLENS System Development and Demonstration (SDD), supported demonstration planning efforts. *FY 2010 Plans:* Continue participation in JLENS SDD, finalize demonstration planning.	0.324	0.271	10.206	0.000	10.206

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	PROJECT 3159: *Naval Integrated Fire Control-Counter Air SE&I*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Upgrade and Test WSMR Desert Ship with AEGIS ACB-12 functionality and CEC Land Mobile Unit. Integrate with JLENS onsite.					
Accomplishments/Planned Programs Subtotals	9.287	11.678	21.517	0.000	21.517

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
• 0603658N: *CEC*	2.850	2.080	2.080	0.000	2.080	2.121	2.164	2.207	2.251	Continuing	Continuing
• 0604366N: *Standard Missille SM-6*	208.051	136.176	70.132	0.000	70.132	37.001	23.272	10.323	7.426	Continuing	Continuing
• 0604307N: *AEGIS*	19.421	24.678	21.497	0.000	21.497	11.900	8.828	7.112	8.038	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

The NIFC-CA SEI&T contractor team shall execute Modeling and Simulation Federation builds 1.3 and 1.4, conduct 2 engineering-level performance analyses and one System Capability Review, complete one major update of the risk register, and initiate Test & Evaluation planning for NIFC-CA participation in FY12-13 events at the Surface Combat Systems Center (SCSC) and White Sands Missile Range (WSMR).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	PROJECT 3159: *Naval Integrated Fire Control-Counter Air SE&I*

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	NSWC/DD Dahlgren, VA	2.672	0.635	Oct 2009	0.760	Oct 2010	0.000		0.760	0.000	4.067	Continuing
Systems Engineering	Various/ TBD	Various Various	4.303	0.962	Oct 2009	1.238	Oct 2010	0.000		1.238	0.000	6.503	Continuing
Systems Engineering	C/CPAF	JHU/APL Laurel, MD	0.500	0.325	Oct 2009	0.340	Oct 2010	0.000		0.340	0.000	1.165	Continuing
Systems Engineering	C/CPAF	NGMS Reston, VA	0.652	0.310	Oct 2009	0.420	Oct 2010	0.000		0.420	0.000	1.382	Continuing
Systems Engineering	C/CPAF	NGIS Bethpage, NY	2.580	1.021	Oct 2009	1.010	Oct 2010	0.000		1.010	0.000	4.611	Continuing
Systems Engineering	C/CPAF	LM MS2 Moorestown, NJ	2.455	0.920	Oct 2009	1.040	Oct 2010	0.000		1.040	0.000	4.415	Continuing
Systems Engineering	C/CPAF	Raytheon Co. Tuscan, AZ	4.404	1.057	Oct 2009	1.232	Oct 2010	0.000		1.232	0.000	6.693	Continuing
Systems Engineering	C/CPAF	Boeing IDS ST. Louis, MO	0.898	0.460	Oct 2009	0.490	Oct 2010	0.000		0.490	0.000	1.848	Continuing
Systems Engineering	C/CPAF	CSCI Springfield, VA	0.700	0.000		0.000		0.000		0.000	0.000	0.700	Continuing
Systems Engineering	WR	SWDG Norfolk, VA	0.339	0.120	Oct 2009	0.140	Oct 2010	0.000		0.140	0.000	0.599	Continuing
Systems Engineering	WR	COTF Norfolk, VA	0.259	0.225	Oct 2009	0.290	Oct 2010	0.000		0.290	0.000	0.774	Continuing
Systems Engineering	WR	NSWC/PHD Port Hueneme, CA	0.000	0.265	Oct 2009	0.275	Oct 2010	0.000		0.275	0.000	0.540	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	PROJECT 3159: *Naval Integrated Fire Control-Counter Air SE&I*

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
		Subtotal	19.762	6.300		7.235		0.000		7.235	0.000	33.297	

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
Integration and Test	WR	NSWC/DD Dahlgren, VA	0.801	0.520	Oct 2009	0.661	Oct 2010	0.000		0.661	Continuing	Continuing	Continuing
Integration and Test	C/CPAF	Raytheon Co. Tucson, AZ	0.700	0.470	Oct 2009	3.296	Oct 2010	0.000		3.296	Continuing	Continuing	Continuing
Integration and Test	C/CPAF	Lockheed Martin - Moorestown, NJ Moorestown, NJ	0.300	0.240	Oct 2009	4.657	Oct 2010	0.000		4.657	Continuing	Continuing	Continuing
Integration and Test	C/CPAF	NGIS Bethpage, NY	0.300	0.250	Oct 2009	0.316	Oct 2010	0.000		0.316	Continuing	Continuing	Continuing
Integration and Test	C/TBD	Various Various	4.121	1.120	Oct 2009	1.435	Oct 2010	0.000		1.435	Continuing	Continuing	Continuing
Integration and Test	WR	NSWC/PHD Port Hueneme, CA	0.000	0.620	Oct 2009	1.453	Oct 2010	0.000		1.453	Continuing	Continuing	Continuing
		Subtotal	6.222	3.220		11.818		0.000		11.818			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	PROJECT 3159: *Naval Integrated Fire Control-Counter Air SE&I*

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

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
Project Planning and Management	C/CPAF	BOEING IDS St. Louis, MO	0.450	0.150	Oct 2009	0.150	Oct 2010	0.000		0.150	0.000	0.750	Continuing
Project Planning and Management	C/CPAF	Raytheon Co. Tucson, AZ	0.936	0.360	Oct 2009	0.480	Oct 2010	0.000		0.480	0.000	1.776	Continuing
Project Planning and Management	C/CPAF	LM MS2 Moorestown, NJ	0.891	0.297	Oct 2009	0.297	Oct 2010	0.000		0.297	0.000	1.485	Continuing
Project Planning and Management	C/CPAF	NGIS Bethpage, NY	0.891	0.360	Oct 2009	0.430	Oct 2010	0.000		0.430	Continuing	Continuing	Continuing
Project Planning and Management	WR	NSWC/DD Dahlgren, VA	0.675	0.261	Oct 2009	0.330	Oct 2010	0.000		0.330	Continuing	Continuing	Continuing
Project Planning and Management	C/CPAF	MEI Arlington, VA	1.587	0.610	Oct 2009	0.643	Oct 2010	0.000		0.643	Continuing	Continuing	Continuing
Project Planning and Management	C/CPAF	Various Various	3.432	0.120	Oct 2009	0.134	Oct 2010	0.000		0.134	Continuing	Continuing	Continuing
		Subtotal	8.862	2.158		2.464		0.000		2.464			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	PROJECT 3159: *Naval Integrated Fire Control-Counter Air SE&I*

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
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	34.846	11.678		21.517		0.000		21.517			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	**PROJECT** 3159: *Naval Integrated Fire Control-Counter Air SE&I*

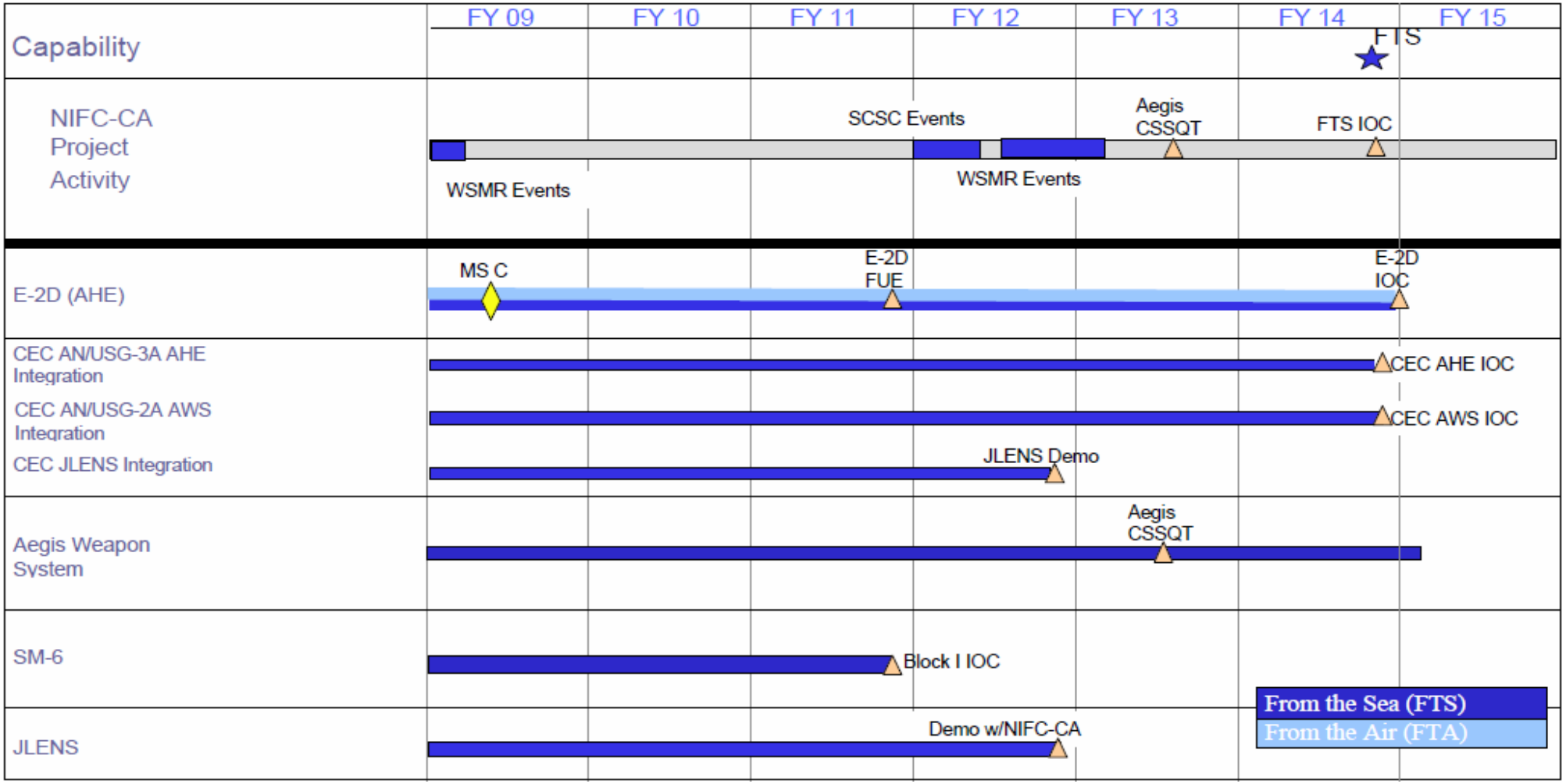


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	**PROJECT** 3159: *Naval Integrated Fire Control-Counter Air SE&I*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
WSMR Events	1	2009	1	2013
SCSC EVENTS	4	2011	1	2012
AEGIS CSSQT	3	2013	3	2013
FTS IOC	4	2014	4	2014
E-2D (AHE) MS C	2	2009	2	2009
E-2D FUE	4	2011	4	2011
E-2D AHE IOC	4	2014	4	2014
CEC AN/USG-3A AHE IOC	4	2014	4	2014
CEC AN/USG-2A AWS INTEGRATION/ CEC AHE IOC	4	2014	4	2014
CEC JLENS DEMO	4	2012	4	2012
SM-6 BLOCK 1 IOC	4	2011	4	2011
JLENS DEMO WITH NIFC-CA	4	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	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*	2.792	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.260
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The AN/SPS-49 Radar received a Congressional Add in 2009. AN/SPS-49(V) radar system has become a Dimishing Manufacturing Source(DMS) issue with more than 17 Lowest Replaceable Units (LRU's) that are UTP (Unable To Procure). The AN/SPS-49(V) radar system is the Navy's primary two-dimensional (2D) long-range search radar. AN/SPS-49(V) radar systems are installed in CG, CVN, FFG, LSD, LHD classes and are planned for installation in the LHA(R) ship class. The AN/SPS-49 is scheduled to be in service another 40 years. The FY09 Congressional Add enables continued support of the SPS-49 current fielded systems in the interim period before the Radar Common Signal Data Processor is fielded. This addressess the obsolescence and DMS issues associated with the many Automated Test Equipment platforms utilized to repair the radar components and facilitates the development and implementation of an interim test and repair strategy for the current radar platforms.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: SUSTAINABILITY OF AN/NPS-49 COMMON SIGNAL DATA PRO *FY 2009 Accomplishments:* N/A	2.792	0.000
Congressional Adds Subtotals	2.792	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604378N: *Nav Integrated Fire Control-Counter Air Sys Eng*	**PROJECT** 9999: *Congressional Adds*

E. Performance Metrics

Congressional Add.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*							
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	124.926	251.251	274.371	0.000	274.371	171.766	169.366	166.074	167.915	Continuing	Continuing
3186: *Air and Missile Defense Radar*	92.998	189.078	228.436	0.000	228.436	123.053	132.390	141.771	141.608	Continuing	Continuing
3187: *Periscope Detection*	7.338	7.207	3.374	0.000	3.374	8.306	0.000	0.000	0.000	0.000	40.958
3188: *Dual-Band Radar*	5.443	5.673	5.419	0.000	5.419	4.739	5.589	5.638	5.796	Continuing	Continuing
3232: *Multi-Mission Signal Processor*	0.000	32.961	32.607	0.000	32.607	30.948	27.806	16.500	19.476	Continuing	Continuing
3301: *Improved Capabilities SPY-1 Radar*	0.000	0.000	4.535	0.000	4.535	4.720	3.581	2.165	1.035	Continuing	Continuing
9999: *Congressional Adds*	19.147	16.332	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	35.479

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION:

Air and Missile Defense Radar (AMDR): The AMDR suite is being developed to fulfill Integrated Air and Missile Defense requirements for multiple ship classes. This suite consists of an S-Band radar (AMDR-S), an X-band radar (AMDR-X) and a Radar Suite Controller (RSC). AMDR will provide multi-mission capabilities, simultaneously supporting both long range, exoatmospheric detection, tracking and discrimination of ballistic missiles, as well as Area and Self Defense against air and surface threats. For the Ballistic Missile Defense capability, increased radar sensitivity and bandwidth over current radar systems are needed to detect, track and support engagements of advanced ballistic missile threats at the
required ranges, concurrent with Area and Self Defense against Air and Surface threats. For the Area Air Defense and Self Defense capability, increased sensitivity and clutter capability is needed to detect, react to, and engage stressing Very Low Observable/Very Low Flyer (VLO/VLF) threats in the presence of heavy land, sea, and rain clutter. This effort and material provide for the development of an active phased array radar with the required capabilities to address the evolving threat. Modularity of hardware and software, a designed in-growth path for technology insertion, and Open Architecture (OA) compliance are required for performance and technology enhancements throughout service life.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*

Periscope Detection: The CVN Periscope Detection Radar program develops and delivers a radar that provides automatic detection and discrimination of submarine periscopes using advanced algorithms enabling discrimination of periscopes from surface contacts, buoys, small boats, floating mines, etc. This effort is based on an advanced development model,
developed in the PE 0603553N Antisubmarine Warfare. System Engineering efforts under RDT&E funding will convert the Advanced Demonstration Model (ADM) variant previously developed and being installed to a production representative model that addresses manufacturability, supportability and reliability aspects as well as full system certification.

Dual-Band Radar (DBR) Upgrades: The DBR Upgrades will fund Dual Band Radar (DBR) System upgrades and Volume Search Radar Enhancement. The DBR Upgrades will fund future upgrades/technology insertion efforts for Multi-Function Radar (MFR)/Volume Search Radar (VSR)/Dual Band Radar (DBR) suite on DDG1000 Class and CVN 78 Class ships. Upgrades and technology inserts are required to maintain the level of force protection needed for ship defense against all threats envisioned in the littoral environment. The upgrades will include all aspects of the radar system/subsystems, including hardware and software. Specific subsystem areas include the Array, Transmit/Receive (T/R) module, Receiver/Exciter, Signal Data Processor, Radome, and power/cooling systems. The Volume Search Radar (VSR) enhancement was initiated in PR11 to implement configuration upgrades to provide improved performance against emerging threats through spiral development for integration into additional ship platforms. Initial Operational Capability (IOC) and specific technical requirements will be documented in accordance with Joint Capability Integrated Development (JCIDS) in a Capability Development Document (CDD).

Multi-Mission Signal Processor: Multi-Mission Signal Processor (MMSP) provides AAW/BMD Multi-mission capability for DDG 51-78 as part of DDG Modernization Program. Modifies SPY-1D Transmitter to enable dual beam for reduced frame times and better reaction time, and provides stability for all D(V) waveforms and avoid operational degradation. It improves performance in littoral, ducted clutter environments. Detects, tracks and support engagements of a broader range of threats. MMSP provides reduced environmental effects, and better track continuity on small threats in land clutter. Improves performance in electronic attack (EA) and chaff environments and provides greater commonality in
computer programs and equipment.

Improved Capabilities for SPY-1 Radar: These Reliability, Maintainability, and Availability (RM&A) improvements are intended to reduce Casualty Reports (CASREPs) and cascading failures, mitigate obsolescence issues, and improve reliability in support of Anti-Air Warfare (AAW) and Ballistic Missile Defense (BMD) missions; while still providing AN/SPY-1 Radar Total Ownership Cost Reductions. Currently fielded AN/SPY-1 transmitter systems have an annual replacement part cost of approximately $19M. Other O&S costs add an additional $16M per year, for a total approximate annual cost of $35M.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	138.546	236.078	0.000	0.000	0.000
Current President's Budget	124.926	251.251	274.371	0.000	274.371
Total Adjustments	-13.620	15.173	274.371	0.000	274.371
• Congressional General Reductions		-1.047			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.180			
• Congressional Adds		16.400			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-9.999	0.000			
• SBIR/STTR Transfer	-3.621	0.000			
• Program Adjustments	0.000	0.000	274.371	0.000	274.371

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Common Digital Sensor Architecture*	0.000	2.390
Congressional Add: *Submarine Navigation Decision Aids*	0.000	3.983
Congressional Add: *Common Below Decks Affordable Architecture*	3.191	0.000
Congressional Add: *National Radio Frequency R&D and Tech Transfer Cen*	3.989	0.000
Congressional Add: *Advanced Sensor Development*	11.967	9.959
Congressional Add Subtotals for Project: 9999	19.147	16.332
Congressional Add Totals for all Projects	19.147	16.332

Change Summary Explanation

This PE was established for the FY2008 President's Budget. Previous Budget Submissions were PE 0604307N AEGIS Combat System Engineering - project 3044/Solid State Spy Radar and PE 0603513N/Shipboard System Component Development - project 4019/Radar Upgrades.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*

Technical: Not applicable.

Schedule: As a result of delays with finalizing the radar hull study, the completion of the AMDR technology development phase has been shifted from FY12 to FY13.

Increase in FY10 due to Congressional Adds for Common Digital Sensor Architecture, Submarine Navigation Decision Aids, and Advanced Sensor Development.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense 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
3186: *Air and Missile Defense Radar*	92.998	189.078	228.436	0.000	228.436	123.053	132.390	141.771	141.608	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
Air and Missile Defense Radar (AMDR): The AMDR suite is being developed to fulfill Integrated Air and Missile Defense requirements for multiple ship classes. This suite consists of an S-Band radar (AMDR-S), an X-band radar (AMDR-X) and a Radar Suite Controller (RSC). AMDR will provide multi-mission capabilities, simultaneously supporting both long range, exoatmospheric detection, tracking and discrimination of ballistic missiles, as well as Area and Self Defense against air and surface threats. For the Ballistic Missile Defense (BMD) capability, increased radar sensitivity and bandwidth over current radar systems are needed to detect, track and support engagements of advanced ballistic missile threats at the required ranges, concurrent with Area and Self Defense against Air and Surface threats. For the Area Air Defense and Self Defense capability, increased sensitivity and clutter capability is needed to detect, react to, and engage stressing Very Low Observable /Very Low Flyer (VLO/VLF) threats in the presence of heavy land, sea, and rain clutter. This effort and material provide for the development of an active phased array radar with the required capabilities to address the evolving threat. Modularity of hardware and software, a designed in-growth path for technology insertion, and Open Architecture (OA) compliance are required for performance and technology enhancements throughout service life.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
R&D/RISK REDUCTION	22.334	16.954	12.960	0.000	12.960
FY 2009 Accomplishments: - High Voltage (HV) GaAs Field Effect Transistor (FET) technology producibility - Technology Risk reduction of Digital Array Radar (DAR) / digital beamforming, array architectures, Transmit/Receive (T/R) modules, thermal management, and Radio Frequency (RF) semiconductors - Critical component and subsystem demonstrations, integration 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Conduct related international cooperative research projects, including ARTIST (U.K.), AUSPAR (Australia), and OARIS (Maritime Theater Missile Defense Forum) *FY 2010 Plans:* - Technology Risk reduction of Digital Array Radar (DAR) / digital beamforming, array architectures, Transmit/Receive (T/R) modules, thermal management, and Radio Frequency (RF) semiconductors - Critical component and subsystem demonstrations, integration and testing - Conduct related international cooperative research projects, including ARTIST (U.K.), AUSPAR (Australia), and OARIS (Maritime Theater Missile Defense Forum) *FY 2011 Base Plans:* - Conduct related international cooperative research projects, including ARTIST (U.K.), AUSPAR (Australia), and OARIS (Maritime Theater Missile Defense Forum)					
SYSTEMS ENGINEERING *FY 2009 Accomplishments:* - Participate in the development of threat definitions, performance requirements and radar specifications; perform radar systems performance analysis - Conduct AMDR competition and award Concept Studies contracts - Initiate government/industry interaction through a series of In-Process Reviews to assess system concepts and develop a technology demonstration plan - Complete Systems Engineering Plan, Test and Evaluation Strategy and Test and Evaluation Master Plan *FY 2010 Plans:* - Participate in the development of threat definitions, performance requirements and radar specifications; perform radar systems performance analysis - Complete system requirements; resolve combat system and ship interfaces	59.848	144.008	189.219	0.000	189.219

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Initiate government/industry interaction through a series of In-Process Reviews to assess system concepts and develop a technology demonstration plan - Complete Systems Engineering Plan, Test and Evaluation Strategy and Test and Evaluation Master Plan - Conduct AMDR competition and award Technology Development (TD) contracts - Initiate TD phase focused on demonstrating AMDR key technologies are scalable and sufficiently mature *FY 2011 Base Plans:* - Complete Systems Engineering Plan, Test and Evaluation Strategy and Test and Evaluation Master Plan					
PROGRAM MANAGEMENT SUPPORT *FY 2009 Accomplishments:* - In-house, field activity, and contractor support of Integrated Product Teams (IPTs) and Cross Product Teams (CPTs) required for program execution and achievement of Milestone A - Cost, schedule and performance management, contract administration and oversight, risk identification and mitigation - Analyze and assess contractor studies - Review available/proposed technical alternatives *FY 2010 Plans:* - In-house, field activity, and contractor support of Integrated Product Teams (IPTs) and Cross Product Teams (CPTs) required for program execution in support of upcoming reviews and milestones - Cost, schedule and performance management, contract administration and oversight, risk identification and mitigation - Analyze and assess contractor studies - Review available/proposed technical alternatives	10.303	28.116	26.257	0.000	26.257

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: - Cost, schedule and performance management, contract administration and oversight, risk identification and mitigation - Analyze and assess contractor studies - Review available/proposed technical alternatives					
DAWDF *FY 2009 Accomplishments:* - Funds are for the Acquisition Workforce Fund-2009	0.513	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	92.998	189.078	228.436	0.000	228.436

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

AMDR: Plans for the Air and Missile Defense Radar are to leverage research and development investments, integrate sufficiently matured fundamental advanced technologies from technology risk reduction efforts, and incorporate Open Architecture approaches to develop a scalable radar design with major improvements in power, sensitivity, resistance to natural and man-made environments over current radar systems for simultaneous multi-mission (BMD), Area and Self Defense Anti-Air Warfare (AAW). System design will be accomplished by employing proven technologies and commercial standards to lower schedule risk and develop a product with the lowest life-cycle cost. Program scope includes a Concept Studies phase; a Technology Development phase which includes demonstration of a pilot prototype by up to 3 contractors, completion of a full Engineering Development Model (EDM) for land-based testing; and transition to production. Program efforts reflect the approved acquisition strategy contained in the Technology Development Strategy (TDS) for the AMDR suite system concept.

E. Performance Metrics

- Successfully complete Defense Acquisition Board (DAB) Review
- Successfully complete AMDR Concept Studies
- Successfully achieve Milestone A

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3186: *Air and Missile Defense Radar*

- Successfully complete Technology Development (TD) phase Test Readiness Review, TD Prototype testing, TD System Functional Review, and TD Preliminary Design Review
- Successfully achieve Milestone B
- Begin Engineering & Manufacturing Development (EMD) and successfully complete EMD Critical Design Review and 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense 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
Risk Reduction	WR	SCSC Wallops Wallops Island, VA	2.652	4.239	Dec 2009	1.320	Dec 2010	0.000		1.320	Continuing	Continuing	Continuing
Risk Reduction	MIPR	DMEA McClellen AFB, CA	41.913	5.800	Dec 2009	2.530	Dec 2010	0.000		2.530	Continuing	Continuing	Continuing
Risk Reduction	SS/CPFF	JHU/APL Baltimore, MD	2.405	2.215	Dec 2009	2.215	Dec 2010	0.000		2.215	Continuing	Continuing	Continuing
Risk Reduction	MIPR	MIT Cambridge, MA	1.240	0.550	Dec 2009	0.550	Dec 2010	0.000		0.550	Continuing	Continuing	Continuing
Risk Reduction	WR	NRL Washington, DC	5.145	0.657	Dec 2009	0.484	Dec 2010	0.000		0.484	Continuing	Continuing	Continuing
Risk Reduction	SS/Various	BAE Systems Rockville, MD	1.849	0.382	Dec 2009	0.000		0.000		0.000	0.000	2.231	Continuing
Risk Reduction	WR	NAVFAC MID-ATLANTIC Pearl Harbor, HI	3.991	0.000		0.000		0.000		0.000	0.000	3.991	Continuing
Risk Reduction	Various/ TBD	TBD-PSS TBD	0.000	1.147	Feb 2010	1.148	Dec 2010	0.000		1.148	Continuing	Continuing	Continuing
Risk Reduction	WR	NSWC/DD Dahlgren, VA	1.912	1.964	Dec 2009	1.964	Dec 2010	0.000		1.964	Continuing	Continuing	Continuing
Risk Reduction	MIPR	DARPA Adelphi, MD	4.500	0.000		2.750	Dec 2010	0.000		2.750	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	GTRI Atlanta, GA	1.731	1.302	Dec 2009	1.475	Dec 2010	0.000		1.475	Continuing	Continuing	Continuing
Systems Engineering	SS/FFP	BAE Systems	9.536	0.855	Dec 2009	0.000		0.000		0.000	0.000	10.391	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense 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
		Rockville, MD											
Systems Engineering	Various/ TBD	VARIOUS-SPECIAL Special	3.078	0.000		0.000		0.000		0.000	0.000	3.078	Continuing
Systems Engineering	WR	NSWC/DD Dahlgren, VA	23.054	9.606	Dec 2009	10.895	Dec 2010	0.000		10.895	Continuing	Continuing	Continuing
Systems Engineering	WR	PMRF Kekaha, HI	0.369	0.417	Dec 2009	0.417	Dec 2010	0.000		0.417	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	JHU/APL Baltimore, MD	21.735	9.770	Dec 2009	12.831	Dec 2010	0.000		12.831	Continuing	Continuing	Continuing
Systems Engineering	MIPR	MIT Cambridge, MA	5.429	2.720	Dec 2009	3.551	Dec 2010	0.000		3.551	Continuing	Continuing	Continuing
Systems Engineering	WR	NSW/PHD Port Hueneme, CA	2.994	1.378	Dec 2009	1.561	Dec 2010	0.000		1.561	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/CR Crane, IN	1.046	0.547	Dec 2009	0.620	Dec 2010	0.000		0.620	Continuing	Continuing	Continuing
Systems Engineering	WR	NRL Washington, DC	2.093	1.255	Dec 2009	2.166	Dec 2010	0.000		2.166	Continuing	Continuing	Continuing
Systems Engineering	Various/ TBD	TBD-PSS TBD	0.000	2.564	Feb 2010	4.344	Dec 2010	0.000		4.344	Continuing	Continuing	Continuing
Systems Engineering	C/FPI	TBD-Tech. Development Phase TBD	0.000	113.594	Jun 2010	145.308	Nov 2010	0.000		145.308	Continuing	Continuing	Continuing
Systems Engineering			0.000	0.000		6.050	Dec 2010	0.000		6.050	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense 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
	Various/ TBD	TBD-Test and Evaluation TBD											
Systems Engineering	C/FFP	CS-Northrop Grumman Linthicum Heights, MD	10.000	0.000		0.000		0.000		0.000	0.000	10.000	Continuing
Systems Engineering	C/FFP	CS-Lockheed Martin Moorestown, NJ	10.000	0.000		0.000		0.000		0.000	0.000	10.000	Continuing
Systems Engineering	C/FFP	CS-Raytheon Sudbury, MA	9.909	0.000		0.000		0.000		0.000	0.000	9.909	Continuing
		Subtotal	166.581	160.962		202.179		0.000		202.179			

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
Support Management Services	SS/FFP	BAE Systems Rockville, MD	5.319	1.217	Dec 2009	0.000		0.000		0.000	0.000	6.536	Continuing
		Various	19.657	25.096	Nov 2009	22.839	Nov 2010	0.000		22.839	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*

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
Support Management Services	Various/ Various	Various											
Support Management Services	C/CPIF	TBD-PSS TBD	0.000	1.703	Dec 2009	3.308	Dec 2010	0.000		3.308	Continuing	Continuing	Continuing
Travel	Allot	PEOIWS2 Washington, DC	0.200	0.100	Nov 2009	0.110	Nov 2010	0.000		0.110	Continuing	Continuing	Continuing
DAWDF	Various/ Various	N/A N/A	0.513	0.000		0.000		0.000		0.000	0.000	0.513	Continuing
		Subtotal	25.689	28.116		26.257		0.000		26.257			

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	192.270	189.078		228.436		0.000		228.436			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3186: *Air and Missile Defense Radar*

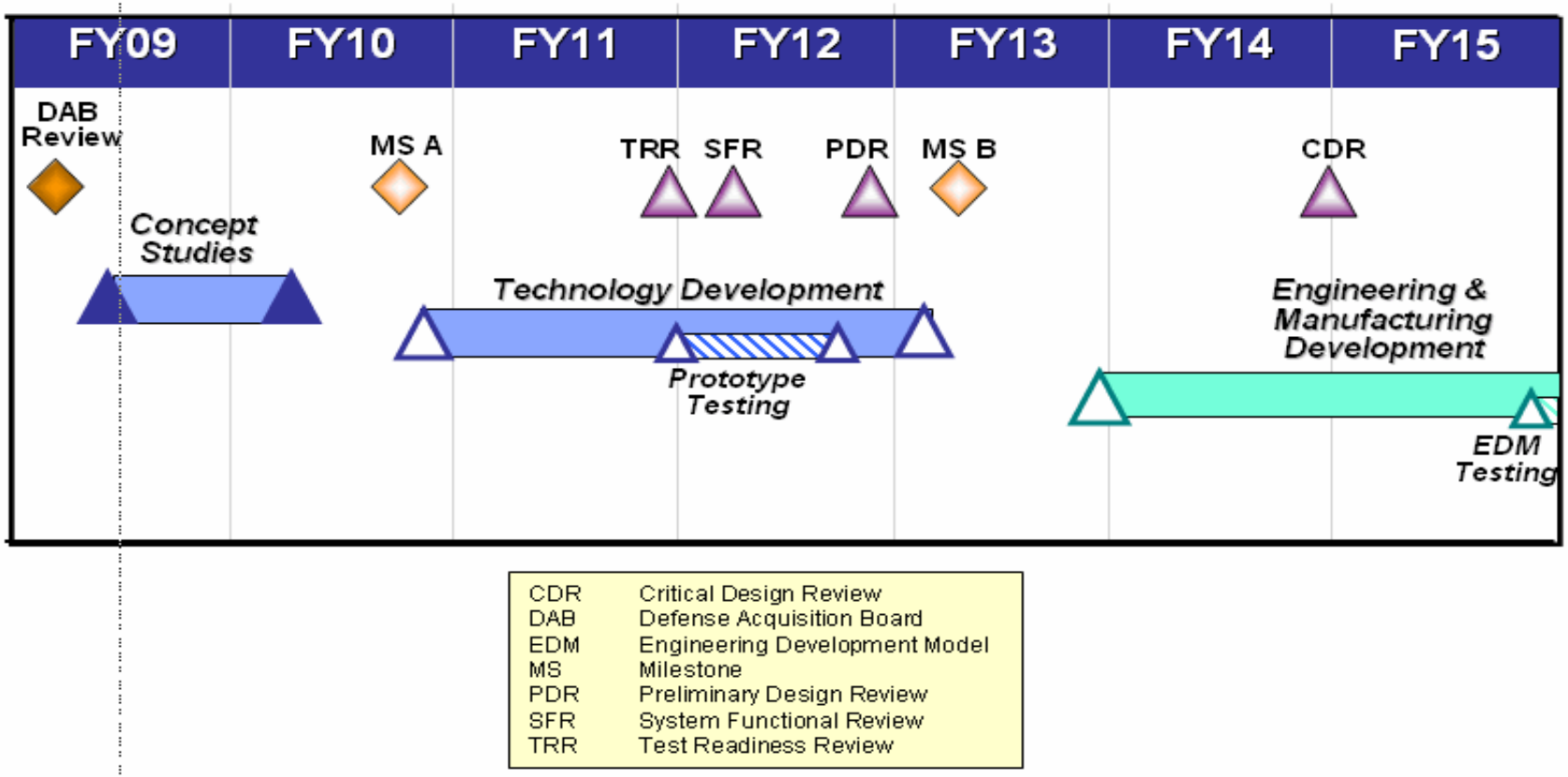


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3186: *Air and Missile Defense Radar*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Defense Acquisition Board (DAB) Review	1	2009	1	2009
Concept Studies (CS)	2	2009	2	2010
Milestone A (MS A)	3	2010	3	2010
Technology Development (TD)	3	2010	1	2013
TD Test Readiness Review (TRR)	4	2011	4	2011
TD Prototype Testing	4	2011	3	2012
TD System Functional Review (SFR)	2	2012	2	2012
TD Preliminary Design Review (PDR)	4	2012	4	2012
Milestone B (MS B)	2	2013	2	2013
Engineering & Manufacturing Development (EMD)	4	2013	4	2015
EMD Critical Design Review (CDR)	4	2014	4	2014
EMD Engineering Development Model (EDM) Testing	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3187: *Periscope Detection*	

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
3187: *Periscope Detection*	7.338	7.207	3.374	0.000	3.374	8.306	0.000	0.000	0.000	0.000	40.958
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The CVN Periscope Detection Radar program develops and delivers a radar that provides semi-automatic detection and discrimination of submarine periscopes using advanced algorithms enabling discrimination of periscopes from surface contacts, buoys, small boats, floating mines, etc. This effort is based on an advanced development model, developed in the PE 0603553N, Surface Antisubmarine Warfare. System Engineering efforts under RDT&E funding will convert the Advanced Demonstration Model (ADM) variant previously developed and being installed to a production representative model that addresses manufacturability, supportability and reliability aspects as well as full system certification.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Periscope Detection	7.302	7.207	3.374	0.000	3.374
FY 2009 Accomplishments: - Design an ADM using established capabilities from previous radars (Algorithms utilized by Automatic Radar Periscope - Detection Discrimination (ARPDD), technology based in part on the AN/SPQ-9B Anti-Ship Cruise Missile (ASCM) Radar) with modern computing advances in processing capability being inserted into the system using an Open Architecture approach					
FY 2010 Plans: - Design an ADM using established capabilities from previous radars (Algorithms utilized by Automatic Radar Periscope - Detection Discrimination (ARPDD), technology based in part on the AN/SPQ-9B Anti-Ship Cruise Missile (ASCM) Radar) with modern computing advances in processing capability being inserted into the system using an Open Architecture approach - Install ADM on platform(s)					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3187: *Periscope Detection*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: - Design an ADM using established capabilities from previous radars (Algorithms utilized by Automatic Radar Periscope - Detection Discrimination (ARPDD), technology based in part on the AN/SPQ-9B Anti-Ship Cruise Missile (ASCM) Radar) with modern computing advances in processing capability being inserted into the system using an Open Architecture approach - Perform test and evaluation					
DAWDF *FY 2009 Accomplishments:* - Funds are for the Acquisition Workforce Fund-2009.	0.036	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	7.338	7.207	3.374	0.000	3.374

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/LI: *0204228N/2040 Radar Support (OPN)*	13.612	13.128	12.030	0.000	12.030	25.591	15.646	14.065	5.557	Continuing	Continuing

D. Acquisition Strategy

Periscope Detection: Current Program scope is for 11 total units - 10 for installation onboard CVNs and 1 at a to be determined shore site. Of these 11 units, 4 will be Advanced Demonstration Models (ADMs) and 7 will be Production Model units. Funding for 4 of the units will come from R&D (ADMs) in FY 06, FY 07 and FY 08 procurements, and 7 will be funded using OPN. The current proposed plan is for all units to be awarded sole source to Northrop Grumman Corporation (NGC) and 3 Phoenix Corporation. NGC will be responsible for the antenna, transmitter, and receiver. 3 Phoenix will be responsible for the processor for all 11 RDC units. Funding is also to be used to procure and install back-fit hardware/software to bring the first four ADM variants to production configuration.

E. Performance Metrics

- Successfully develop the Advanced Demonstration Model (ADM)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3187: *Periscope Detection*

- Successfully complete AUTEC Testing
- Successfully complete At Sea Testing
- Successfully complete TECHEVAL/OPEVAL
- Successfully complete AEGIS Weapon System PDD Interface Development for SPS-74 or SPQ-9B

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3187: *Periscope Detection*

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 Engineering	SS/CPFF	NGC Linthicum Heights, MD	12.639	2.325	Dec 2009	0.000		0.000		0.000	0.000	14.964	Continuing
System Installation	Various/ TBD	Various Various	8.870	4.482	Dec 2009	3.168	Dec 2010	0.000		3.168	Continuing	Continuing	Continuing
		Subtotal	21.509	6.807		3.168		0.000		3.168			

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	WR	NSWC PHD Port Hueneme, CA	0.490	0.200	Dec 2009	0.150	Dec 2010	0.000		0.150	Continuing	Continuing	Continuing
Test and Evaluation	WR	OPTEVFOR Norfolk, VA	0.000	0.200	Dec 2009	0.056	Dec 2010	0.000		0.056	Continuing	Continuing	Continuing
		Subtotal	0.490	0.400		0.206		0.000		0.206			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3187: *Periscope Detection*

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
DAWDF	Allot	N/A N/A	0.036	0.000		0.000		0.000		0.000	0.000	0.036	Continuing
		Subtotal	0.036	0.000		0.000		0.000		0.000	0.000	0.036	

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	22.035	7.207		3.374		0.000		3.374			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3187: *Periscope Detection*

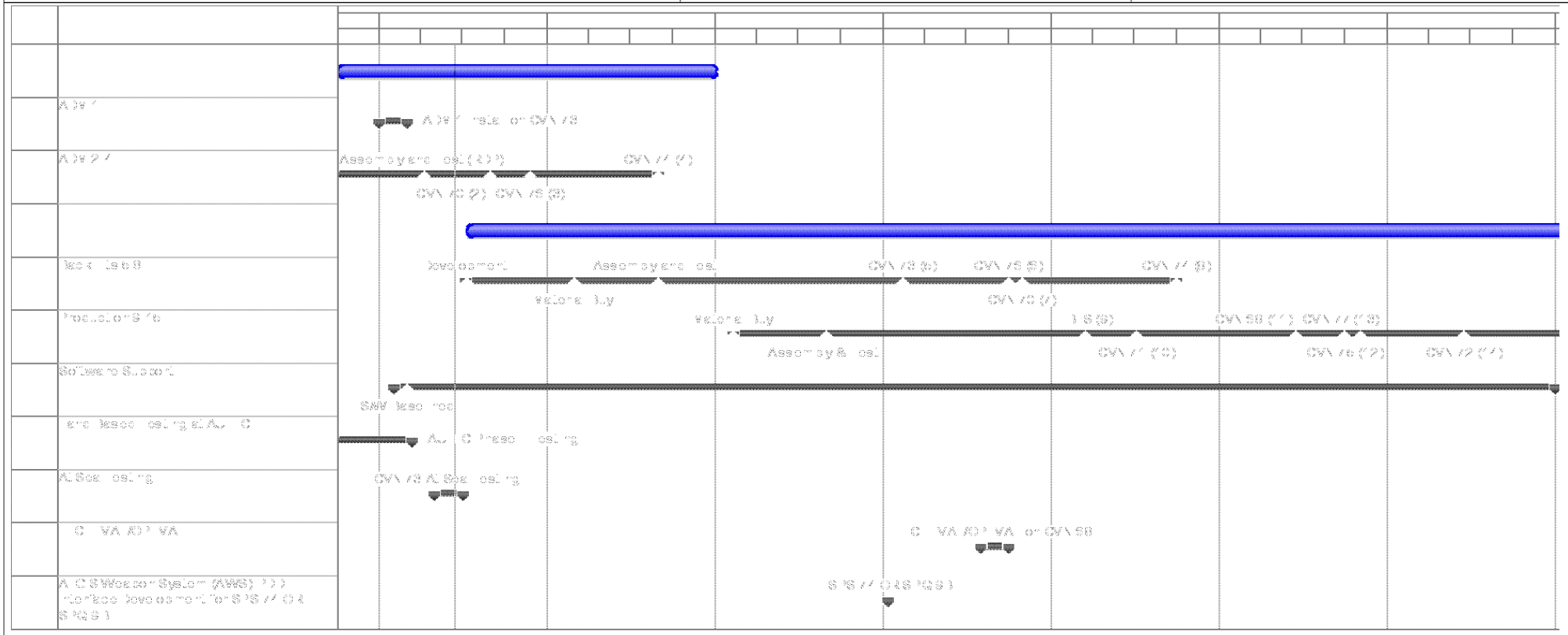


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3187: *Periscope Detection*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Advanced Demonstration Model (ADM)	1	2009	4	2010
Production	3	2009	4	2015
Software Support	1	2009	4	2015
Land Based Testing (AUTEC)	1	2009	2	2009
At Sea Testing	2	2009	3	2009
TECHEVAL/OPEVAL	2	2012	3	2012
AEGIS Weapon System PDD Interface Development for SPS-74 or SPQ-9B	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band 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
3188: *Dual-Band Radar*	5.443	5.673	5.419	0.000	5.419	4.739	5.589	5.638	5.796	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Dual-Band Radar (DBR) Upgrades: The DBR Upgrades will fund Dual Band Radar (DBR) System upgrades and Volume Search Radar Enhancement. The DBR Upgrades will fund future upgrades/technology insertion efforts for Multi-Function Radar (MFR)/Volume Search Radar (VSR)/Dual Band Radar (DBR) suite on DDG1000 Class and CVN 78 Class ships. Upgrades and technology inserts are required to maintain the level of force protection needed for ship defense against all threats envisioned in the littoral environment. The upgrades will include all aspects of the radar system/subsystems, including hardware and software. Specific subsystem areas include the Array, Transmit/Receive (T/R) module, Receiver/Exciter, Signal Data Processor, Radome, and power/cooling systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RADAR UPGRADES TECHNOLOGY INSERTION	3.000	3.000	3.000	0.000	3.000
FY 2009 Accomplishments: - Technology Insertion for the MFR/VSR/DBR hardware and software *FY 2010 Plans:* - Technology Insertion for the MFR/VSR/DBR hardware and software *FY 2011 Base Plans:* - Technology Insertion for the MFR/VSR/DBR hardware and software					
RADAR UPGRADES GOVERNMENT ENGINEERING SERVICES	2.216	2.473	2.219	0.000	2.219

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: - Government Engineering Services and Program Management support for radar upgrades and technology insertion of the MFR/VSR/DBR radars. Perform oversight and assessment of efforts associated with this phase of the program. *FY 2010 Plans:* - Government Engineering Services and Program Management support for radar upgrades and technology insertion of the MFR/VSR/DBR radars. Perform oversight and assessment of efforts associated with this phase of the program. *FY 2011 Base Plans:* - Government Engineering Services and Program Management support for radar upgrades and technology insertion of the MFR/VSR/DBR radars. Perform oversight and assessment of efforts associated with this phase of the program.					
RADAR UPGRADES PROGRAM MANAGEMENT *FY 2009 Accomplishments:* - Provide Program Management in support of radar upgrades and technology insertion *FY 2010 Plans:* - Provide Program Management in support of radar upgrades and technology insertion *FY 2011 Base Plans:* - Provide Program Management in support of radar upgrades and technology insertion	0.200	0.200	0.200	0.000	0.200
DAWDF *FY 2009 Accomplishments:* - Funds are for the Acquisition Workforce Fund-2009.	0.027	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	5.443	5.673	5.419	0.000	5.419

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Radar Upgrades will be developed to address lessons learned and technology refresh for DBR systems on multiple ship classes.

E. Performance Metrics

- Successfully complete upgrade studies and analyses
- Successfully complete upgrade technology insertion

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band 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
Government Engineering Support	WR	Other Government Activities Not Specified	0.656	0.498	Dec 2009	0.144	Dec 2010	0.000		0.144	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/Dahlgren Dahlgren, VA	1.180	0.600	Dec 2009	0.625	Dec 2010	0.000		0.625	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/PHD Port Hueneme, CA	1.170	0.475	Dec 2009	0.500	Dec 2010	0.000		0.500	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/Crane Crane, IN	3.500	0.225	Dec 2009	0.250	Dec 2010	0.000		0.250	Continuing	Continuing	Continuing
Government Engineering Support	WR	NRL Washington, DC	3.500	0.225	Dec 2009	0.250	Dec 2010	0.000		0.250	Continuing	Continuing	Continuing
Government Engineering Support	C/CPFF	JHU/APL Baltimore, MD	0.140	0.100	Feb 2010	0.100	Feb 2011	0.000		0.100	Continuing	Continuing	Continuing
Government Engineering Support	MIPR	NSMA Arlington, VA	0.600	0.300	Feb 2010	0.300	Feb 2011	0.000		0.300	Continuing	Continuing	Continuing
Government Engineering Support	C/CPFF	GTRI Atlanta, GA	0.100	0.050	Feb 2010	0.050	Feb 2011	0.000		0.050	Continuing	Continuing	Continuing
Systems Engineering	C/TBD	Raytheon C/CPAF	6.140	3.000	Feb 2010	3.000	Feb 2011	0.000		3.000	Continuing	Continuing	Continuing
		Subtotal	16.986	5.473		5.219		0.000		5.219			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3188: *Dual-Band Radar*	

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/TBD	Various C/CPFF	0.200	0.200	Dec 2009	0.200	Dec 2010	0.000		0.200	Continuing	Continuing	Continuing
DAWDF	Allot	N/A N/A	0.027	0.000		0.000		0.000		0.000	0.000	0.027	Continuing
		Subtotal	0.227	0.200		0.200		0.000		0.200			

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	17.213	5.673		5.419		0.000		5.419			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3188: *Dual-Band Radar*

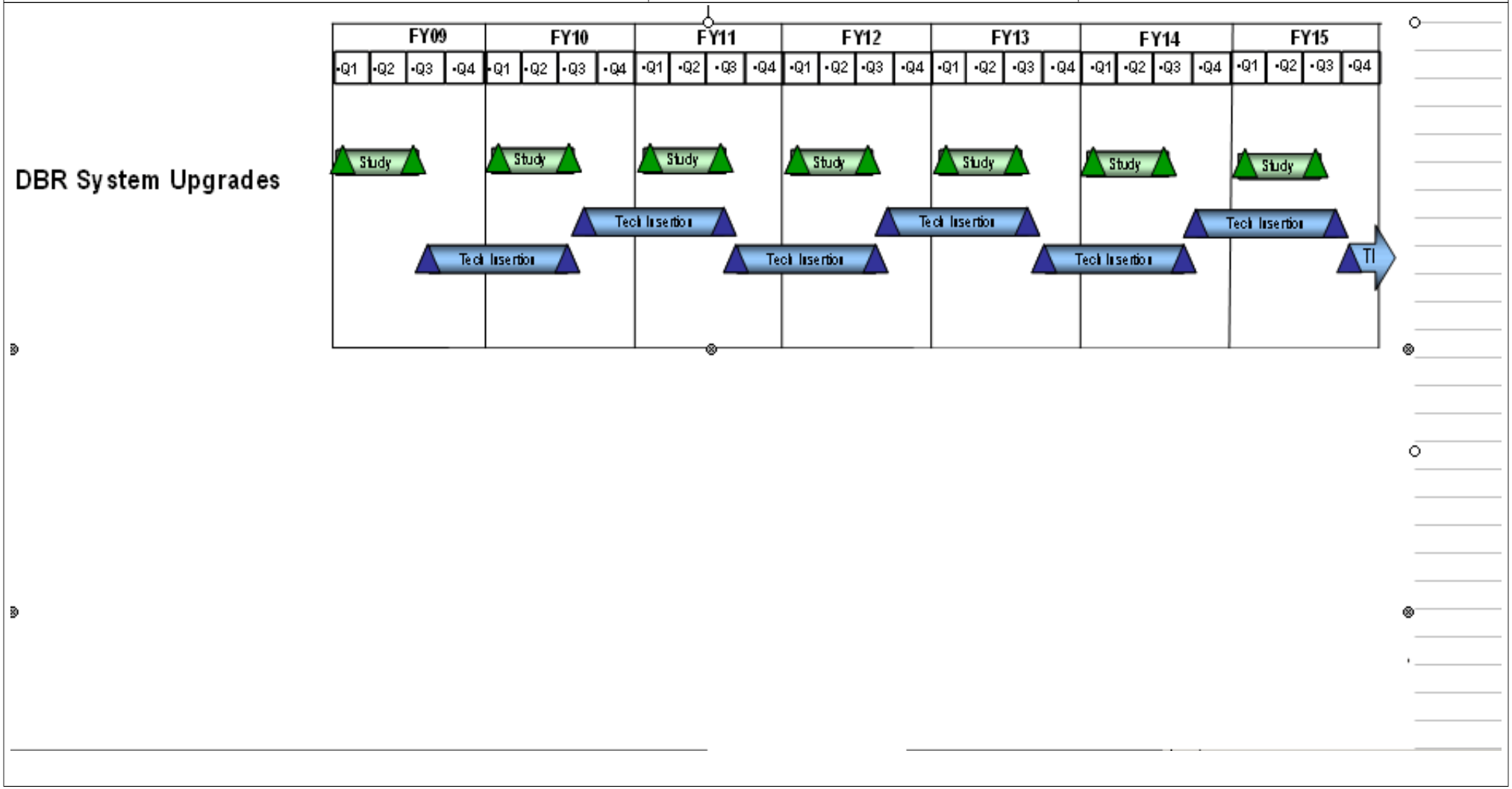


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3188: *Dual-Band Radar*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
DBR System Upgrade Studies and Analysis	1	2009	3	2015
DBR System Upgrade Technology Insertion	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*	

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
3232: *Multi-Mission Signal Processor*	0.000	32.961	32.607	0.000	32.607	30.948	27.806	16.500	19.476	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Multi-Mission Signal Processor (MMSP) provides Anti-Air Warfare (AAW)/Ballistic Missile Defense (BMD) Multi-mission capability for DDG 51-78 as part of DDG Modernization Program. Modifies SPY-1D Transmitter to enable dual beam for reduced frame times and better reaction time, and provides stability for all D(V) waveforms and avoid operational degradation. It improves performance in littoral, ducted clutter environments. Detects, tracks and supports engagements of a broader range of threats. MMSP provides reduced environmental effects, and better track continuity on small threats in land clutter. Improves performance in electronic attack (EA) and chaff environments and provides greater commonality in computer programs and equipment.

Multi-Mission Signal Processor FY 10 and outyear funding for Cruisers/Destroyers was transferred from 0604307N/1447 to 0604501N/3232.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SYSTEMS ENGINEERING	0.000	32.961	32.607	0.000	32.607
FY 2010 Plans: - Finalize requirements definition and alignment with the Ballistic Missile Defense Program for incorporation of the BMD capability - Support Initial Capability Demonstration at Combat System Engineering Development Site (CSEDS) - Production Readiness Review in 3rd Quarter of FY10 - Maintain alignment with the Ballistic Missile Defense program and the associated Ballistic Missile Defense Signal Processor (BSP) Adjunct to incorporate BMD capability within MMSP during AEGIS Modernization.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3232: *Multi-Mission Signal Processor*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY11 Plan: Support MMSP development and integration testing with ACB-12. Conduct testing ashore in an integrated combat systems environment for two formal events at Combat Systems Engineering Development Site of increasing complexity air defense and multi-mission (air and ballistic missile defense) technical performance demonstrations leading to an integrated combat system level demonstration event. - Support MMSP installation and integration with AN/SPY-1D at Wallops Island Test Facility, measure and characterize actual performance versus requirements, and conduct system-level testing. - Continue software development, incorporate BMD and fault-detection functionality, resolve and fix developmental software to achieve a Quality Assurance version. - Produce and update MMSP specifications, design documentation, and test reports. - Create and update MMSP documentation (e.g. technical manuals, training curriculum, logistics support, etc). - Deliver Technical Data Package (Drawings) revisions for MMSP Hardware.					
Accomplishments/Planned Programs Subtotals	0.000	32.961	32.607	0.000	32.607

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/LI: *BLI 2980/OPN Items Less Than $5M*	0.200	18.000	0.000	0.000	0.000	0.030	0.000	0.000	0.000	0.000	18.230

D. Acquisition Strategy

Multi-Mission Signal Processor (MMSP) provides AAW/BMD Multi-mission capability for Aegis Modernization Program and leverages BMD 4.0.1 and SPY-1D(V) designs. This MMSP development efforts will lead to the OPN procurement for sites and shipsets.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3232: *Multi-Mission Signal Processor*

E. Performance Metrics

- Successfully complete MMSP CSEDS AEGIS Light Off
- Successfully complete MMSP Production Readiness Review
- Successfully complete SPY-1D(V) Performance Demo
- Successfully complete Multi-Mission Exercise
- Successfully complete CG Program Design Review
- Successfully complete Qualification Testing
- Successfully complete CG and DDG Deliveries
- Successfully complete CG Critical Design Review
- Successfully complete ACB14 Critical Design Review
- Successfully complete CG/DDG CSSQT
- Successfully complete CG Demo

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*	

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 ENGINEERING	SS/CPFF	Lockheed Martin Moorestown, NJ	0.000	28.019	Oct 2009	27.716	Dec 2010	0.000		27.716	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	Various/ Various	Various Various	0.000	4.451	Jan 2010	4.400	Dec 2010	0.000		4.400	Continuing	Continuing	Continuing
		Subtotal	0.000	32.470		32.116		0.000		32.116			

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
PSS	C/CPFF	TBD-PSS TBD	0.000	0.491	Jan 2010	0.491	Dec 2010	0.000		0.491	Continuing	Continuing	Continuing
		Subtotal	0.000	0.491		0.491		0.000		0.491			

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	32.961		32.607		0.000		32.607			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*	

	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3232: *Multi-Mission Signal Processor*

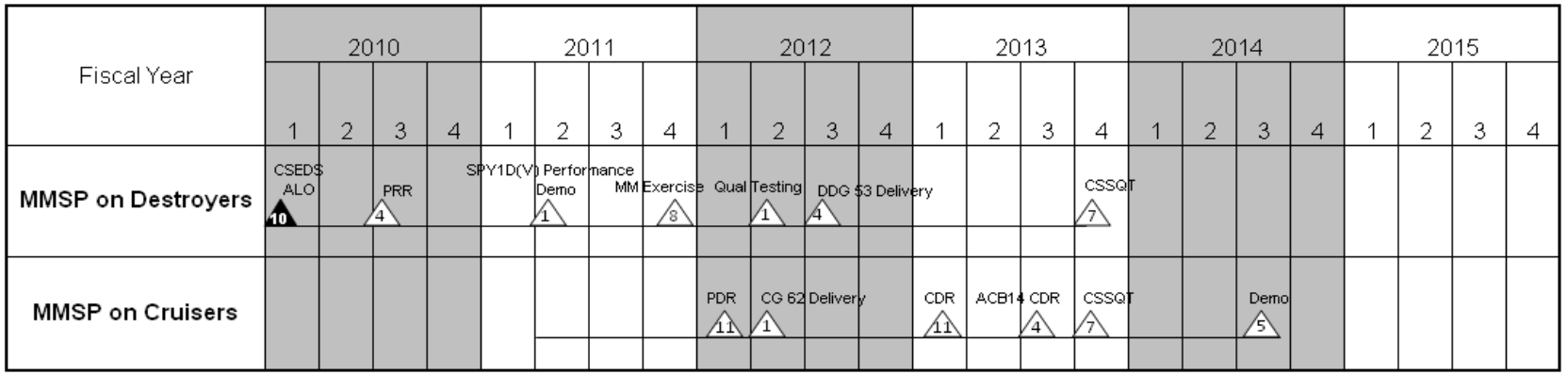


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3232: *Multi-Mission Signal Processor*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
MMSP CSEDS AEGIS Light Off (ALO)	1	2010	1	2010
MMSP Production Readiness Review (PRR)	3	2010	3	2010
SPY-1D(V) Performance Demo	2	2011	2	2011
Multi-Mission Exercise	4	2011	4	2011
CG Program Design Review (PDR)	1	2012	1	2012
Qualification Testing	2	2012	2	2012
CG Delivery	2	2012	2	2012
DDG Delivery	3	2012	3	2012
CG Critical Design Review (CDR)	1	2013	1	2013
ACB14 CDR	3	2013	3	2013
CG/DDG CSSQT	4	2013	4	2013
CG Demo	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3301: *Improved Capabilities SPY-1 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
3301: *Improved Capabilities SPY-1 Radar*	0.000	0.000	4.535	0.000	4.535	4.720	3.581	2.165	1.035	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Improved Capabilities for SPY-1 Radar: These Reliability, Maintainability, and Availability (RM&A) improvements are intended to reduce Casualty Reports (CASREPs) and cascading failures, mitigate obsolescence issues, and improve reliability in support of Anti-Air Warfare (AAW) and Ballistic Missile Defense (BMD) missions; while still providing AN/SPY-1 Radar Total Ownership Cost Reductions. Improvements will yield reductions in annual fleet maintenance costs.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Improved Capabilities SPY-1 Radar *FY 2011 Base Plans:* - Initial Requirements development and design of 10 kW Traveling Wave Tube (TWT) and Continuous Wave Illuminator (CWI) Microwave Tubes	0.000	0.000	4.535	0.000	4.535
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.535	0.000	4.535

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3301: *Improved Capabilities SPY-1 Radar*

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/LI: *BLI 2980/OPN Surface Warfare*	0.000	0.000	0.000	0.000	0.000	0.000	0.200	0.700	1.500	7.600	10.000

D. Acquisition Strategy

Improved Capabilities SPY-1 Reliability, Maintainability, and Availability (RM&A) will design and development of an ORDALT Package for fixes and modifications to known transmitter, microwave tube (MWT), and logistic shortcomings (also includes the MK-99 CWI MWT).

E. Performance Metrics

- Successfully complete 10kW Traveling Wave Tube/Continuous Wave Illumination Microwave Tube (TWT/CWI MWT) Improvement Design/Development
- Successfully complete A/B E1 Switch Improvement Design/Development
- Successfully complete Cross-Field Amplifier/Switch Tube (CFA/SWT) MWT Improvement Design Development
- Successfully complete MWT Improvement Design/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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3301: *Improved Capabilities SPY-1 Radar*

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
SYSTEM ENGINEERING	C/CPFF	Raytheon Sudbury, MA	0.000	0.000		1.905	Jan 2011	0.000		1.905	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	C/CPFF	Teledyne Sacramento, CA	0.000	0.000		0.907	Jan 2011	0.000		0.907	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	C/CPFF	CPI Palo Alto, CA	0.000	0.000		0.907	Jan 2011	0.000		0.907	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC/Crane, IN Crane, IN	0.000	0.000		0.816	Dec 2010	0.000		0.816	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		4.535		0.000		4.535			

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		4.535		0.000		4.535			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 3301: *Improved Capabilities SPY-1 Radar*

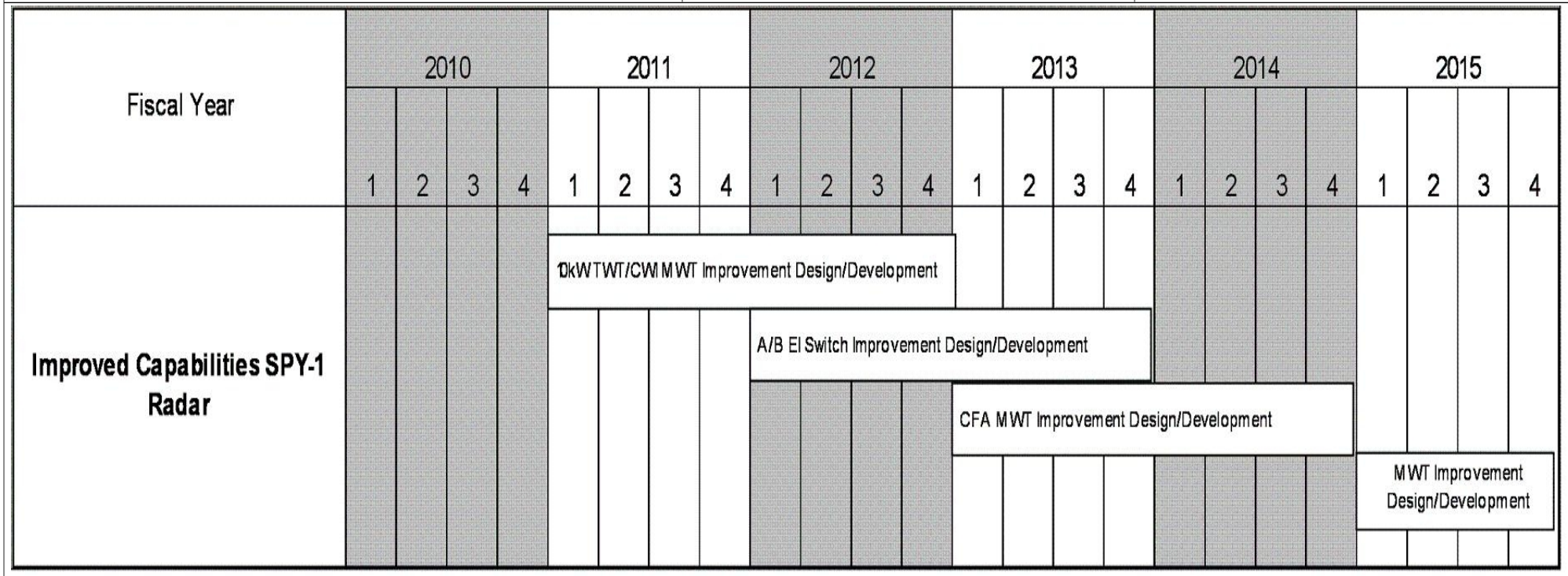


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604501N: *Advanced Above Water Sensors*	**PROJECT** 3301: *Improved Capabilities SPY-1 Radar*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
10 kW TWT/CWI MWT Improvement Design/Development	1	2011	4	2012
A/B EI Switch Improvement Design/Development	1	2012	4	2013
CFA/SWT MWT Improvement Design Development	1	2013	4	2014
MWT Improvement Design/Development	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	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*	19.147	16.332	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	35.479
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Common Below Decks Affordable Architecture - Congressional Add is to develop a common digital sensor architecture and to develop supportability solution for deployed above water sensors (FY09).

National Radio Frequency R&D and Tech Transfer Center - Congressional Add for RF technology. RF technology for above water sensors is required to meet Navy Radar Program objectives. RF technology will be brought to a readiness level in preparation for insertion into manufacturing (FY09).

Advanced Sensor Development - Congressional Add to develop and demonstrate the technology required to sustain supportability solution for deployed above water sensors. Efforts to be performed will be in the technology development phase to include interpreting user needs and operational capabilities, developing system performance and limitation specification, developing functional definitions for technologies, demonstrate system functionality, demonstrate integrated system, and demonstrate and validate systems concepts and technology maturity (FY09/FY10).

Common Display Sensor Architecture - Congressional Add to execute the AN/SPS-49A(V)1 common digital sensor architecture transmitter modification from system functional requirements to preliminary design review. This shall include - developing prototypes to reduce integration and manufacturing risks; ensure operational supportability; reduce the logistics footprint; and implement human systems integration (FY10).

Submarine Navigation Decision Aids - Congressional Add to continue the SBIR effort in support of the fielded AN/BPS Radar VMS Subsystem. With the implementation of ECDIS-N on submarines, there is a need to improve related navigation functions which are not currently supported in navigation architectures afloat, referred by the fleet as Navigation Decision Aids (FY10).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
	0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Common Digital Sensor Architecture *FY 2010 Plans:* N/A		
Congressional Add: Submarine Navigation Decision Aids *FY 2010 Plans:* N/A	0.000	3.983
Congressional Add: Common Below Decks Affordable Architecture *FY 2009 Accomplishments:* N/A	3.191	0.000
Congressional Add: National Radio Frequency R&D and Tech Transfer Cen *FY 2009 Accomplishments:* N/A	3.989	0.000
Congressional Add: Advanced Sensor Development *FY 2009 Accomplishments:* N/A *FY 2010 Plans:* N/A	11.967	9.959
Congressional Adds Subtotals	19.147	16.332

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604501N: *Advanced Above Water Sensors*	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*

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	131.196	120.779	118.897	0.000	118.897	105.140	100.506	98.468	94.963	Continuing	Continuing
0219: *Sub Sonar Improvement (ENG)*	64.716	59.075	71.795	0.000	71.795	58.314	61.225	61.552	70.248	Continuing	Continuing
0742: *Sub Integrated Ant System*	49.360	37.460	29.341	0.000	29.341	29.042	30.641	28.083	15.706	Continuing	Continuing
0775: *Submarine Supt Equip Prog*	1.412	1.445	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.046
1411: *Sub Tact Comm System*	15.708	21.206	17.761	0.000	17.761	17.784	8.640	8.833	9.009	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	33.782

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Submarine Support Equipment Program develops and improves submarine Electronic Warfare Support (EWS) technology, components, equipment, and systems that will increase submarine operational effectiveness, safety of ship, and survivability in an increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Enhancements are necessary for submarine EWS to be operationally effective in the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare and Intelligence Collection, Maritime rotection, and Joint Strike.

The Submarine Sonar Improvement Program delivers block updates to Sonar Systems and improved Sensors installed on SSN 688, 688I, SSN 21, TRIDENT, Virginia, SSBN, and SSGN Class Submarines to maintain clear acoustical, tactical and operational superiority over submarine and surface combatants in all scenarios through detection, classification, localization and contact following. Current developments are focused on supporting Littoral Warfare, Regional Sea Denial, Battle Group Support, Diesel Submarine Detection, Surveillance, and Peacetime Engagement.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	142.836	122.733	0.000	0.000	0.000
Current President's Budget	131.196	120.779	118.897	0.000	118.897
Total Adjustments	-11.640	-1.954	118.897	0.000	118.897
• Congressional General Reductions		-0.503			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.051			
• Congressional Adds		1.600			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-8.065	0.000			
• SBIR/STTR Transfer	-3.575	0.000			
• Program Adjustments	0.000	-3.000	118.897	0.000	118.897

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Improved Submarine Towed Array Systems*	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

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0219: *Sub Sonar Improvement (ENG)*	

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
0219: *Sub Sonar Improvement (ENG)*	64.716	59.075	71.795	0.000	71.795	58.314	61.225	61.552	70.248	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 delivers block updates to Sonar Systems installed on SSN 688, 688I, SSN 21, TRIDENT, Virginia, SSBN, and SSGN Class Submarines to maintain clear acoustical, tactical and operational superiority over submarines and surface combatants in all scenarios through detection, classification, localization and contact following.

Acoustics Rapid COTS Insertion (A-RCI) was a multi-phased evolutionary development geared toward addressing acoustic superiority issues through the rapid introduction of interim development products applicable to all classes of submarines. A-RCI Phase I and II introduced Towed Array processing improvements, Phase III introduced Spherical

Array processing improvements, and Phase IV provided High Frequency (HF) Array processing improvements for SSN 688I, SSGN, Virginia and SSN 21 Class Submarines. As part of CNO N872's plan to maintain acoustic superiority for in-service submarines, a joint cooperative effort with PEO IWS-5 was established to deliver annual Advanced Processing

Builds (APBs) to prevent obsolescence and deliver ongoing capability improvements. The capabilities in the APBs will be integrated as part of A-RCI certified system.

Current developments to maintain Acoustic Superiority with new capability and prevent obsolescence are accomplished through annual Advanced Processing Builds (APBs). The capabilities in the APBs are integrated as part of the A-RCI certified system. Sensor efforts provide increased operational capabilities for littoral operations, situational awareness and reliability improvements.

Towed System's development efforts provide increased operational capabilities and reliability improvements to maintain a clear acoustical, tactical, and operational superiority over submarine and surface combatants. These efforts include development of a Fiber Optic Thinline Towed Array, (TB-33) for increased reliability, the Next Generation Fatline Towed Array (TB-34) which provide improved Littoral Operational capability and the Low Cost Conformal Array, an HF array that provides enhanced situational awareness. Future Sensor development includes enhancements to long range passive detection, continued reliability improvements,and wide area search.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0219: *Sub Sonar Improvement (ENG)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
APB Productionization	14.562	15.476	15.816	0.000	15.816
FY 2009 Accomplishments: Continued Advanced Processing Build (APB) Sea Testing, Integration and Certification. This effort was primarily the transition of APB software from development to A-RCI for integration and test, and formal certification. *FY 2010 Plans:* Continue Advanced Processing Build (APB) Sea Testing, Integration and Certification. This effort is primarily the transition of APB software from development to A-RCI for integration and test, and formal certification. *FY 2011 Base Plans:* Continue Advanced Processing Build (APB) Sea Testing, Integration and Certification. This effort is primarily the transition of APB software from development to A-RCI for integration and test, and formal certification.					
Integration and Testing.	32.298	40.243	41.231	0.000	41.231
FY 2009 Accomplishments: Supported Advanced Processing Builds installed on SSN 688I, SSN 688, SSBN 730, SSN 21, SSGN 726, VA Class, and new sensors TB-34 Towed Arrays, TB-33 Towed Arrays and Low Cost Conformal Array (LCCA). *FY 2010 Plans:* Supports Advanced Processing Builds installed on SSN 688I, SSN 688, SSBN 730, SSN 21, SSGN 726, VA Class, and new sensors TB-34 Towed Arrays, TB-33 Towed Arrays and Low Cost Conformal Array (LCCA).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0219: *Sub Sonar Improvement (ENG)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Supports Advanced Processing Builds installed on SSN 688I, SSN 688, SSBN 730, SSN 21, SSGN 726, VA Class, and new sensors TB-34 Towed Arrays, TB-33 Towed Arrays and Low Cost Conformal Array (LCCA).					
HF Precision Imaging Active Sonar *FY 2009 Accomplishments:* Development of HF Precision Imaging Active Sonar was completed in FY09. The HF Precision Imaging Active Sonar provided improvements for under-ice capability and mine detection. It assisted the submarine in maneuvering near the bottom in medium and littoral waters, as well as the marginal ice zone and ice pack regions.	2.200	0.000	0.000	0.000	0.000
Low Cost Confromal Array (LCCA) *FY 2009 Accomplishments:* Low Cost Confromal Array (LCCA) is a low cost HF array that provided enhanced situational awareness and also supplied the capability to extend passive detection range in littoral environments against quiet threats and multi-path ranging beyond first bottom bounce capability. Development of LCCA light weight Advanced Development Model began in FY09. EDM procurements, fabrication and assembly also began in FY09. *FY 2010 Plans:* ARCI Integration, TECHEVAL and OPEVAL testing is planned for FY10.	3.000	1.700	0.000	0.000	0.000
Affordable Towed Array Technology (TB-33) Affordable Towed Array Technology (TB-33) development provided more affordable and reliable thinline arrays using fiber optic technology and eliminating "wet end" electronics. The program will transition to Production Representative Unit (PRU) Fabrication.	4.713	0.828	11.575	0.000	11.575

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0219: *Sub Sonar Improvement (ENG)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continue development of PRU. *FY 2010 Plans:* Continue development of PRU and testing. *FY 2011 Base Plans:* Continue development of special test modules to evaluate PRU design.					
Future Sensor Capability Providing array capability improved long range passive detection, continued reliability improvements, and wide area search. *FY 2009 Accomplishments:* Milestone C and completion of the functional configuration audit occurred. *FY 2010 Plans:* TECHEVAL and OPEVAL tests are scheduled along with the development and deliveries of the first three systems. *FY 2011 Base Plans:* Continue testing engineering capabilities.	7.623	0.828	3.173	0.000	3.173
Acquisition Workforce *FY 2009 Accomplishments:* N/A	0.320	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	64.716	59.075	71.795	0.000	71.795

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0219: *Sub Sonar Improvement (ENG)*

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/BLI 214700: *SSN Acoustics*	202.658	241.315	184.528	0.000	184.528	247.301	236.557	311.371	259.182	Continuing	Continuing
• OPN/BLI 214705: *SSN Acoustics Installation*	72.103	55.452	52.487	0.000	52.487	44.844	44.811	37.454	51.438	Continuing	Continuing

D. Acquisition Strategy

Acoustic Systems:
A-RCI utilizes an open architecture and Commercial Off-the-Shelf products in support of new and upgraded sonar systems. A follow-on development and production sole source cost plus incentive fee contract was awarded to General Dynamics, Advanced Information Systems in August 2009 and will be awarded to Lockheed Martin Maritime Systems & Sensors in March 2010. Program Review with Milestone Decision Authority was conducted in November 2009 granting approval for the FY10 production option.

Thinline Arrays:
Towed Systems is the development of a highly reliable and more affordable Fiber Optic Thinline variant towed array which uses fiber optic sensor technology for data collection and moves all outboard electronics from the array to inboard the submarine where they can be easily maintained. Cost savings in array production will be gained by
using automated production techniques and significantly reducing or eliminating the "hand touch" labor common to today 's towed array production methods because of the number of different electronics that must be wired together to achieve the acoustics capabilities necessary to meet the threats of today and tomorrow. This development is being
accomplished under a Phase III SBIR. The Critical Design Review (CDR) was completed in FY06 and the program has transitioned to the fabrication of Production Representative Units. Milestone C/LRIP planned for FY13. TECHEVAL and OPEVAL tests are scheduled for FY13 and FY14 respectively along with the development of the first three systems.

Hull Mounted Arrays:
The Low Cost Conformal Array (LCCA) transitioned from PEO IWS in FY08 with a competitive contract being awarded for the PRU development. PRU procurements, fabrication, and assembly began in FY08. PRU deliveries will be accepted in FY10. ARCI Integration, TECHEVAL and OPEVAL testing is planned for FY10.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*	**PROJECT** 0219: *Sub Sonar Improvement (ENG)*

E. Performance Metrics

The Acoustics Rapid Commercial Off the Shelf (ARCI) program will modernize and sustain approximately 25% of the SSN Fleet per year through executing annual software Advanced Processing Builds (APBs) and bi-annual hardware Technical Insertions (TIs). The Low Cost Conformal Array (LCCA) program will successfully complete initial installation, developmental testing (DT), and operational testing (OT) in support of achieving the Initial Operating Capability (IOC). The TB-34 program will successfully achieve a Milestone C Full Rate Production decision. The TB-33 program will complete efforts to redesign critical components in support of initial installations.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0219: *Sub Sonar Improvement (ENG)*

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/CPIF	LMC Manassas, VA	211.675	25.447	Mar 2010	25.722	Dec 2010	0.000		25.722	Continuing	Continuing	Continuing
Primary Hardware Development	C/Various	Chesapeake Sciences Millersville, MD	36.339	0.828	Dec 2009	11.325	Dec 2010	0.000		11.325	Continuing	Continuing	Continuing
Ancillary Hardware Development	C/TBD	ARL University of Texas Austin, TX	16.710	2.437	Feb 2010	2.653	Feb 2011	0.000		2.653	Continuing	Continuing	Continuing
Systems Engineering	C/TBD	John Hopkins APL Baltimore, MD	19.327	2.375	Dec 2009	2.553	Dec 2010	0.000		2.553	Continuing	Continuing	Continuing
Systems Engineering	SS/CPAF	Lockheed Eagan MN -Keyport	16.244	2.425	Jan 2010	2.607	Jan 2011	0.000		2.607	Continuing	Continuing	Continuing
Primary Hardware Development	SS/CPAF	Progeny Systems Manassas, VA	20.481	6.500	Jan 2010	6.500	Jan 2011	0.000		6.500	Continuing	Continuing	Continuing
Primary Hardware Development	SS/CPIF	LM Syracuse Syracuse, NY	11.023	0.500	Dec 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC Newport, RI	128.233	7.615	Dec 2009	7.847	Dec 2010	0.000		7.847	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC Carderock, MD	11.300	2.123	Dec 2009	2.282	Dec 2010	0.000		2.282	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC, Crane IN	0.503	0.000		0.000		0.000		0.000	0.000	0.503	0.503
Systems Engineering	WR	Naval Research Lab Washington, DC	1.607	0.000		0.250	Oct 2010	0.000		0.250	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0219: *Sub Sonar Improvement (ENG)*	

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/CPIF	LM (IWS 5) Not Specified	7.774	0.828	Jan 2010	3.173	Jan 2011	0.000		3.173	Continuing	Continuing	Continuing
Hardware/Software Development	C/Various	SBIR (Various) Not Specified	2.127	0.403	Jun 2010	0.135	Jun 2011	0.000		0.135	Continuing	Continuing	Continuing
		Subtotal	483.343	51.481		65.047		0.000		65.047			

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 Software Development	SS/CPAF	General Dynamics, AIS Fairfax, VA	137.508	2.449	Aug 2009	2.596	Dec 2010	0.000		2.596	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	Sedna Digital, Manassas, VA	9.580	3.358	Feb 2010	3.819	Dec 2010	0.000		3.819	Continuing	Continuing	Continuing
		Subtotal	147.088	5.807		6.415		0.000		6.415			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0219: *Sub Sonar Improvement (ENG)*

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 and Evaluation	WR	OPTEVFOR Norfolk, VA	6.387	0.684	Dec 2009	0.333	Dec 2010	0.000		0.333	Continuing	Continuing	Continuing
		Subtotal	6.387	0.684		0.333		0.000		0.333			

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 Support Services	C/FFP	EG&G Technical Services Washington, DC	9.247	0.853	Feb 2009	0.000	Feb 2010	0.000		0.000	Continuing	Continuing	Continuing
Travel	WR	NAVSEA Washington, DC	1.325	0.250	Nov 2008	0.000	Nov 2009	0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	10.572	1.103		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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0219: *Sub Sonar Improvement (ENG)*	

	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	647.390	59.075		71.795		0.000		71.795			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*	**PROJECT** 0219: *Sub Sonar Improvement (ENG)*

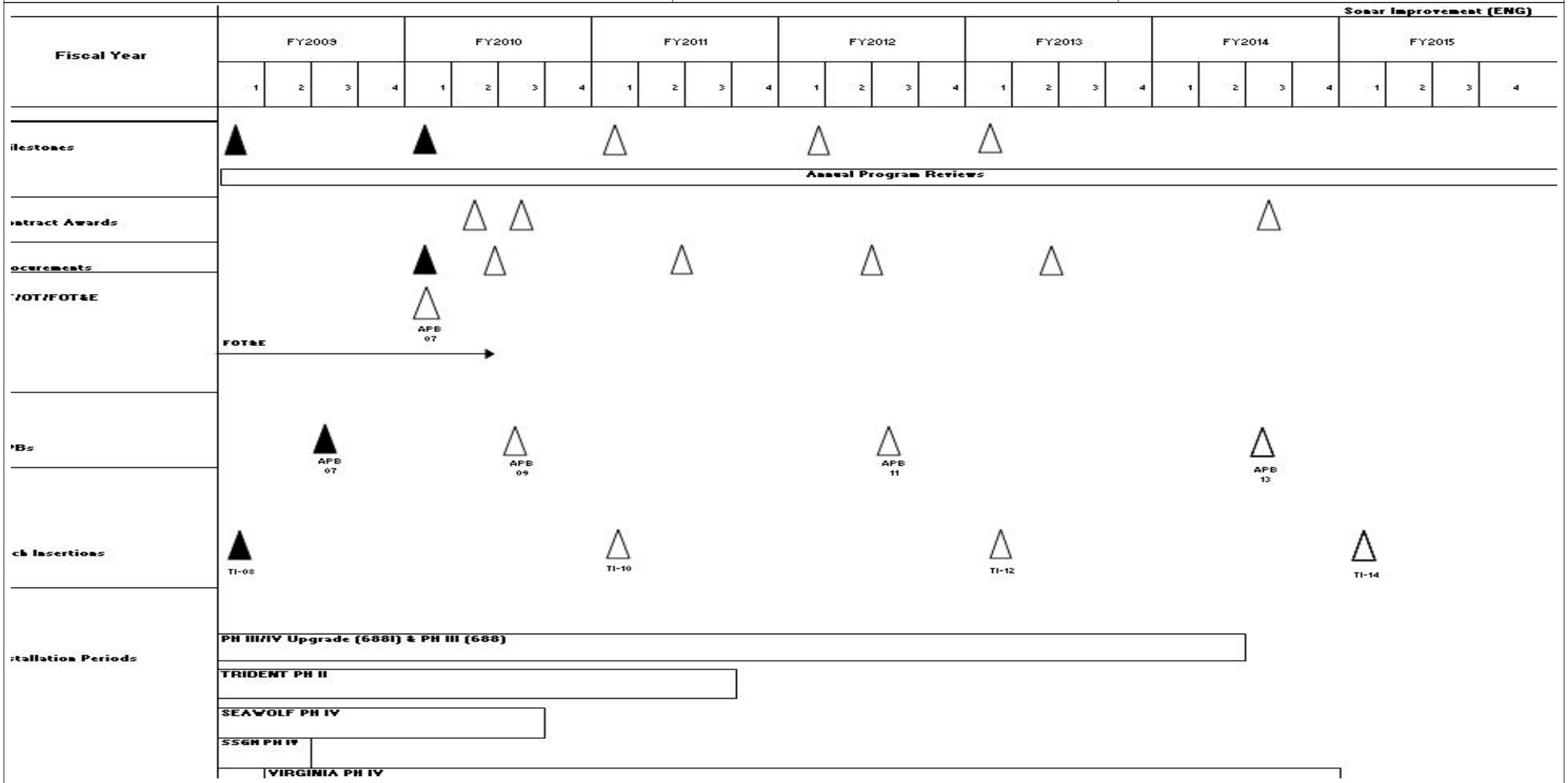


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0219: *Sub Sonar Improvement (ENG)*

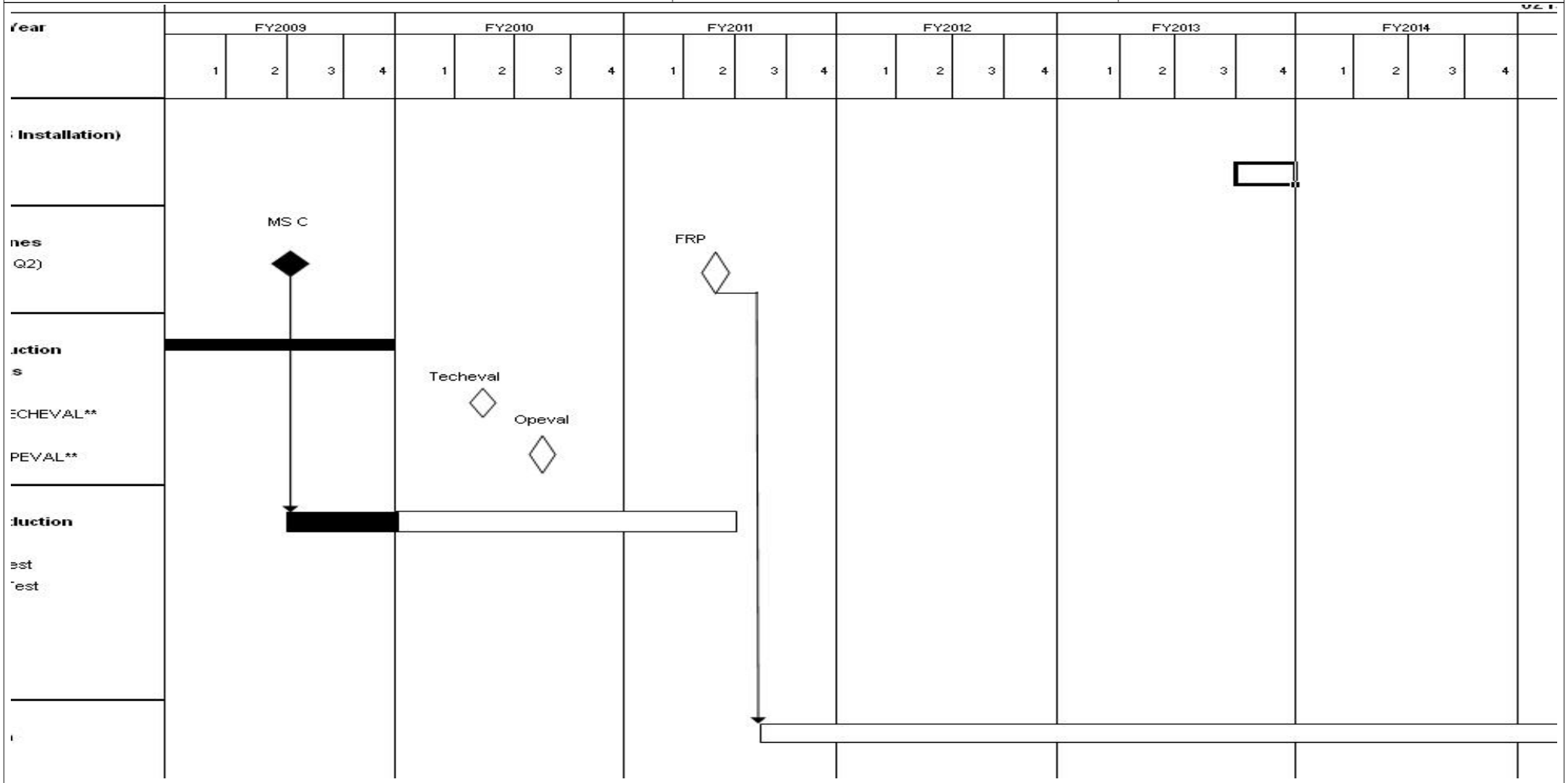


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*	**PROJECT** 0219: *Sub Sonar Improvement (ENG)*

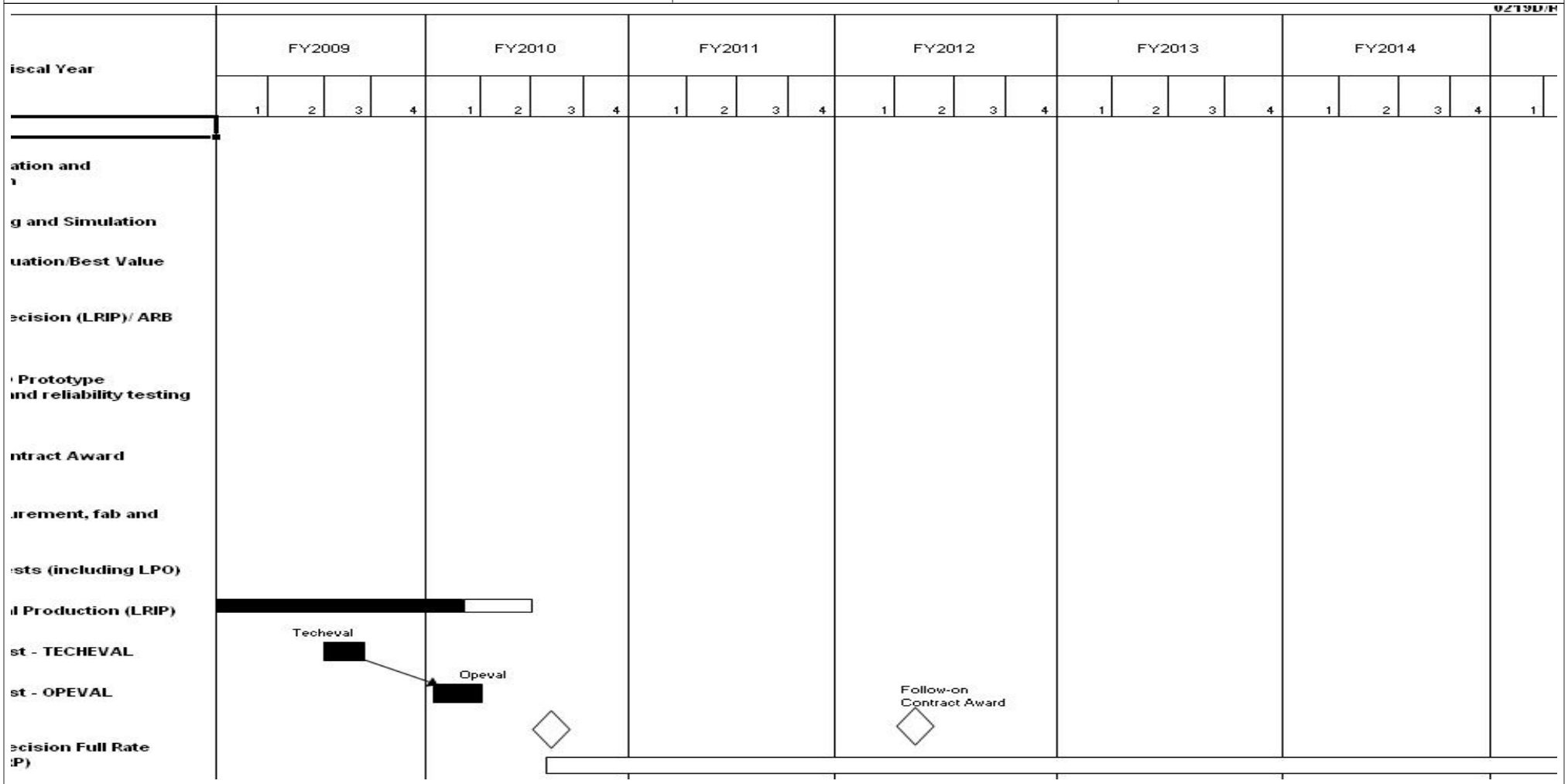


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*	**PROJECT** 0219: *Sub Sonar Improvement (ENG)*

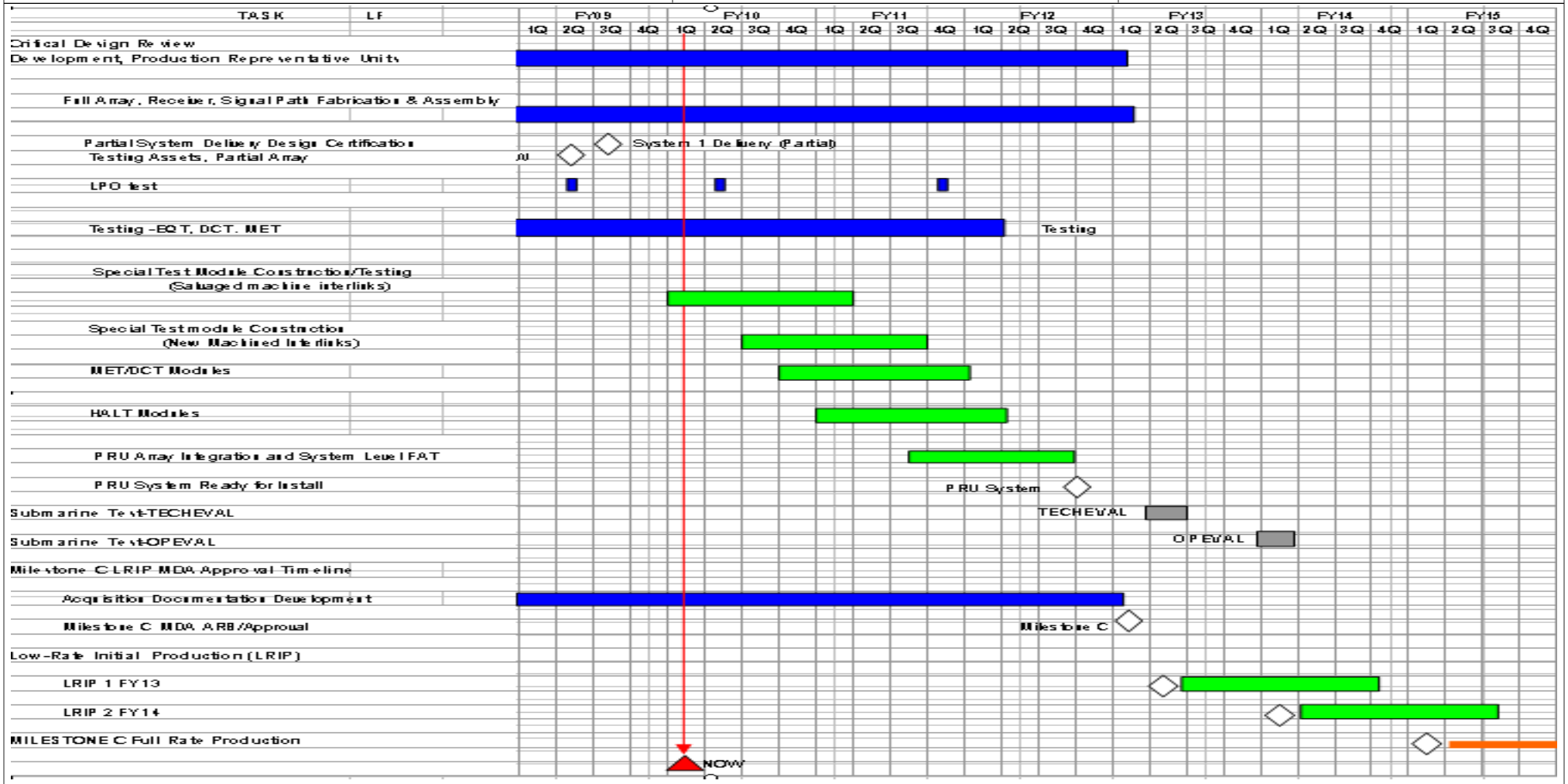


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*	**PROJECT** 0219: *Sub Sonar Improvement (ENG)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
ACOUSTICS	1	2009	4	2015
Acquisition Milestones	1	2009	1	2013
Annual Program Review	1	2009	4	2015
Contract Awards	2	2010	3	2014
Procurements	1	2010	3	2013
DT/OT/FOT&E Tests	1	2009	2	2010
APB Deliveries	3	2009	2	2012
Tech Insertions	4	2009	3	2014
Installation Periods	1	2009	4	2014
LCCA	1	2009	4	2015
LCCA Development FY08-FY09	1	2009	4	2009
Acquisition Milestone C	2	2009	3	2009
Acquisition Milestone B (MS B) Complete	4	2009	4	2009
Production Representative Units Delivery	1	2009	4	2009
LCCA Submarine Test - TECHEVAL	2	2010	2	2010
LCCA Submarine Test - OPEVAL	3	2010	3	2010
Low Rate Initial Production	2	2009	2	2011
Full Rate Production	3	2011	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0219: *Sub Sonar Improvement (ENG)*

	Start		End	
Event	Quarter	Year	Quarter	Year
TB-33	1	2009	1	2009
Fiber Optic Thinline Development FY02-FY13	1	2009	1	2013
System Deliveries	4	2012	4	2012
LPO Test (Lake Test)	2	2010	2	2010
TB-33 Submarine Test - TECHEVAL	2	2013	2	2013
TB-33 Submarine Test - OPEVAL	1	2014	1	2014
MS C LRIP Production Contract Award	2	2013	1	2014
MS C Full Rate Production	1	2015	1	2015
TB-33 Production Deliveries	4	2014	4	2015
TB-34	1	2009	1	2009
Low Rate Initial Production (LRIP)	1	2009	2	2010
TB-34 Submarine Test - TECHEVAL	3	2009	3	2009
TB-34 Submarine Test - OPEVAL	1	2010	1	2010
Milestone C Decision (FRP) / ARB	3	2010	3	2010
TB-34 Production Deliveries	3	2010	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant 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
0742: *Sub Integrated Ant System*	49.360	37.460	29.341	0.000	29.341	29.042	30.641	28.083	15.706	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Submarine Integrated Antenna System project (0742) provides for the development and testing of submarine antennas designed to meet emerging submarine requirements of: (a) Improved frequency coverage and data rate capabilities of submarine antennas and their interface to the External Communications System, (b) Improved submarine antenna performance and data rate while the submarine is operating at speed and depth, (c) Antenna compatibility with new waveforms and transceiver equipment, (d) Improved stealth capability of existing and future antennas and (e) Improved antenna design to reduce Total Ownership Cost. This project funds research and development for submarine antennas including (1) Pre-Planned Product Improvement efforts to existing antennas including Outboard Electronics-538/BRC (OE-538/BRC) Multi-Function Antenna, (2) OE-562 Submarine, High Data Rate (SubHDR) system development of Underwater Explosion (UNDEX) modification kits, (3) Development of new systems including Advanced High Data Rate (AdvHDR) and (4) Communication at Speed and Depth (CSD) design efforts. These efforts will provide Ship Submersible Nuclear, Ship Submersible Ballistic Nuclear and Ship Submersible Guided Nuclear platforms with an improved communications capability while operating at speed and depth thus enhancing operational flexibility and maintaining stealth in littoral mission applications.

JUSTIFICATION FOR BUDGET ACTIVITY:
This program is funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.
Notes/Comments:
FY11 Antenna Transition Engineering: Continue research analysis for investigating new technologies for legacy antenna systems.
FY11 OE-538: Complete the manufacturing of the Engineering Development Model. Perform a Development Test (DT).
FY11 SubHDR: Complete UNDEX development. Continue research and analysis on performance reliability components.
FY11 AdvHDR: Continue risk mitigation demonstrations and technology maturation efforts towards technology readiness assessments in preparation of Milestone B.
FY11 CSD: Conduct a Developmental Test/Operational Assessment of the 2 EDMs.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Antenna Transition Engineering	2.860	4.329	4.557	0.000	4.557
FY 2009 Accomplishments: Continued to provide emerging requirements and satellite communications database/link analysis for other development programs in support of current & future communication architectures. Continued Preplanned Product Improvement (P3I) investigation and developed efforts for the legacy antenna systems. Continued concept engineering, new technology evaluations, and assessments in support of current and future submarine antenna applications, to include Hull, Mechanical, & Electrical (HM&E) interfaces. Continued to investigate multiple usage antennas, including antennas that can be used for communications and other functions. *FY 2010 Plans:* Continue to provide emerging requirements and satellite communications database/link analysis for other development programs i.e. Mobile User Objective System, Link 16, Wideband Global SATCOM, Advanced Extremely High Frequency, other new waveforms. Continue P3I investigation and development efforts for the legacy antenna systems. Continue to investigate multiple usage and assessments in support of current and future submarine antenna applications; specifically to assess the impact to the sail and hull penetrators on different classes of submarines. *FY 2011 Base Plans:* Continue to provide emerging requirements and satellite communications database/link analysis for other development programs in support of current & future communication architectures. Continue P3I investigation and development efforts towards 2 legacy antenna systems. Continue concept engineering, new technology evaluations, and assessments in support of current and future submarine antenna applications, to include HM&E interfaces. Continue to investigate multiple usage antennas, including antennas that can be used for communications and other functions.					
OE-538	6.884	7.376	11.744	0.000	11.744

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Commenced system design for Increment 2 Engineering Development Model (EDM) hardware/ software. Commenced preparation of integration and system testing of Increment 2 system. Completed development of documentation in preparation for a Milestone B and contract award. Commenced system engineering support for Increment 2, including development of Integrated Logistics Support (ILS) products. *FY 2010 Plans:* Continue system design for Increment 2 EDM hardware/software. Continue integration and system testing of Increment 2 system. Continue system engineering including development of documentation and ILS products for Increment 2. Commence development/update of required Milestone C acquisition documents. *FY 2011 Base Plans:* Complete Increment 2 system design, manufacture & test EDM to validate the design supports Fleet requirements (Mobile User Objective System (MUOS)/Link-16/Iridium). Prepare acquisition (e.g., Capabilities Production Document (CPD)) and applicable ILS documentation to support Low-Rate Initial Production decision.					
SubHDR P3I	8.329	1.722	1.621	0.000	1.621
FY 2009 Accomplishments: Continued system engineering for the development efforts to meet Grade-A shock requirement. Completed program planning for Grade-A shock requirements. Commenced Engineering Change Proposal/Integrated Logistics Supported documentation development and test support development of Grade-A shock requirements.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue Underwater Explosive development and testing. Commence research and analysis on SubHDR components to increase performance reliability. *FY 2011 Base Plans:* Complete system engineering, Engineering Change Proposal/Integrated Logistics Support documentation development and test support development of Grade-A shock requirements. Continue research and analysis on Submarine High Data Rate (SubHDR) components to increase performance reliability; Radome special study report.					
Advanced HDR *FY 2009 Accomplishments:* Continued design and acquisition documentation development in support of Milestone B. Continued system definition/risk reduction and system development efforts. Continued technology maturation and demonstration efforts. Continued system development engineering efforts. *FY 2010 Plans:* Continue design and acquisition documentation development in support of Milestone B. Continue system definition/risk reduction and system development efforts. Continue technology maturation and demonstration efforts. Continue system development engineering efforts. *FY 2011 Base Plans:* Continue design and acquisition documentation development in support of Milestone B. Continue system definition/risk reduction and system development efforts based on risk mitigation hardware. Continue technology maturation and demonstration efforts. Continue system development engineering efforts.	6.907	7.830	6.719	0.000	6.719
Communications at Speed and Depth	24.100	16.203	4.700	0.000	4.700

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued to design and develop Increment 1 Engineering Development Models (EDMs) and test assets. Commenced design and development of the shore sites. Provided technical oversight to include management of all technical reviews, manage and provide government furnished equipment, program, acquisition and contract management. *FY 2010 Plans:* Continue the design and development of the Increment 1 EDMs (Qty 2) and test assets including integrating the Communications at Speed and Depth (CSD) capability into the shore Broadcast Control Authority (BCA). Conduct Developmental Testing and an Operational Assessment (DT/OA) of the EDMs. Provide ongoing acquisition, program management, contracting and systems engineering oversight in support of CSD to include updating all acquisition documentation in preparation for a Milestone C decision. *FY 2011 Base Plans:* Conduct DT/OA of the 2 EDMs. Provide program, contract and systems engineering management support.					
Acquisition Workforce Fund *FY 2009 Accomplishments:* Acquisition Workforce Fund	0.280	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	49.360	37.460	29.341	0.000	29.341

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant 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
• 313000: *Submarine Communications*	79.026	48.579	59.013	0.000	59.013	84.655	86.221	89.646	90.310	Continuing	Continuing

D. Acquisition Strategy

Program Milestones:
Outboard Electronics-538 (OE-538): 3rd QTR FY09 Milestone B (MS B); 3rd QTR FY12 Milestone C (MS C); 3rd QTR FY13 Full Rate Production (FRP) Decision Review
Advanced High Data Rate (AdvHDR): 2nd QTR FY12 MS B; 2nd QTR FY15 MS C
T&E Milestones:
OE-538: 4th QTR FY11 Developmental Test (DT) for MS C; 2nd QTR FY12 Operational Assessment (OA) for MS C; 1st QTR FY13 DT for FRP; 3rd QTR FY13 Operational Test (OT) for FRP
AdvHDR: 1st QTR FY15 OA for MS C
Communications at Speed and Depth (CSD): 2nd QTR FY11 for Test and Evaluation Increment 1
Contract Milestones:
OE-538: 4th QTR FY09 Development Contract Award
AdvHDR: 2nd QTR FY12 Engineering Demonstration Model (EDM) Contract Award
CSD: 2nd QTR FY09 Development Contract Award

E. Performance Metrics

FY11 Antenna Transition Engineering: Continue research analysis for investigating new technologies for legacy antenna systems.
FY11 OE-538: Complete the manufacturing of the Engineering Development Model. Perform a Development Test (DT).
FY11 SubHDR: Complete UNDEX development. Continue research and analysis on performance reliability components.
FY11 AdvHDR: Continue risk mitigation demonstrations and technology maturation efforts towards technology readiness assessments in preparation of Milestone B.
FY11 CSD: Conduct a Developmental Test (DT)/Operational Assessment (OA) of the 2 EDMs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant 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
Digital Interface Dev (SubHDR)	C/CPAF	Raytheon Marlboro, MA	3.545	0.000		0.000		0.000		0.000	0.000	3.545	3.545
Digital Dev (SubHDR)	C/CPAF	Raytheon Marlboro, MA	8.182	0.000		0.000		0.000		0.000	0.000	8.182	8.182
Hardware Dev (SubHDR)	WR	NUWC Newport, RI	2.888	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Hardware Dev (HDR SHF/FOT)	C/CPAF	Raytheon Marlboro, MA	14.632	0.000		0.000		0.000		0.000	0.000	14.632	14.632
Hardware Dev (Antenna Trans Eng)	C/CPAF	Sippican Marion, MA	2.207	0.000		0.000		0.000		0.000	0.000	2.207	2.207
Hardware Dev (CSD)	C/CPAF	Apogen CA	2.800	0.000		0.000		0.000		0.000	0.000	2.800	2.800
Systems/Hardware Dev (CSD)	C/CPAF	Various Various	31.172	8.181	Feb 2010	1.970	Nov 2010	0.000		1.970	Continuing	Continuing	Continuing
Hardware Dev (OE-538)	C/CPAF	Various Various	4.768	4.477	Nov 2009	8.319	Oct 2010	0.000		8.319	0.000	17.564	17.564
Systems Engineering (OE-538)	WR	NUWC Newport, RI	2.799	0.700	Feb 2010	1.250	Oct 2010	0.000		1.250	Continuing	Continuing	Continuing
Systems Engineering (SubHDR)	C/CPFF	Raytheon Marlboro, MA	6.316	0.000		0.000		0.000		0.000	0.000	6.316	6.316
System Engineering (SubHDR)	WR	NUWC Newport, RI	15.304	0.303	Feb 2010	0.200	Dec 2010	0.000		0.200	Continuing	Continuing	Continuing
Systems Engineering (AdvHDR)	WR	NUWC Newport, RI	6.980	1.500	Feb 2010	2.298	Nov 2010	0.000		2.298	Continuing	Continuing	Continuing
	WR	NUWC	15.972	1.995	Feb 2010	1.837	Nov 2010	0.000		1.837	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant 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
System Engineering (Antenna Trans Eng)		Newport, RI											
System Engineering (Antenna Trans Eng)	Various/ Various	Various Various	7.066	1.829	Feb 2010	2.029	Nov 2010	0.000		2.029	Continuing	Continuing	Continuing
System Engineering (CSD)	Various/ Various	Various Various	4.078	0.250	Feb 2010	0.300	Dec 2010	0.000		0.300	Continuing	Continuing	Continuing
System Engineering (CSD)	WR	SSC PAC San Diego, CA	2.828	0.220	Feb 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering (CSD)	WR	NUWC Newport, RI	12.610	4.210	Feb 2010	1.701	Dec 2010	0.000		1.701	Continuing	Continuing	Continuing
UNDEX Kit Development (SubHDR)	C/CPAF	Raytheon Marlboro, MA	5.325	0.150	Feb 2010	0.000		0.000		0.000	0.000	5.475	5.475
Technology Maturation/ Demonstrations Dev(AdvHDR)	C/CPAF	Various Various	1.945	4.176	Feb 2010	1.550	Jan 2011	0.000		1.550	0.000	7.671	7.671
Research and Analysis Reliability Dev (SubHDR)	WR	NUWC Newport, RI	0.000	0.618	Feb 2010	0.711	Jan 2011	0.000		0.711	0.000	1.329	1.329
Systems Engineering (AdvHDR)	Various/ Various	Various Various	2.126	0.500	Feb 2010	0.766	Nov 2010	0.000		0.766	Continuing	Continuing	Continuing
		Subtotal	153.543	29.109		22.931		0.000		22.931			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant 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
Integrated Logistics Support (AdvHDR)	Various/ Various	Various Various	0.579	0.075	Feb 2010	0.249	Nov 2010	0.000		0.249	Continuing	Continuing	Continuing
Integrated Logistics Support (Antenna Trans Eng)	Various/ Various	Various Various	0.050	0.000		0.000		0.000		0.000	0.000	0.050	0.050
Integrated Logistics Support (OE-538)	Various/ Various	Various Various	0.000	0.820	Feb 2010	0.850	Oct 2010	0.000		0.850	Continuing	Continuing	Continuing
Integrated Logistics Support (CSD)	Various/ Various	Various Various	0.283	0.000		0.000		0.000		0.000	0.000	0.283	0.283
Acquisition Documentation (Various)	Various/ Various	Various Various	0.622	0.310	Feb 2010	0.200	Oct 2010	0.000		0.200	Continuing	Continuing	Continuing
		Subtotal	1.534	1.205		1.299		0.000		1.299			

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 (CSD)	WR	COTF Norfolk, VA	0.350	0.087	Feb 2010	0.200	Dec 2010	0.000		0.200	Continuing	Continuing	Continuing
Test & Evaluation (OE-538)	WR	COTF Norfolk, VA	0.185	0.114	Feb 2010	0.125	Oct 2010	0.000		0.125	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant 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
Test & Evaluation (SubHDR)	WR	NUWC Newport, RI	0.357	0.126	Feb 2010	0.120	Dec 2010	0.000		0.120	Continuing	Continuing	Continuing
Developmental/ Operational T&E (AdvHDR)	WR	COTF Norfolk, VA	0.000	0.015	Feb 2010	0.050	Nov 2010	0.000		0.050	Continuing	Continuing	Continuing
Developmental/ Operational T&E (AdvHDR)	WR	NUWC Newport, RI	0.000	0.350	Feb 2010	0.255	Nov 2010	0.000		0.255	Continuing	Continuing	Continuing
Developmental/ Operational T&E (OE-538)	WR	NUWC Newport, RI	0.000	0.266	Feb 2010	0.350	Oct 2010	0.000		0.350	Continuing	Continuing	Continuing
Test & Evaluation (CSD)	WR	SSC PAC San Diego, CA	0.268	2.000	Feb 2010	0.229	Dec 2010	0.000		0.229	Continuing	Continuing	Continuing
		Subtotal	1.160	2.958		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 (SubHDR)	Various/ Various	Various Various	0.977	0.525	Feb 2010	0.540	Dec 2010	0.000		0.540	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant 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
Program Management Support (AdvHDR)	Various/ Various	Various Various	3.426	1.214	Feb 2010	1.551	Nov 2010	0.000		1.551	Continuing	Continuing	Continuing
Program Management Support (Antenna Trans Eng)	Various/ Various	Various Various	0.901	0.505	Feb 2010	0.541	Nov 2010	0.000		0.541	Continuing	Continuing	Continuing
Program Management Support (CSD)	Various/ Various	Various Various	4.143	0.945	Feb 2010	0.300	Nov 2010	0.000		0.300	Continuing	Continuing	Continuing
Program Management Support (OE-538)	Various/ Various	Various Various	1.334	0.999	Feb 2010	0.850	Oct 2010	0.000		0.850	Continuing	Continuing	Continuing
Acquisition Workforce	Various/ Various	Various Various	0.280	0.000		0.000		0.000		0.000	0.000	0.280	0.280
		Subtotal	11.061	4.188		3.782		0.000		3.782			

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	167.298	37.460		29.341		0.000		29.341			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant System*

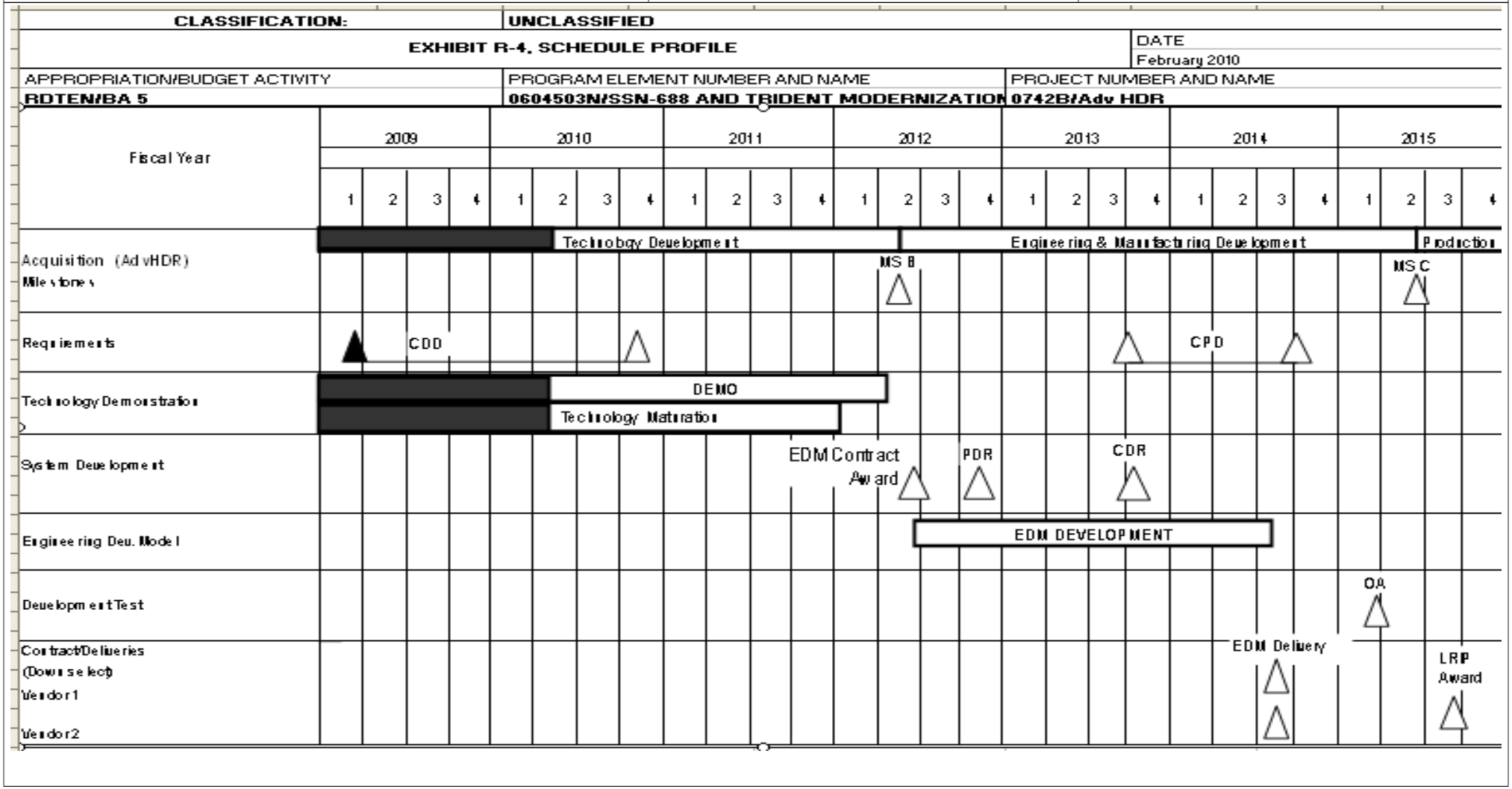


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*	**PROJECT** 0742: *Sub Integrated Ant System*

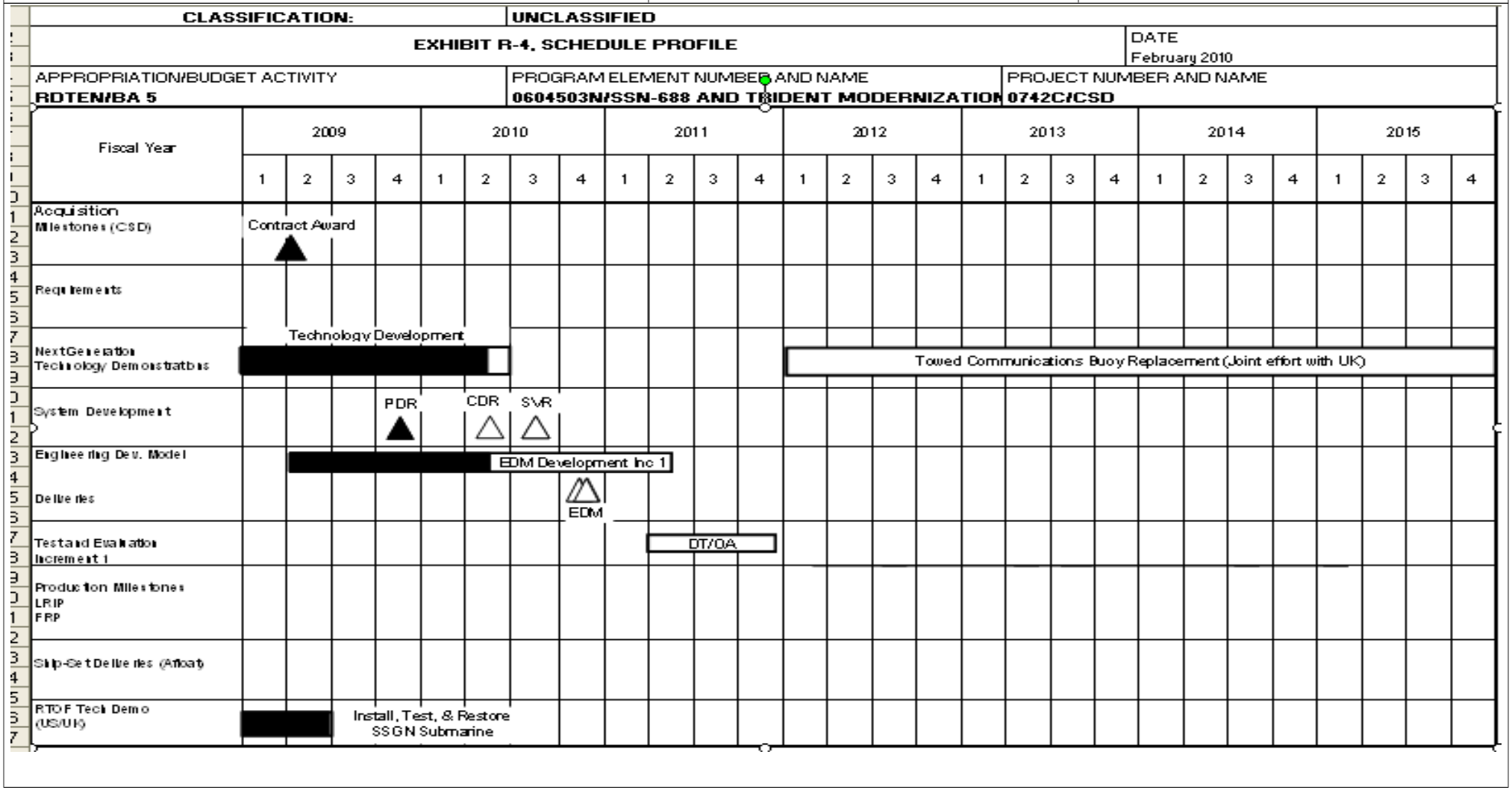


Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*	**PROJECT** 0742: *Sub Integrated Ant System*

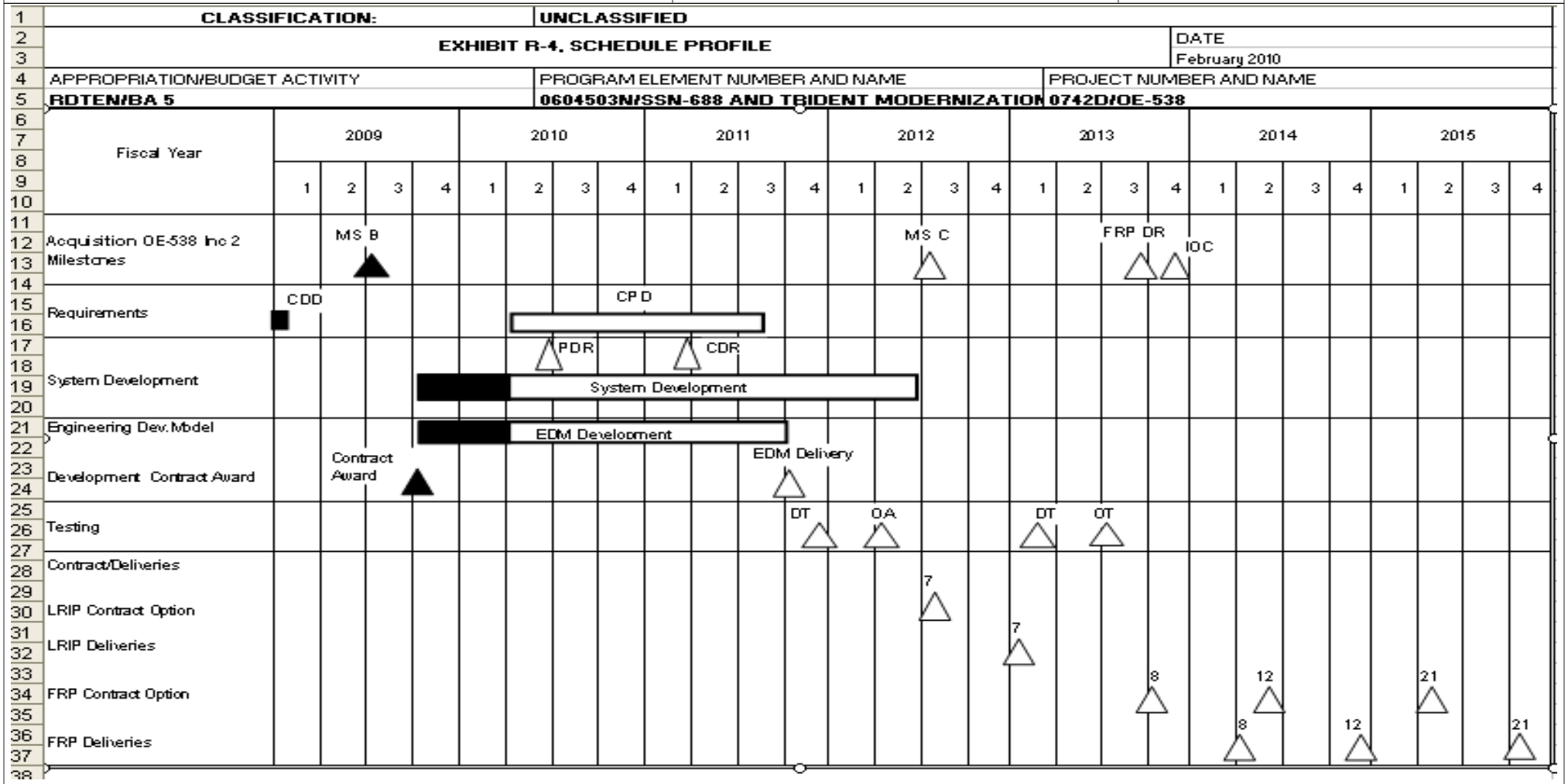


Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*	**PROJECT** 0742: *Sub Integrated Ant System*

CLASSIFICATION:	**UNCLASSIFIED**	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2010
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604503N/SSN-688 AND TRIDENT MODERNIZATION**	PROJECT NUMBER AND NAME **0742/SubHDR**

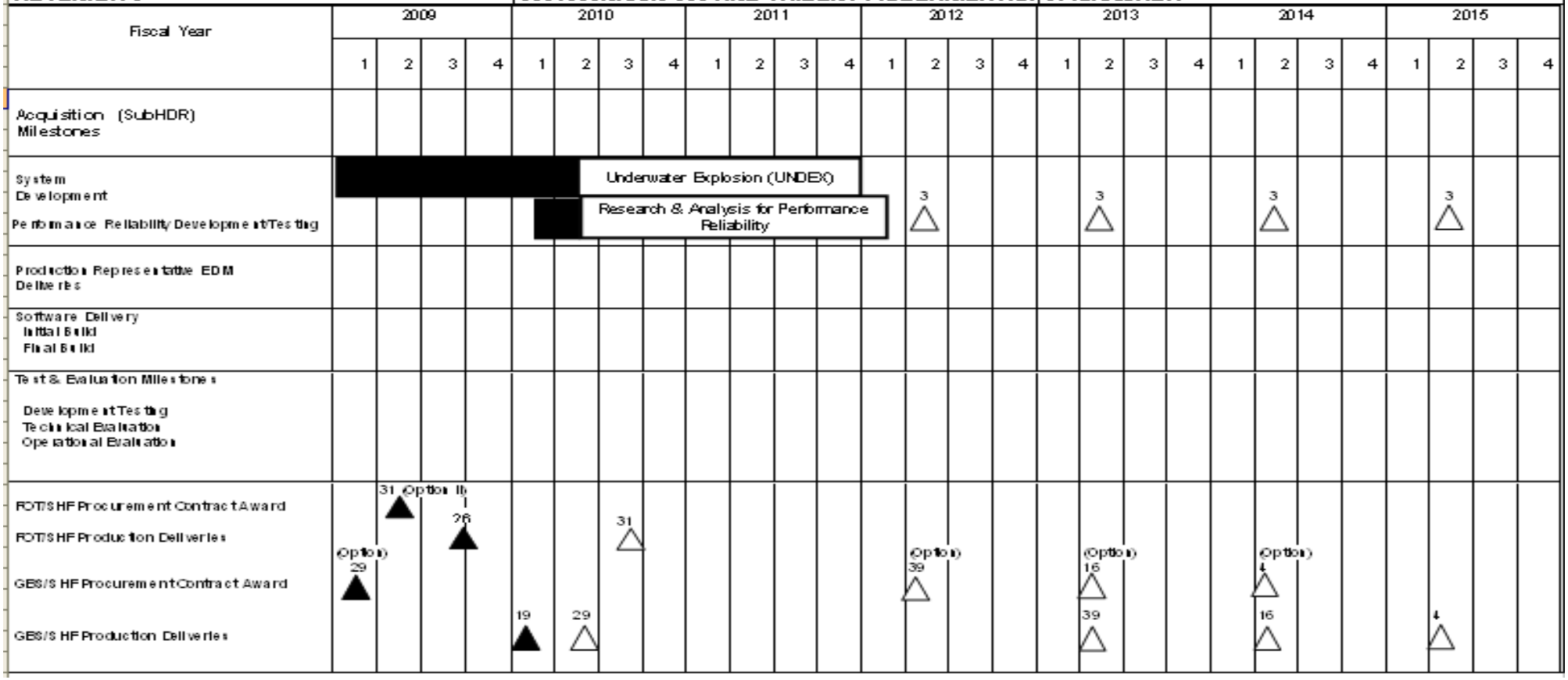


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*	**PROJECT** 0742: *Sub Integrated Ant System*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
SubHDR Research & Analysis for Performance Reliability	1	2010	1	2012
SubHDR Performance Reliability Development/Test	2	2012	2	2015
SubHDR FOT/SHF Procurement Contract Option Award	2	2009	2	2009
SubHDR GBS/SHF Procurement Contract Option Award	1	2009	1	2009
SubHDR UNDEX Development	1	2009	4	2011
SubHDR FOT/SHF Production Deliveries	3	2009	3	2010
SubHDR GBS/SHF Production Deliveries	1	2010	2	2015
AdvHDR DEMO	1	2009	2	2012
AdvHDR Technology Maturation	1	2009	1	2012
Adv HDR Capabilities Development Document (CDD)	1	2009	4	2010
Adv HDR Milestone B Decision (MS B)	2	2012	2	2012
Adv HDR Milestone C Decision (MS C)	2	2015	2	2015
Adv HDR Eng Dev Model (EDM) Contract Award	2	2012	2	2012
AdvHDR Eng Dev Model (EDM) Development	2	2012	3	2014
Adv HDR Eng Dev Model (EDM) Delivery	3	2014	3	2014
Adv HDR Capabilities Production Document (CPD)	4	2013	4	2014
Adv HDR Preliminary Design Review (PDR)	4	2012	4	2012
Adv HDR Critical Design Review (CDR)	4	2013	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0742: *Sub Integrated Ant System*

	Start		End	
Event	Quarter	Year	Quarter	Year
Adv HDR Operational Assessment (OA)	1	2015	1	2015
Adv HDR Low-Rate Initial Production (LRIP) Award	3	2015	3	2015
CSD Technology Demonstrations	1	2009	2	2010
CSD RTOF Install, Test, and Restore	1	2009	2	2009
CSD Towed Communications Buoy Replacement (Joint effort with UK)	1	2012	4	2015
CSD Contract Award Increment 1	2	2009	2	2009
CSD EDM Development Increment 1	2	2009	2	2011
CSD Preliminary Design Review (PDR) Increment 1	4	2009	4	2009
CSD Critical Design Review (CDR) Increment 1	2	2010	2	2010
CSD EDM Deliveries Increment 1	4	2010	4	2010
CSD System Verification Review (SVR) Increment 1	3	2010	3	2010
CSD Test and Evaluation Increment 1	2	2011	4	2011
OE-538 Capability Development Document (CDD)	1	2009	1	2009
OE-538 Full Rate Production Decision Review (FRP DR)	3	2013	3	2013
OE-538 Full Rate Production (FRP) Contract Option	4	2013	4	2013
OE-538 Full Rate Production (FRP) First Delivery	2	2014	2	2014
OE-538 Milestone B Decision (MS B)	3	2009	3	2009
OE-538 Development Contract Award	4	2009	4	2009
OE-538 System Development	4	2009	2	2012
OE-538 Engineering Development Model Development	4	2009	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*	**PROJECT** 0742: *Sub Integrated Ant System*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
OE-538 Preliminary Design Review (PDR)	2	2010	2	2010
OE-538 Critical Design Review (CDR)	1	2011	1	2011
OE-538 Eng Dev Model (EDM) - Delivery	4	2011	4	2011
OE-538 Developmental Test (DT)	4	2011	1	2013
OE-538 Operational Assessment (OA)	2	2012	2	2012
OE-538 Operational Test (OT)	3	2013	3	2013
OE-538 Capability Production Document (CPD)	2	2010	3	2011
OE-538 Milestone C (MS C) Decision	3	2012	3	2012
OE-538 Low-Rate Initial Production (LRIP) Contract Option	3	2012	3	2012
OE-538 Low-Rate Initial Production (LRIP) First Delivery	1	2013	1	2013
OE-538 Initial Operational Capability (IOC)	4	2013	4	2013
OE-538 Full Rate Production (FRP) Contract Options	4	2013	2	2015
OE-538 Full Rate Production (FRP) First Deliveries	2	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0775: *Submarine Supt Equip 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
0775: *Submarine Supt Equip Prog*	1.412	1.445	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.046
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This program develops and improves techniques, components, equipment, and systems that will increase submarine operational effectiveness, safety of ship, and survivability in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for Submarine Electronic Warfare Support (ES) systems to be operationally effective in the following mission areas: Joint Littoral Warfare; Joint Surveillance, Space and Electronic Warfare and Intelligence Collection; Maritime Protection; Information Operations, Special Operations Force (SOF) Support; and Joint Strike. Efforts include: (1) Integration of the technology developed and transitioned from the Advanced Submarine Support Equipment Program (ASSEP), project F0770 into the tactical ES system; (2) Resolution
of software trouble reports during technology updates, from fleet feedback reports, and Submarine Warfare Federated Tactical System (SWFTS)/Non Propulsion Electronic System (NPES) Tactical Local Area Network (TACLAN) migrations; (3) Integration, test, and installation of COTS technology for system enhancements.

The Advanced Electronic Warfare Support (ES) Development Projects include the development of: PATRIOT Phase B - Low Probability of Intercept (LPI) Radar, LPI Direction Finding (DF), Distant ES Support and Remote Log-In, Specific Emitter Identification (SEI) Improvements, ES Vulnerability Tool, Integrated ES and ECS Radio Frequency
Distribution Unit (RFDU), Multi-function Modular Mast (MMM) payloads, Mast Signature Reduction, PATRIOT Non-Scanning LPI Radar, Capability and Technical Initiatives, and next generation processes and radar wideband miniaturization.

RDTE Funding line supports the entire AN/BLQ-10 ES procurement program. Average FY OPN and SCN hardware procurement yearly funds are $100M.

Submarine Support Equipment Program was changed to a Military Intelligence Program beginning Fiscal Year 2011 under a new Program Element 0304503.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Submarine Support Equipment Program	1.405	1.445	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0775: *Submarine Supt Equip Prog*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 09 Conduct Test of Specific Emitter Identification, Automatic Contact Correlation, and LPI Receiver. Passive Ranging Development and Processor improvements. Research and resolve AN/BLQ-10 SPRs. *FY 2010 Plans:* FY 10 Complete Test of LPI Receiver. Develop remote maintenance, processor improvements, Advanced EW tuners, and IO payloads. Research and resolve AN/BLQ-10 SPRs. NPES and SWFTS software baseline changes.					
Defense Acquisition Workforce Defense Fund (DAWDF) *FY 2009 Accomplishments:* N/A	0.007	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	1.412	1.445	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
• SCN/201300: *VIRGINIA Class Submarine*	3,573.127	3,957.409	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7,530.536
• OPN/083100: *Submarine Support Equipment Program*	67.179	69.812	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	136.991
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 0775: *Submarine Supt Equip 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
• RDT&E/0603562N: *Submarine Tactical Warefare System*											

D. Acquisition Strategy

AN/BLQ-10 (V) ES System - Procurements are executed/managed in accordance with the Acquisition Strategy Report (Rev 4) for AN/BLQ-10(V) ES System dtd 3/7/06 and the Acquisition Plan (Rev 6) for AN/BLQ-10(V) ES System dtd 3/7/06.

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-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 1411: *Sub Tact Comm 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
1411: *Sub Tact Comm System*	15.708	21.206	17.761	0.000	17.761	17.784	8.640	8.833	9.009	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Submarine Tactical Communications System project (1411) provides submarines with communications systems designed to: (a) enhance data throughput through automation and integrated network management; (b) convert to ForceNet and tactical data networks, (c) provide submarines Internet Protocol (IP) connectivity; (d) be interoperable with other joint United States and combined allied military networks; and (e) improve reliability, maintainability, and availability. This is accomplished by providing the submarine with a properly integrated mix of fully interoperable Navy standard and Commercial Off-The-Shelf (COTS) communication equipment covering a wide range of frequencies and modes. The Common Submarine Radio Room (CSRR) integrates COTS and Government Off-The-Shelf components into a single radio room configuration for all classes of submarines. CSRR leverages the development of VIRGINIA Class Exterior Communications System which includes Open Systems Architecture design. The project utilizes land-based integration test facilities to integrate C4I Program of Record components into the open architecture prior to fleet implementation on all submarine platforms. This project funds the development of a replacement Simulation/Stimulation suite to support testing and training requirements. The project includes system engineering efforts associated with demonstration of new technology which will allow submarines to connect to the Global Information Grid and participate in strike group, as well as joint operations. The new technology will ensure the submarine's continued ability to participate in Network-Centric Warfare and exploit its inherent stealth capabilities in support of the joint and combined fight to achieve total battlespace dominance.

JUSTIFICATION FOR BUDGET ACTIVITY:
This program is funded under SYSTEMS DEVELOPMENT and DEMONSTRATION because it encompasses development and demonstration of new end-items prior to production approval decision.

Notes/Comments:
FY11 Complete system engineering for Common Submarine Radio Room (CSRR) modernization Increment 1 Version 3 LOS ANGELES platform. Continue modernization Increment 1 Version 3 for SEAWOLF, VIRGINIA and SSGN class submarines.
2) Per Acquisition Decision Memorandum signed by Assistant Secretary of Navy for Research, Development & Acquisition dated 15 July 2008 approval to consolidate Increments 1 and 2 to a single Increment 1 with multiple block upgrades (Versions).

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 1411: *Sub Tact Comm System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Common Submarine Radio Room (CSRR)	15.708	21.206	17.761	0.000	17.761
FY 2009 Accomplishments: Continued system engineering and development of the Multi-Purpose Reconfigurable Training System (MRTS) maintenance trainers Increment 1 Version 1, and upgraded maintenance and operator MRTS to the Common Submarine Radio Room (CSRR) Increment 1 Ver 2 baseline. Continued implementation of security upgrades and met Information Assurance (IA), Information Security (INFOSEC) and multiple levels of certification requirements for General Service (GENSER) and Sensitive Compartmented Information (SCI) for all CSRR platforms. Continued systems engineering/ design development and supported testing for CSRR Increment 1 Ver 2 for VIRGINIA FLT 1&2, SEAWOLF and completed Ship Submersible Guided Nuclear (SSGN) platforms. Upgraded Control & Management software integration of CSRR Increment 1 Ver 2 capabilities. Commenced systems engineering development supporting CSRR modernization Increment 1 Ver 3 for LOS ANGELES class submarines. *FY 2010 Plans:* Complete MRTS software upgrade for Increment 1 Ver 1 and Ver 2 CSRR baselines. Commence MRTS software upgrade for Increment 1 Ver 3. Continue implementation of security upgrades to meet IA, INFOSEC and multiple levels of certification requirements for GENSER and SCI on all CSRR platforms. Complete systems engineering/design development and testing for CSRR Increment 1 Ver 2 for VIRGINIA FLT 1&2 and SEAWOLF platforms. Continue systems engineering development efforts for CSRR modernization Increment 1 Ver 3 for LOS ANGELES class submarines. Commence systems engineering development efforts supporting CSRR modernization Increment 1 Ver 3 for SEAWOLF, VIRGINIA and SSGN class submarines. Commence upgrade of C&M software to include Increment 1 Ver 3 capabilities. Conduct Developmental Testing and Follow-On Test and Evaluation on the CSRR Increment 1 Ver 2 baseline.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 1411: *Sub Tact Comm System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue Multi-Purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Ver 3 Common Submarine Radio Room (CSRR) baseline. Continue implementation of security upgrades and meet Information Assurance, Information Security and multiple levels of certification requirements for General Service and Sensitive Compartmented Information for all CSRR platforms. Complete systems engineering development for CSRR modernization Increment 1 Ver 3 LA class submarines. Continue CSRR modernization Increment 1 Version 3 for SEAWOLF, VIRGINIA and SSGN class submarines. Continue upgrade of Control & Management software to include Increment 1 Ver 3 capabilities.					
Accomplishments/Planned Programs Subtotals	15.708	21.206	17.761	0.000	17.761

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
• 313000: *Submarine Communications*	79.026	48.579	59.013	0.000	59.013	84.655	86.221	89.646	90.310	Continuing	Continuing

D. Acquisition Strategy

CSRR transforms LOS ANGELES, OHIO and SEAWOLF Class radio rooms from suites of class-specific, closed system equipment to a common design which incorporates Open System Architecture communications equipment. CSRR will leverage VIRGINIA Class Exterior Communication System (ECS) design, utilize VIRGINIA Class ECS Control and Management software, apply a systems approach to design and implementation of Joint Maritime Communication System, and maximize use of Commercial Off-The-Shelf products and emerging technologies. Program Milestones: Increment 1 Ver 2 Developmental Test & Evaluation (DT) scheduled 2Q FY10, Follow-on Test & Evaluation (FOT&E) 3Q FY10 on a Ship Submersible Guided Nuclear (SSGN) platform. Increment 1 Ver 3 DT 2Q FY12, FOT&E 3Q FY12.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604503N: *SSN-688 & Trident Modernization*	**PROJECT** 1411: *Sub Tact Comm System*

E. Performance Metrics

FY09 - FY11 CSRR reduces the overall cost for implementation of Command, Control, Communications Computer, Intelligence (C4I) Programs of Record (POR) components into the submarine external communication system by implementing block upgrades and reducing the integration/installation costs. The amount of RDTE funding is dependent on the number of baselines being integrated and tested in any given 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 1411: *Sub Tact Comm 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
Hardware Development	C/CPFF	SSC PAC San Diego, CA	2.776	0.000		0.000		0.000		0.000	0.000	2.776	2.776
Hardware Development	C/CPFF	Various Various	0.211	0.000		0.000		0.000		0.000	0.000	0.211	0.211
MCS Development	Various/ Various	Motorola Scottsdale, Arizona	10.214	0.000		0.000		0.000		0.000	0.000	10.214	10.214
Software Development	Various/ Various	SSC PAC San Diego, CA	2.068	0.000		0.000		0.000		0.000	0.000	2.068	2.068
Software Development	WR	NUWC Newport, RI	5.498	0.000		0.000		0.000		0.000	0.000	5.498	5.498
MRTS Development	C/CPFF	NAVAIR Orlando, FL	8.370	2.695	Dec 2009	2.772	Jan 2011	0.000		2.772	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	Various Various	24.766	4.688	Nov 2009	4.103	Dec 2010	0.000		4.103	Continuing	Continuing	Continuing
Systems Eng/Design 688 Class	Various/ Various	Various Various	4.556	1.866	Nov 2009	0.662	Dec 2010	0.000		0.662	Continuing	Continuing	Continuing
Site Platform Integration/ Certification	Various/ Various	NUWC Newport, RI	11.085	0.598	Nov 2009	0.434	Dec 2010	0.000		0.434	Continuing	Continuing	Continuing
BCA/OPCON architecture	WR	NUWC Newport, RI	3.683	0.000		0.000		0.000		0.000	0.000	3.683	3.683
		Subtotal	73.227	9.847		7.971		0.000		7.971			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 1411: *Sub Tact Comm 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
Software Development (CSRR)	C/CPAF	Lockheed Martin Eagan, MN	21.904	4.876	Jan 2010	4.198	Jan 2011	0.000		4.198	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NUWC Newport, RI	2.081	0.488	Dec 2009	0.502	Dec 2010	0.000		0.502	Continuing	Continuing	Continuing
Software Engineering	WR	SSC PAC San Diego, CA	1.741	0.605	Dec 2009	0.623	Dec 2010	0.000		0.623	0.000	2.969	2.969
INFOSEC/IA Certification	Various/ Various	Various Various	10.534	3.920	Dec 2009	3.674	Dec 2010	0.000		3.674	Continuing	Continuing	Continuing
		Subtotal	36.260	9.889		8.997		0.000		8.997			

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/ Operational T&E	Various/ Various	Various Various	8.583	0.700	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	8.583	0.700		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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 1411: *Sub Tact Comm 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
Program Management Support	Various/ Various	Various Various	8.614	0.770	Nov 2009	0.793	Dec 2010	0.000		0.793	Continuing	Continuing	Continuing
Acquisition Workforce	Various/ Various	Various Various	0.077	0.000		0.000		0.000		0.000	0.000	0.077	0.077
		Subtotal	8.691	0.770		0.793		0.000		0.793			

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	126.761	21.206		17.761		0.000		17.761			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 1411: *Sub Tact Comm System*

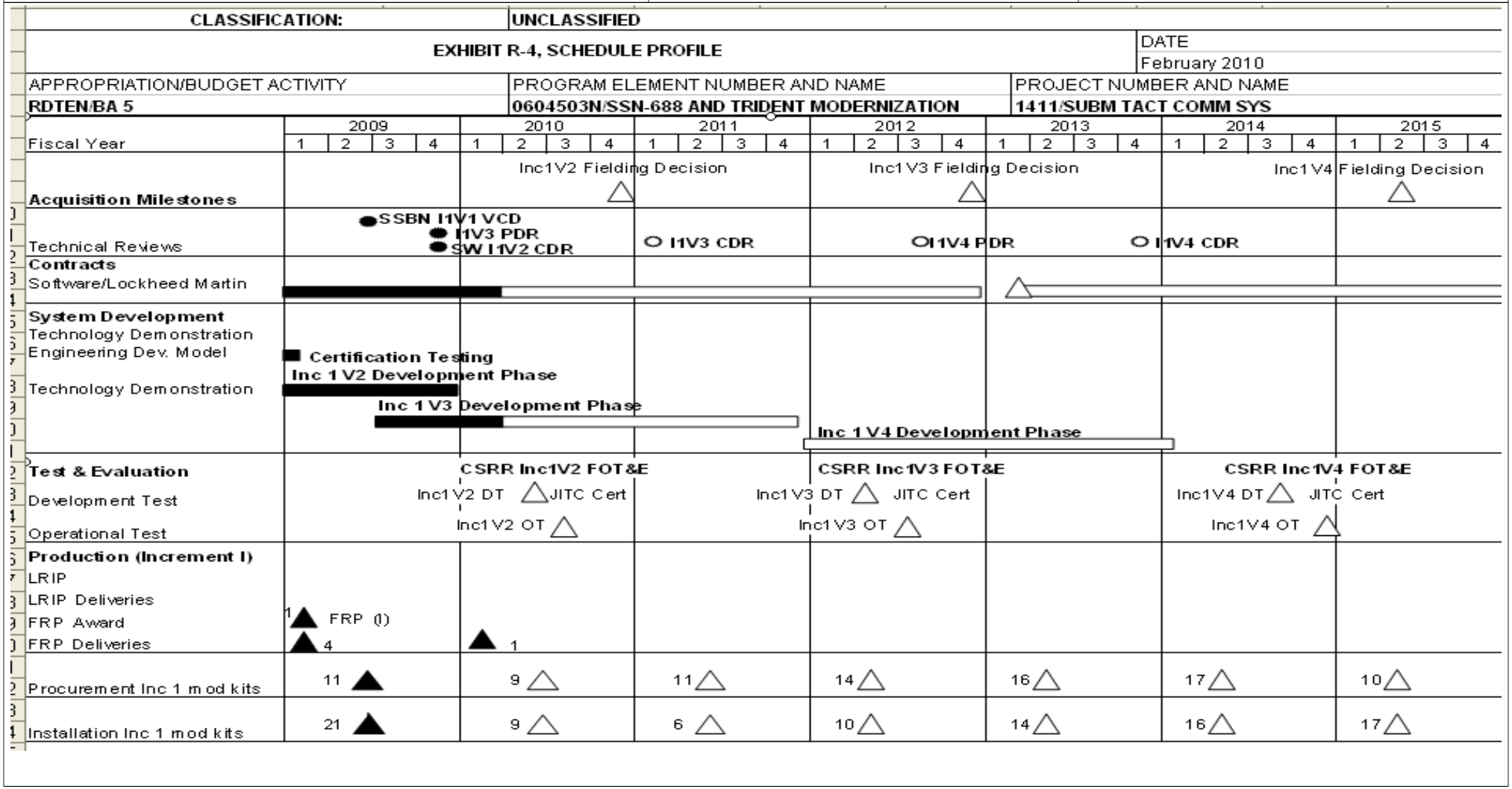


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 1411: *Sub Tact Comm System*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Fielding Decision (Increment 1 Ver 2)	4	2010	4	2010
Technical Reviews (SSBN Inc 1 V1 VCD)	2	2009	2	2009
Fielding Decision (Increment 1 Ver 3)	4	2012	4	2012
Technical Reviews (Inc 1 V3 PDR)	4	2009	4	2009
Fielding Decision (Increment 1 Ver 4)	2	2015	2	2015
Technical Reviews (Software Inc 1 V2 CDR)	4	2009	4	2009
Technology Demonstration (Increment 1 Ver 2)	1	2009	4	2009
Technical Reviews (Inc 1 V3 CDR)	1	2011	1	2011
Technology Demonstration (Increment 1 Ver 3)	3	2009	4	2011
Technical Reviews (Inc 1 V4 PDR)	3	2012	3	2012
Technology Demonstration (Increment 1 Ver 4)	4	2011	1	2014
Technical Reviews (Inc 1 V4 CDR)	4	2013	4	2013
DT (Increment 1 Ver 2)	2	2010	2	2010
Contracts (Software---Lockheed Martin)	1	2009	4	2015
OT (Increment 1 Ver 2)	3	2010	3	2010
-System Development (Engineering Development Model: Certification Testing)	1	2009	1	2009
DT (Increment 1 Ver 3)	2	2012	2	2012
Production (Increment 1) (FRP Award)	1	2009	1	2009

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	PROJECT 1411: *Sub Tact Comm System*

	Start		End	
Event	Quarter	Year	Quarter	Year
OT (Increment 1 Ver 3)	3	2012	3	2012
Production (Increment 1) (FRP Deliveries)	1	2009	1	2010
DT (Increment 1 Ver 4)	3	2014	3	2014
Procurement (Inc 1 Mod Kits)	1	2009	4	2015
OT (Increment 1 Ver 4)	4	2014	4	2014
-Installation (Inc 1 Mod Kits)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604503N: *SSN-688 & Trident Modernization*	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	1.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.782
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Continue research, development, and testing for several future arrays including the Vector Sensor Towed Array (VSTA), Sparsely Populated Volmetric Array (SPVA), and Multi-Function Towed Array (MFTA) to reduce array damage and enhance hull surveillance and detection.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Improved Submarine Towed Array Systems *FY 2010 Plans:* Conduct research, development, and testing for several future arrays including the Vector Sensor Towed Array (VSTA), Sparsely Populated Volmetric Array (SPVA), and Multi-Function Towed Array (MFTA) to reduce array damage and enhance hull surveillance and detection.	0.000	1.593
Congressional Adds Subtotals	0.000	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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604504N: *Air 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**
Total Program Element	7.967	6.506	5.665	0.000	5.665	6.023	6.157	6.781	6.921	Continuing	Continuing
0718: *MATCALS*	2.156	0.508	0.369	0.000	0.369	0.632	0.646	0.661	0.676	Continuing	Continuing
0993: *Carrier ATC*	5.379	5.557	4.882	0.000	4.882	4.963	5.073	5.672	5.790	Continuing	Continuing
1657: *ATC Improvement*	0.432	0.441	0.414	0.000	0.414	0.428	0.438	0.448	0.455	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for the development, integration, and testing of Automated Air Traffic Control (ATC) hardware and software required to provide improved flight safety and more reliable all-weather ATC and landing system capabilities at Naval Air Stations (NASs) and Marine Corps Air Stations (MCASs) and Fleet Area Control and Surveillance Facilities (FACSFAC) worldwide. Funded programs are required to upgrade or replace aging ATC and landing system equipment on aircraft, aircraft carriers, amphibious ships, NASs, MCASs and Navy/Marine Corps tactical/expeditionary airfields and remote landing sites.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	8.063	6.533	0.000	0.000	0.000
Current President's Budget	7.967	6.506	5.665	0.000	5.665
Total Adjustments	-0.096	-0.027	5.665	0.000	5.665
• Congressional General Reductions		-0.027			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.150	0.000			
• SBIR/STTR Transfer	-0.246	0.000			
• Program Adjustments	0.000	0.000	5.665	0.000	5.665

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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604504N: *Air Control*

Proj. 0993: System Requirements Review has been extended beyond 4Q FY 2009 and will now end in 2Q FY 2010. This extended effort has caused the Preliminary Design Review (PDR), Critical Design Review (CDR) and beginning of System Development to occur six months later than planned, respectively. The Quality Design and Build has also moved to the right and will begin 4Q FY 2011, upon completion of the CDR.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0718: *MATCALS*	

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
0718: *MATCALS*	2.156	0.508	0.369	0.000	0.369	0.632	0.646	0.661	0.676	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 provides for continued development, integration, and testing of hardware and software to meet requirements for all-weather operation and improved flight safety of Air Traffic Control and Landing Systems at Marine Corps expeditionary airfields. Current program includes approved transition to Air Surveillance and Precision Approach Radar Control System (ASPARCS). The ASPARCS will replace the legacy Air Traffic Control (ATC) Precision Approach Radar (PAR), Air Surveillance Radar (ASR), and Communications and Control Subsystem with a High Mobility Multipurpose Wheeled Vehicle (HMMWV) based PAR, ASR, and Command and Control (C2) Subsystem. Efforts will commence for requirements definition, development and engineering for the ASPARCS Preplanned Product Improvements (P3I), in accordance with Marine Corps Requirements Oversight Council (MROC) Decision Memorandum 11-2005 dated December 2004. P3I includes the design and development of software code to interface Command and Control System (C2S) input/output to existing software, incorporating Radar Range Extension and Mapping functionality, enhanced simulation and training and providing increased operator workstations.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ASPARCS Improvements	1.915	0.508	0.369	0.000	0.369
Investigate and resolve obsolescence issues. Perform studies and analyses to implement P3I and other evolutionary improvements. Develop criteria for existing ASPARCS software to achieve Defense Information Infrastructure-Common Operating Environment Level 5 compliance, Information Assurance, Radar Range Extension and Mapping functionality, and enhanced simulation and training into the existing ASPARCS software. Perform studies and analyses.					
FY 2009 Accomplishments: Investigated and resolved obsolescence issues. Performed studies and analyses to implement P3I and other evolutionary improvements. Developed criteria for existing ASPARCS software to achieve					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0718: *MATCALS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Defense Information Infrastructure-Common Operating Environment Level 5 compliance, Information Assurance, Radar Range Extension and Mapping functionality, and enhanced simulation and training into the existing ASPARCS software. Performed studies and analyses. *FY 2010 Plans:* Continue to investigate and resolve obsolescence issues. Perform studies and analyses to implement P3I and other evolutionary improvements. Develop criteria for existing ASPARCS software to achieve Defense Information Infrastructure-Common Operating Environment Level 5 compliance, Information Assurance, Radar Range Extension and Mapping functionality, and enhanced simulation and training into the existing ASPARCS software. Perform studies and analyses. *FY 2011 Base Plans:* Investigate alternatives and develop planned replacement of Air Surveillance Radar (ASR).					
ATC Interface with C2S Develop the ATC interface increment for the Command and Control System (C2S) , which will allow the ATC detachment to exchange radar track data with the Marine Air Command and Control Squadron and joint agencies. *FY 2009 Accomplishments:* Developed ATC interface for Command and Control System (C2S).	0.241	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	2.156	0.508	0.369	0.000	0.369

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0718: *MATCALS*

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/2815: *MATCALS*	51.638	15.123	16.747	27.080	43.827	2.569	2.451	2.493	2.676	Continuing	Continuing

D. Acquisition Strategy

ASPARCS is an ACAT IVT program. Lockheed Martin was awarded the contract for this effort in June 2000. This effort included First Article development (Fixed Price Incentive) with (Firm Fixed Priced) production options. Schedule delays and technical issues with the Precision Approach Radar (PAR) and Air Surveillance Radar (ASR) and integration with the operation subsystem/communication subsystem resulted in a no-cost close out to the Lockheed Martin contract in November 2004. An Acquisition Decision Memorandum was signed in Jan 2005 approving the procurement of the Army AN/TPN-31 System to fulfill the ASPARCS requirement for July 2006. The Marine Corps Requirements Oversight Council (MROC) Decision Memorandum 11-2005 of December 2004 outlined the evolutionary improvements envisioned by Headquarters Marine Corps (HQMC). This program has joined with the Army to implement Pre-Planned Product Improvements (P3I) and evolutionary product improvements.

E. Performance Metrics

The MATCALS RDTEN funding will develop a planned replacement for the current Air Surveillance Radar (ASR).

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*	

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
0993: *Carrier ATC*	5.379	5.557	4.882	0.000	4.882	4.963	5.073	5.672	5.790	Continuing	Continuing
Quantity of RDT&E Articles	0	0	1	0	1	0	0	0	0		

A. Mission Description and Budget Item Justification

Shipboard Air Traffic Control Central systems, interfacing with versions of the AN/TPX-42(V) Direct Altitude and Identity Readout system (DAIR), allow Shipboard Air Traffic Controllers to identify, marshal, and direct aircraft within a 50 Nautical Mile (NM) radius of the ship. At closer range (8NM) a ship's Automatic Carrier Landing System (ACLS) and Independent Landing Monitor (ILM) are operationally required to effect safe landing on the moving decks of ships. The AN/SPN-41 ILM and AN/SPN-46 ACLS provide verification of aircraft approach glideslope position and precise aircraft automatic control respectively during its final approach and landing sequence to an aircraft carrier. Dual efforts are underway to improve the AN/SPN-46 system availability and supportability until at least September 2020. These efforts include various Engineering Change Proposals (ECPs), and the Life Cycle Extension (LCE) program transitional changes include a re-architecture of its radar control group process with COTS technology, replacement of the computer group processing hardware, and conversion of system program software from CMS-2 to the more commonly used 'C' programming language. In recent years, the top 25% of the AN/SPN-43 frequency band has been reallocated to the Fixed Wireless Access community prohibiting ATC radar operation within 50 miles of the coast. Because the Navy requires an air traffic control radar, this project unit will include engineering efforts to identify requirements and develop a suitable replacement before the AN/SPN-43 becomes operationally ineffectual. Finally, the AN/TPX-42A(V)14 DAIR underwent several phased upgrades that have resulted in three field changes. System improvements include replacing militarized front-end equipment in the track processor with COTS technology, converting the operational program software to more commonly used and flexible 'C' language, integrating and interface with Mode 5 IFF, and integrating a flat panel monitor into the AN/UYQ-70 console. The development of an Air Traffic Control common console will reduce operational costs, improve reliability, and provide compatible interfaces and commonality for all ATC workstations.

Test Article Descriptions:

The AN/TPX-42 ATC Console Engineering Development Model (EDM) delivered in FY 2012 will be used to support developmental testing to verify system performance against established requirements.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SPN-46 Computer Group	4.505	0.000	0.000	0.000	0.000
This subproject replaces the AN/AYK-14 processor and converts software from CMS to "C" language. Conduct a software requirements review and develop a specification. *FY 2009 Accomplishments:* Developed software and hardware, built a test article, and integrated and tested it in a lab environment. Conducted a test readiness review, developmental test and operational test. The test article is required to perform a series of tests from December 2007 to September 2009. This test article replaced two existing computer racks with a single rack utilizing a set of state-of-the-art Versa Module Eurocard processors and software rewritten in a high order program language ("C").					
AN/TPX-42 Improvements	0.874	5.557	4.882	0.000	4.882
This project funds development of the final Air Traffic Control Console configuration to include JPALS interface, Dual Band Radar interface, and replacement of SPN-35 Operator displays. It is anticipated that this technology insertion will result in a formal nomenclature change for the AN/TPX-42 system, so the identification of the modification kits will change to 'H' Kits. "H" Kits will also identify and test Voice Recorder replacement technology and obsolete components. *FY 2009 Accomplishments:* Continued identification and testing AN/SPN-43C replacement system. Completed development of Field Change 3 to AN/TPX-42. *FY 2010 Plans:* Continue identification and testing and begin system development of AN/SPN-43C replacement system. Start development of Field Change 4 to AN/TPX-42.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Complete system development and begin quality design and build of AN/SPN-43C replacement system. Continue development of Field Change 4 to AN/TPX-42.					
Accomplishments/Planned Programs Subtotals	5.379	5.557	4.882	0.000	4.882

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/2831: *Shipboard Air Traffic Control*	8.221	7.945	7.658	0.000	7.658	7.791	8.939	10.066	10.797	Continuing	Continuing
• OPN/2832: *Automatic Carrier Landing Systems*	16.239	18.823	15.169	0.000	15.169	19.320	16.811	18.894	20.169	Continuing	Continuing

D. Acquisition Strategy

AN/SPN-46 Computer Group replacement subprojects are part of the AN/SPN-46 Life Cycle Extension (LCE) project, which is an Engineering Change Proposal (ECP). Initial contract was awarded in November 2003 for the Radar Control Group, and the contract for the Computer Group was awarded in December 2005. AN/TPX-42 Common Console is an anticipated Engineering Change Proposal (ECP), with improvements being incorporated into the production of AN/TPX-42 upgrade kits.

All other projects are non-ACAT upgrades to existing systems. An evolutionary acquisition approach is being used to introduce these technology advancements that either satisfy user requirements, such as all weather operation, or address supportability and cost of ownership problems.

E. Performance Metrics

TPX-42B Critical Design Review planned for 3Q FY11.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

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 Develop-SPN-46	WR	NAWCAD PAX River, MD	11.548	0.000		0.000		0.000		0.000	0.000	11.548	Continuing
Primary HDW Develop-SPN-46	SS/CPIF	SNC Sierra, NV	6.356	0.000		0.000		0.000		0.000	0.000	6.356	6.356
Primary HDW Develop-TPX-42	WR	NAWCAD PAX River, MD	2.623	0.000		0.350	Dec 2010	0.000		0.350	Continuing	Continuing	Continuing
		Subtotal	20.527	0.000		0.350		0.000		0.350			

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-SPN-46	WR	NAWCAD PAX River, MD	13.120	0.000		0.000		0.000		0.000	0.000	13.120	Continuing
Software Development-TPX-42	WR	NAWCAD PAX River, MD	2.929	4.785	Dec 2009	3.658	Dec 2010	0.000		3.658	Continuing	Continuing	Continuing
Integrated Logistics Support- TPX-42	WR	NAWCAD PAX River, MD	0.632	0.000		0.100	Dec 2010	0.000		0.100	Continuing	Continuing	Continuing
Studies & Analysis-SPN-46	WR	NAWCAD PAX River, MD	0.273	0.000		0.000		0.000		0.000	0.000	0.273	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

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 & Analysis- SPN-43	WR	NAWCAD PAX River, MD	0.874	0.231	Dec 2009	0.250	Dec 2010	0.000		0.250	Continuing	Continuing	Continuing
Studies & Analysis- TPX-42	WR	NAWCAD PAX River, MD	0.000	0.000		0.250	Dec 2010	0.000		0.250	Continuing	Continuing	Continuing
		Subtotal	17.828	5.016		4.258		0.000		4.258			

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- SPN-46	WR	NAWCAD PAX River, MD	1.645	0.000		0.000		0.000		0.000	0.000	1.645	Continuing
Developmental Test & Evaluation- TPX-42	WR	NAWCAD PAX River, MD	0.748	0.143	Dec 2009	0.159	Dec 2010	0.000		0.159	Continuing	Continuing	Continuing
OperationalTest & Evaluation- TPX-42	WR	OPTEVOR Norfolk, VA	0.062	0.000		0.000		0.000		0.000	0.000	0.062	Continuing
		Subtotal	2.455	0.143		0.159		0.000		0.159			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

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/CPFF	American Electronics, Inc. California, MD	1.454	0.383	Dec 2009	0.100	Dec 2010	0.000		0.100	Continuing	Continuing	Continuing
Travel	WR	NAVAIRHQ PAX River, MD	0.105	0.015	Dec 2009	0.015	Nov 2010	0.000		0.015	Continuing	Continuing	Continuing
		Subtotal	1.559	0.398		0.115		0.000		0.115			

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	42.369	5.557		4.882		0.000		4.882			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 0993: *Carrier ATC*

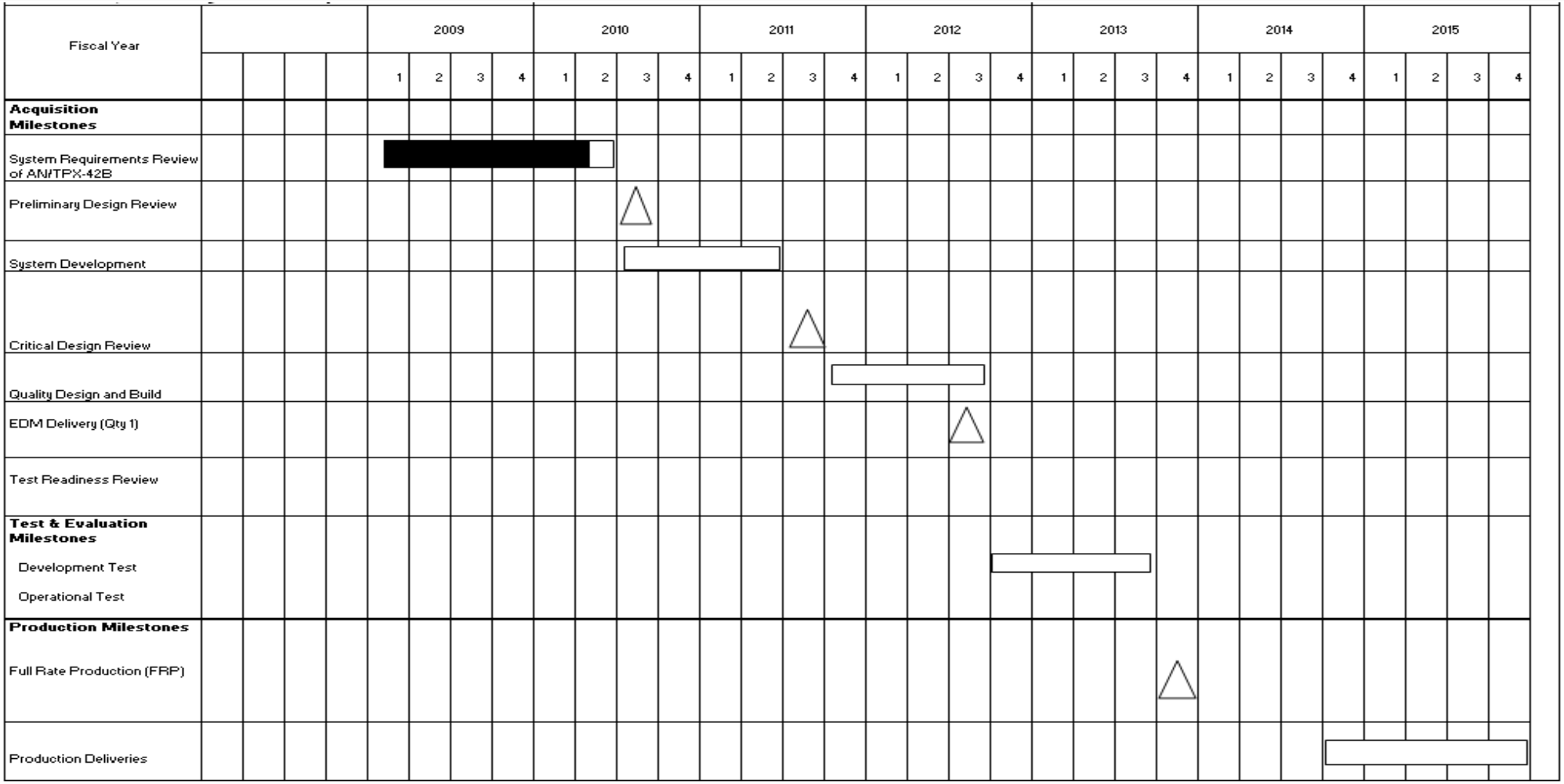


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604504N: *Air Control*	**PROJECT** 0993: *Carrier ATC*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
System Requirement Review (SRR)	1	2009	2	2010
Preliminary Design Review (PDR)	3	2010	3	2010
System Development	3	2010	2	2011
Critical Design Review (CDR)	3	2011	3	2011
Quality Design and Build	4	2011	3	2012
EDM Delivery	3	2012	3	2012
Developmental Testing	4	2012	3	2013
Full Rate Production	4	2013	4	2013
Product Deliveries	4	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 1657: *ATC 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
1657: *ATC Improvement*	0.432	0.441	0.414	0.000	0.414	0.428	0.438	0.448	0.455	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 provides for engineering development, integration, adaptation, and testing of new and/or modernized Air Traffic Control (ATC) systems, air navigational aids, landing systems, and ATC communication systems for Naval and Marine Corps Air Stations (NAS/MCAS) and Fleet Air Traffic Control Systems. These systems are critical to Naval Aviation and provide for safe, efficient air operations. Additionally, the Federal Aviation Administration (FAA) is effecting major modernization of the National Airspace System (NAS). The Navy must maintain compatibility with FAA-developed ATC systems in order to ensure seamless interoperability within the NAS. NAS modernization initiatives in Project 1657 include the Visual Information Display System (VIDS) and follow-on Preplanned Product Improvements, with additional RDT&E efforts required for modified commercial-off-the-shelf (COTS) ATC systems and equipment for modernization and recapitalization of these systems at our NAS, MCAS & Fleet Area Control & Surveillance Facilities (FACSFACs) worldwide. Landing Systems initiatives include re-engineering and technology insertion efforts for the Precision Approach Radar (PAR), Tactical Air Navigation System (TACAN), and other landing systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NAS MOD VIDS	0.406	0.419	0.397	0.000	0.397
Continue engineering development of pre-planned product improvements for the Visual Information Display Systems (VIDS) and initiate efforts to incorporate VIDS into the FACSFACs. Research display alternatives for Navy ATC systems, and evaluate alternatives for future communication and radar systems.					
FY 2009 Accomplishments: Completed development of pre-planned product improvements for VIDS Increment Three. Continued efforts to incorporate VIDS into FACSFACS.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 1657: *ATC Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue engineering development of Pre-Planned Product Improvements for VIDS to develop visual communication capability in VIDS. *FY 2011 Base Plans:* Continue engineering development of Pre-Planned Product Improvements for VIDS to incorporate multiple weather source inputs.					
Fleet ATC Systems Research efforts to determine the best technical approach to integrate various data link and communication system upgrades into Navy/Marine Corps ATC Systems including but not limited to the Digital Airport Surveillance Radar into the FACSFAC FACTS 3200 system. Evaluate alternatives for future processor/display, sensor and communication systems. *FY 2009 Accomplishments:* Completed efforts to incorporate ADS-B capability in FACTS 3200 Processor/Display System software. *FY 2010 Plans:* Complete Digital Airport Surveillance Radar (DASR) interface with FACTS software. *FY 2011 Base Plans:* Plan and identify components for NAVSKED Tech Refresh.	0.026	0.022	0.017	0.000	0.017
Accomplishments/Planned Programs Subtotals	0.432	0.441	0.414	0.000	0.414

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604504N: *Air Control*	PROJECT 1657: *ATC 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/2840: *National Air Space System Modernization*	28.980	28.899	17.531	0.000	17.531	26.620	17.831	20.685	30.744	Continuing	Continuing
• OPN/2845: *Fleet Air Traffic Control Systems*	7.914	8.178	6.851	0.000	6.851	7.435	7.217	8.115	8.697	Continuing	Continuing

D. Acquisition Strategy

All projects are non-ACAT upgrades to existing systems. An evolutionary acquisition approach is being used to introduce technology advancements that either satisfy emergent requirements or address supportability and cost of ownership problems.

E. Performance Metrics

The ATC Improvement program goal is to continue to research, evaluate and develop display and other alternatives for Navy ATC, communication and radar 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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation 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	50.356	78.496	70.117	0.000	70.117	34.068	18.602	29.799	18.720	Continuing	Continuing
2232: *CV/CVN Launch and Recover*	47.564	77.301	70.117	0.000	70.117	34.068	18.602	29.799	18.720	Continuing	Continuing
9999: *Congressional Adds*	2.792	1.195	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.037

A. Mission Description and Budget Item Justification

CV Launch & Recovery System - This Navy unique project addresses the System Development and Demonstration (SDD) of all systems required to recover and launch Navy/Marine Corps Aircraft (Fixed/Rotary Wing and Vertical/Short Take Off and Landing (VSTOL)) operating aboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD) and aviation facility ships. This program element includes the following:

(1) Advanced Arresting Gear (AAG)
(2) Aviation Data Management and Control System (ADMACS)
(3) Electromagnetic Aircraft Launch System (EMALS)
(4) Advanced Launch Control System (ALCS)(PB-10 identified as Advanced Catapult Control System for Steam Catapults)
(5) Swaging Machine
(6) Aircraft Launch & Recovery Equipment (ALRE) Modernization
(7) Aircraft Launch and Recovery Equipment (ALRE) Service Life Management 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	45.301	80.623	0.000	0.000	0.000
Current President's Budget	50.356	78.496	70.117	0.000	70.117
Total Adjustments	5.055	-2.127	70.117	0.000	70.117
• Congressional General Reductions		-0.327			
• Congressional Directed Reductions		-3.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		1.200			
• Congressional Directed Transfers		0.000			
• Reprogrammings	6.000	0.000			
• SBIR/STTR Transfer	-0.945	0.000			
• Program Adjustments	0.000	0.000	70.117	0.000	70.117

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Voyage Repair Team Tool Management*	0.000	1.195
Congressional Add: *Sensorless Control of Linear Motors in EMALS*	2.792	0.000
Congressional Add Subtotals for Project: 9999	2.792	1.195
Congressional Add Totals for all Projects	2.792	1.195

Change Summary Explanation

Schedule:

2232: AAG: Minor schedule adjustments.

2232: ADMACS Block 2: Software development and hardware qualification were completed, behind schedule, and ADMACS Block 2 completed operational assessment (NOV 09) to support 2nd quarter FY10 MS-C. Developmental hardware and software test will complete 2nd quarter FY10. Installation of engineering development model (EDM) on fleet CVN will start 4th quarter FY10. Schedule adjustments accommodate the above.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*	

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
2232: *CV/CVN Launch and Recover*	47.564	77.301	70.117	0.000	70.117	34.068	18.602	29.799	18.720	Continuing	Continuing
Quantity of RDT&E Articles	0	2	5	0	5	0	0	0	0		

A. Mission Description and Budget Item Justification

This Navy unique project addresses the System Development and Demonstration (SDD) of all systems required to recover and launch Navy/Marine Corps Aircraft (Fixed/Rotary Wing and Vertical/Short Take-Off and Landing (VSTOL)) operating aboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD) and aviation facility ships. This program includes the following systems under Project 2232, including the funding of production representative models (PRM) for:

(1). Advanced Arresting Gear (AAG):The AAG program will design, develop, test and field an aircraft arrestment system to replace the MK7 arresting gear, which is approaching its design limits. AAG systems will be forward-fit on all new construction aircraft carriers and back-fit on existing carriers during their RCOH availability periods. AAG will provide the U.S. Navy with improved operational capability and enhance safety margins while reducing operating and support costs. The AAG system will recover all existing and projected carrier based tail hook-equipped air vehicles well into the 21st century. The AAG Program' s System Design and Development phase test articles will consist of a land based, single wire configured aircraft arresting system, which includes an Energy Absorption System, Power Conditioning System, Control System, and Thermal Management System as well as associated hardware and software needed to conduct system integrated testing by arresting both dead-loads and fleet aircraft.

(2). Aviation Data Management and Control System (ADMACS): ADMACS will use state-of-the-art information technology and decision support systems to automate collection and distribution of information, enabling aviation operations on board aircraft carriers to be accomplished in a more efficient and effective manner.
(a). ADMACS Block 2: Is a shipboard aviation information management system providing CVN aviation planning, execution & readiness assessment using integrated decision aids and supporting systems built into a highly adaptive Net-Centric comprehensive system for sea & land. ADMACS Block 2 provides real time, fault tolerant (redundant), tactical information management system. The Block 2 test article consists of network switches, servers, workstations and affiliated database and communications software.
(b). ADMACS Block 3: ADMACS Block 3 begins to automate data input through various system interfaces. It also adds intelligent agents and decision aides. These are added to the Block 2 architecture.

(3). Electromagnetic Aircraft Launch System (EMALS) Technology Insertion: EMALS will be the fixed wing aircraft catapult for the CVN-21 class of aircraft carriers. The intent of this program is to further the development and insertion of applicable emerging technologies into EMALS capitalizing the major advantages of the system.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

Test articles (FY12) will be manufactured, installed at the EMALS System Functional Demonstration (SFD) site and tested. Sensorless Control funded in FY09 through Congressional Adds (PU: 9D80A)

(4). Advanced Launch Control System (ALCS) (PB-10 identified as Advanced Catapult Control System for Steam Catapults): Introduce control, prognostics and health monitoring technology into the steam catapult, providing a common operator interface, reduced maintenance and enhanced availability. The insertion of an array of sensors into the steam catapult, along with the information technology (IT) infrastructure, algorithms development and integration with ADMACS will provide health monitoring and prognostics, as well as maintenance and workload reductions.

(5). Swaging Machine: Funded by ONR (OSD PE# 060051D8Z) in FY 2009. The current process of pouring zinc sockets to attach the arresting gear purchase cable will be replaced with a new swaged terminal design that will be pressed on by means of a high density, compact, light weight swaging machine.

(6). Aircraft Launch & Recovery Equipment (ALRE) Modernization: This is new start for FY 2010.
(a). Improved Fresnel Lens Optical Landing System (IFLOLS) Phase 4: Control system processor and digital interfaces upgrades to support Built-In-Test (BIT), ADMACS integration & maintenance /obsolescence reduction.
(b). Embarked Aircraft Track System (EATS): Improve aircraft on deck tracking.
(c). Improved Manually Operated Visual Landing Aid System (IMOVLAS): This will be the manual backup for IFLOLS which is the primary carrier Visual Landing Aid (VLA). Used in high sea states or if IFLOLS is inoperable and will mirror current IFLOLS configuration in size & display.
(d). ALRE MK-7 System: Re-design of various components within the MK-7 Arresting Gear system that were identified as maintenance intensive components.

1. Re-design the retractable sheaves on the flight deck to a fixed deck sheave design.
2. Design a new sealed bearing which would eliminate the requirements to periodically lubricate the bearings on fairlead sheaves.
3. Increase time in service of the barricade webbing material.

(7). Aircraft Launch and Recovery Equipment (ALRE) Service Life Management program: This is new start for FY2011. The ALRE Service Life Management Program for Catapult and Arresting Gear Systems is required to sustain carrier aviation operations of heavier and faster aircraft. Changes in aircraft weight and speed are increasing loads on the Launcher & Arresting System which affect availability, maintainability, and life cycle cost. This program will consist of Service Life Assessment and Extension initiatives and will re-establish the design foundation (structural, reliability, and maintainability analyses), permit appropriate assessment, tracking, and lead to optimum use of resources by focusing design changes where most needed.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Advanced Arresting Gear (AAG)	45.666	66.604	54.127	0.000	54.127
The Advanced Arresting Gear (AAG) program will design, develop, test and field an aircraft arrestment system to replace the MK7 arresting gear, which is approaching its design limits. Provide engineering and management support for the AAG System Design and Development (SDD) program. *FY 2009 Accomplishments:* FY09: Complete procurement, production, installation, commissioning and integrated testing of the first test article for the Extended Reliability Testing (ERT) laboratory. Procure and produce one (1) AAG production representative test system to support shorebased integrated testing at the Jet Car Track Site (JCTS) test facility. Complete test site upgrades. *FY 2010 Plans:* FY10: Award contract for first ship-set production. Conduct Test Readiness Reviews. Complete JCTS and Runway Arrested Landing Site (RALS) upgrades. Deliver test system to the NAVAIR Lakehurst JCTS test site. Install test system at JCTS. Integrate and commission test system hardware. Conduct integrated testing at JCTS. *FY 2011 Base Plans:* FY11: Complete JCTS integrated testing. Prepare RALS test site. Install test system at RALS. Integrate and commission hardware at RALS test site.					
Aviation Data Management & Control System (ADMACS) Block 2	1.898	5.635	0.102	0.000	0.102
Aviation Data Management & Control System (ADMACS) Block 2 provides real time, fault tolerant (redundant), tactical information management system. ADMACS Block 2 was funded under Project 9071 (Congressional Add) and Project 3126 (ONR) in FY 2002-2005.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY09: Integrated the tested Block 2 software and hardware. Conducted a Production Readiness Reviews of the ADMACS Block 2 system. Prepared for Milestone C for Block 2 upgrade. Conducted Block 2 Formal Qualification Testing to validate the correct operation of application software. Completed Development Test Report (DTR). *FY 2010 Plans:* FY10: Complete Block 2 Formal Qualification Testing to validate the correct operation of application software. Conduct MS C for Block 2 upgrade. Install ADMACS Block 2 system on board CVN-69. *FY 2011 Base Plans:* FY11: Conduct Technical and Operational Evaluation. Conduct Full Rate Production Decision Review.					
Aviation Data Management & Control System (ADMACS) Block 3 FY2010 Aviation Data Management & Control System (ADMACS) Block 3 data input through various system interfaces. It also adds intelligent agent and decision aides. These are added to the Block 2 architecture established during the development and installation. *FY 2011 Base Plans:* FY11: Conduct Preliminary Design Review. Begin software and hardware development. Develop interfaces for ADMACS Block 3.	0.000	0.000	3.619	0.000	3.619
EMALS Technology Insertion Electromagnetic Aircraft Launch System (EMALS) Technology Insertion is developed in areas such as sensorless control and energy storage technologies. Sensorless Control - funded in FY09 through Congressional Adds (PU: 9D80A)	0.000	0.000	1.621	0.000	1.621

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY11: Develop system/software for integration into the ship-set design. Provide development, management, system engineering, test, and ship integration support.					
Advanced Launch Control System (ALCS) Advanced Launch Control System (ALCS)- introduce control, prognostics and health monitoring technology into the steam catapult, providing a common operator interface, reduced maintenance and enhanced availability. *FY 2010 Plans:* FY10: Conduct workload study. Conduct diagnostic and maintenance study. *FY 2011 Base Plans:* FY11: Initiate algorithms and requirements development analysis. Initiate software design requirements. Initiate hardware design requirements.	0.000	1.012	2.631	0.000	2.631
Swaging Machine This program will replace the current process for attaching the terminal on the arresting gear purchase cable with a swaged terminal design that will be pressed on by means of a of a high density, compact, light weight swaging machine. Funded by ONR (PE# 060051D8Z) in FY 2009. *FY 2010 Plans:* FY10: Conduct performance testing on prototype unit which will have been developed under Defense Acquisition Challenge Program funding (OSD PE 0604051D8Z). Prototype testing will consist of jet car track performance testing of the swaged terminals and Electro-Magnetic Interference (EMI) shock/ environmental testing of the high density swaging machine.	0.000	1.400	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ALRE Modernization	0.000	2.650	5.010	0.000	5.010

FY2010 new start. Improved Fresnel Lens Optical Landing System (IFLOLS), Embarked Aircraft Track System (EATS), MK-7 Arresting Gear systems and Improved Manually Operated Visual Landing Aid System (IMOVLAS) to improve carrier aviations operations. The MK 7 Arresting Gear portion of the ALRE Modernization Program consists of (3) components which will be re-designed to address maintenance and supply system degraders.

FY 2010 Plans:

FY10: IFLOLS - Evaluate and redesign the system microprocessor to use the latest digital technology. Redesigned system interfaces to allow for fastest possible data transfers between IFLOLS, Joint Precision Approach Landing System (JPALS), Advanced Recovery Control (ARC) and the Arresting Gear Crosscheck System.

FY10: MK7(Sealed Bearing) - Develop Statement of Work and award prototype contract for Engineering Developmental Model(EDM) unit.
MK7(Fixed Deck Sheave) - Finalize design requirements and begin in-house development of prototype unit.
MK7(Barricade Svc Life Ext) - Define requirement documentation. Collect Barricade samples.

FY 2011 Base Plans:

FY11: IFLOLS - Conduct Critical Design Review (CDR). Conduct Test Readiness Review (TRR) Test and evaluate the system interfaces, system integration and system performance.

FY11: EATS - Begin development phase for software redesign and coding. Conduct Critical Design Review (CDR).

FY11: MK7(Sealed Bearing) - Build/deliver prototype unit. Conduct Technical Readiness Review (TRR) Start the integrated 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MK7(Fixed Deck Sheave) - Build/deliver prototype unit. Conduct Technical Readiness Review (TRR). Start the integrated test phase MK-7(Barricade Svc Life Ext) - Conduct Technical Readiness Review (TRR). Start the integrated test phase.					
ALRE Service Life Management FY2011 new start. ALRE Service Life Management is to study the MK13 catapult and MK7 arresting gear to determine where to design fielded equipment improvement prior to aircraft fielding. *FY 2011 Base Plans:* FY11: Development of a load sensitive reliability model to determine the effect of the next air wing on catapult and arresting gear.	0.000	0.000	3.007	0.000	3.007
Accomplishments/Planned Programs Subtotals	47.564	77.301	70.117	0.000	70.117

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/4216: *Aircraft Launch & Recovery Equipment - P1#93*	46.225	39.683	37.063	0.000	37.063	19.289	73.892	80.089	68.045	Continuing	Continuing

D. Acquisition Strategy

AAG: The Navy competitively awarded two Cost Plus Fixed Fee Technical Development phase contracts to develop the AAG. Upon completion of the Preliminary Design and Integrated Baseline Reviews, the Navy awarded a single Cost Plus Award Fee option to General Atomics for the System Development and Demonstration (SDD) phase to develop and demonstrate a production representative AAG at the NAVAIR Lakehurst Jet Car Track Site (JCTS) and Runway Aircraft Landing Site (RALS). In March 2009, the AAG program awarded a SDD contract modification to General Atomics for Transition to Production planning.

ADMACS: The Navy continues to design and develop ADMACS using commercially available servers, switches, workstations and database and communications software. One EDM system has been procured from a directed 8(a) Alaskan Native Corporation source.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

EMALS Technology Insertion: The Navy will develop emerging technologies for insertion into EMALS and award a contract to develop, manufacture, install, test articles at the EMALS System Functional Demonstration (SFD) site at Lakehurst, N.J.

Swaging Machine: The Navy will amend an existing Small Business Technology Transfer (STTR) Phase III contract in order to build and test a prototype high density swaging machine which will have been developed under Defense Acquisition Challenge Program funding (OSD PE 060051D8Z).

Aircraft Launch & Recovery Equipment (ALRE) Modernization:
(a). IFLOLS Phase IV: The Navy will develop IFLOLS using commercially equipment racks, processors, & displays.
(b). EATS: The Navy will award a Phase III Small Business Innovation Research (SBIR) contract to complete development & testing of EATS tracking algorithms. The Navy will develop EATS H/W & interfaces to ADMACS.
(c). IMOVLAS: The Navy will develop IMOVLAS using commercially equipment racks, processors, and displays.
(d). MK-7 AG: The MK 7 Arresting Gear portion of the ALRE Modernization Program consists of (3) components which will be re-designed and/or analyzed to address maintenance and supply system degraders.

Advanced Launch Control System (ALCS): Develop and test system improvements for the MK-13 steam catapult.

E. Performance Metrics

Advanced Arresting Gear (AAG) will complete SDD integrated testing at Jet Car Track Site (JCTS) and Runway Arrested Landing Site (RALS). Demonstrating key performance parameters and readiness for 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*	

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 HW Dev- AAG	C/CPFF	Northrop Grum Sunnyvale, CA	12.418	0.000		0.000		0.000		0.000	0.000	12.418	12.418
Primary HW Dev - AAG	C/CPAF	Gen Atomics San Diego, CA	124.647	39.130	Oct 2009	25.100	Dec 2010	0.000		25.100	8.393	197.270	208.267
Award Fees - AAG	C/CPAF	Gen Atomics San Diego, CA	1.723	3.400	Apr 2010	3.607	Aug 2011	0.000		3.607	3.600	12.330	12.330
Primary HW Dev - AAG	WR	NAWCAD Lakehurst, NJ	8.789	5.028	Nov 2009	8.805	Nov 2010	0.000		8.805	2.517	25.139	Continuing
System Eng - AAG	WR	NAWCAD Lakehurst, NJ	9.695	5.350	Nov 2009	2.919	Nov 2010	0.000		2.919	1.110	19.074	Continuing
System Eng - AAG	C/CPFF	L3 Services,Inc. Marlton, NJ	0.092	0.000		0.096	Feb 2011	0.000		0.096	0.000	0.188	5.700
Shipboard Intgrn - AAG	WR	NAWCAD Lakehurst, NJ	2.362	5.350	Nov 2009	2.836	Nov 2010	0.000		2.836	1.045	11.593	Continuing
Primary HW Dev - ADMACS	WR	NAWCAD Lakehurst, NJ	4.560	2.474	Nov 2009	2.059	Nov 2010	0.000		2.059	6.275	15.368	Continuing
Product Dev-ADMACS	C/CPFF	Specialty Sys Tom River ,NJ	0.508	0.000		1.200	Jun 2011	0.000		1.200	0.000	1.708	1.708
Product Dev Supt-ADMACS	C/CPFF	Sabre Sys Warminster, PA	0.085	3.161	Jan 2010	0.000		0.000		0.000	0.000	3.246	3.246
Shipboard Integ - ADMACS	WR	NAWCAD Lakehurst, NJ	1.200	0.000		0.000		0.000		0.000	0.000	1.200	1.200
Shipboard Integ - ADMACS	WR	PSNS Bremerton, WA	0.100	0.000		0.000		0.000		0.000	0.000	0.100	0.100
System Eng - ADMACS	WR	NAWCAD	0.140	0.000		0.180	Nov 2010	0.000		0.180	0.900	1.220	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

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
		Lakehurst, NJ											
Primary HW Dev-EMALS Tech Insert	C/CPFF	TBD Not Specified	0.000	0.000		1.182	Dec 2010	0.000		1.182	20.400	21.582	25.600
Primary HW Dev-ALCS	WR	TBD Not Specified	0.000	0.212	Jan 2010	0.435	Dec 2010	0.000		0.435	3.500	4.147	Continuing
Primary SW Dev-ALCS	WR	TBD Not Specified	0.000	0.212	Jan 2010	0.581	Dec 2010	0.000		0.581	7.500	8.293	Continuing
System Eng - EMALS Tech Insert	WR	NAWCAD Lakehurst, NJ	0.000	0.000		0.326	Nov 2010	0.000		0.326	1.870	2.196	Continuing
System Eng-ALCS	WR	NAWCAD Lakehurst, NJ	0.000	0.388	Jan 2010	0.915	Nov 2010	0.000		0.915	1.500	2.803	Continuing
Shipboard Integ-ALCS	WR	NAWCAD Lakehurst, NJ	0.000	0.000		0.000		0.000		0.000	2.500	2.500	Continuing
HW Fabr/Install Init Shipset-ALCS	WR	TBD Not Specified	0.000	0.000		0.500	Dec 2010	0.000		0.500	4.000	4.500	Continuing
Primary HW Dev-Swaging Mach	SS/CPFF	Creare Inc. Hanover, NH	0.000	0.500	Jan 2010	0.000		0.000		0.000	0.000	0.500	0.500
Shipboard Integ-Swaging Mach	SS/CPFF	Creare Inc. Hanover, NH	0.000	0.200	Jan 2010	0.000		0.000		0.000	0.000	0.200	0.200
System Eng-Swaging Mach	WR	NAWCAD Lakehurst, NJ	0.000	0.347	Jan 2010	0.000		0.000		0.000	0.000	0.347	Continuing
Dev Supt - Swaging Mach	WR	NAWCAD Lakehurst, NJ	0.000	0.300	Jan 2010	0.000		0.000		0.000	0.000	0.300	Continuing
Primary HW Dev-Modern IFLOLS	WR	NAWCAD Lakehurst, NJ	0.000	0.250	Jan 2010	0.254	Dec 2010	0.000		0.254	0.000	0.504	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

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 Eng - Modern IFLOLS	WR	NAWCAD Lakehurst, NJ	0.000	1.150	Jan 2010	1.500	Nov 2010	0.000		1.500	0.400	3.050	Continuing
Primary HW Dev-Modern EATS	C/CPFF	Develosoft Corp. Boulder, CO	0.000	0.000		0.800	Jan 2011	0.000		0.800	0.200	1.000	1.800
System Eng-Modern EATS	WR	NAWCAD Lakehurst, NJ	0.000	0.000		0.403	Nov 2010	0.000		0.403	0.400	0.803	Continuing
Primary HW Dev-Modern MK7	WR	NAWCAD Lakehurst, NJ	0.000	0.800	Jan 2010	0.000		0.000		0.000	0.000	0.800	Continuing
System Eng-Modern MK7	WR	NAWCAD Lakehurst, NJ	0.000	0.100	Jan 2010	0.328	Nov 2010	0.000		0.328	0.200	0.628	Continuing
System Eng-ALRE Srvc Life Mgnt	WR	NAWCAD Lakehurst, NJ	0.000	0.000		2.807	Dec 2010	0.000		2.807	22.500	25.307	Continuing
		Subtotal	166.319	68.352		56.833		0.000		56.833	88.810	380.314	273.069

Remarks

Award Fee is 10% of estimated cost of SDD contract.

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
ILS- AAG	WR	NAWCAD Lakehurst, NJ	4.397	2.179	Nov 2009	2.798	Nov 2010	0.000		2.798	0.000	9.374	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

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
ILS - ADMACS	WR	NAWCAD Lakehurst, NJ	0.150	0.000		0.180	Nov 2010	0.000		0.180	0.483	0.813	Continuing
ILS-ALCS	WR	NAWCAD Lakehurst, NJ	0.000	0.200	Jan 2010	0.200	Nov 2010	0.000		0.200	0.000	0.400	Continuing
ILS- Swaging Machine	WR	NAWCAD Lakehurst, NJ	0.000	0.053	Jan 2010	0.000		0.000		0.000	0.000	0.053	Continuing
ILS - Modern IFLOLS	WR	NAWCAD Lakehurst, NJ	0.000	0.050	Jan 2010	0.200	Nov 2010	0.000		0.200	0.275	0.525	Continuing
ILS - Modern EATS	WR	NAWCAD Lakehurst, NJ	0.000	0.000		0.200	Nov 2010	0.000		0.200	0.000	0.200	Continuing
ILS - Modern MK-7	WR	NAWCAD Lakehurst, NJ	0.000	0.050	Jan 2010	0.050	Nov 2010	0.000		0.050	0.050	0.150	Continuing
ILS - ALRE Service Life Mgnt	WR	NAWCAD Lakehurst, NJ	0.000	0.000		0.200	Dec 2010	0.000		0.200	0.600	0.800	Continuing
		Subtotal	4.547	2.532		3.828		0.000		3.828	1.408	12.315	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

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 - AAG	WR	NAWCAD Lakehurst, NJ	6.465	1.308	Nov 2009	2.221	Nov 2010	0.000		2.221	0.697	10.691	Continuing
Operational T&E - AAG	WR	Various Various	0.902	0.000		0.222	Dec 2010	0.000		0.222	0.222	1.346	Continuing
Facility Test - JCTS/ RALS AAG	WR	NAWCAD Lakehurst, NJ	2.799	4.642	Nov 2009	5.318	Nov 2010	0.000		5.318	12.499	25.258	Continuing
Dev Test Lab - ADMACS	WR	NAWCAD Lakehurst, NJ	0.450	0.000		0.000		0.000		0.000	0.600	1.050	Continuing
Integrated Test - ADMACS	WR	NAWCAD Lakehurst, NJ	0.090	0.000		0.102	Jan 2011	0.000		0.102	0.000	0.192	Continuing
Dev Test & Eval - EMALS Tech Insert	WR	NAWCAD Lakehurst, NJ	0.000	0.000		0.113	Jan 2011	0.000		0.113	0.707	0.820	Continuing
Dev Test & Eval - ALCS	WR	NAWCAD Lakehurst, NJ	0.000	0.000		0.000		0.000		0.000	5.960	5.960	Continuing
Dev Test & Eval - Modern IFLOLS	WR	NAWCAD Lakehurst, NJ	0.000	0.250	Jan 2010	0.150	Jan 2011	0.000		0.150	0.000	0.400	Continuing
Dev Test&Eval - Modern MK-7	WR	NAWCAD Lakehurst, NJ	0.000	0.000		1.125	Jan 2011	0.000		1.125	0.275	1.400	Continuing
		Subtotal	10.706	6.200		9.251		0.000		9.251	20.960	47.117	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

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
Prgm Mgnt Supt	C/CPFF	Sierra California, MD	0.518	0.157	Mar 2010	0.160	Dec 2010	0.000		0.160	0.000	0.835	1.534
Travel	Reqn	NAVAIR Pax River, MD	0.597	0.060	Nov 2009	0.045	Nov 2010	0.000		0.045	0.000	0.702	Continuing
		Subtotal	1.115	0.217		0.205		0.000		0.205	0.000	1.537	1.534

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	182.687	77.301		70.117		0.000		70.117	111.178	441.283	274.603

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*	**PROJECT** 2232: *CV/CVN Launch and Recover*

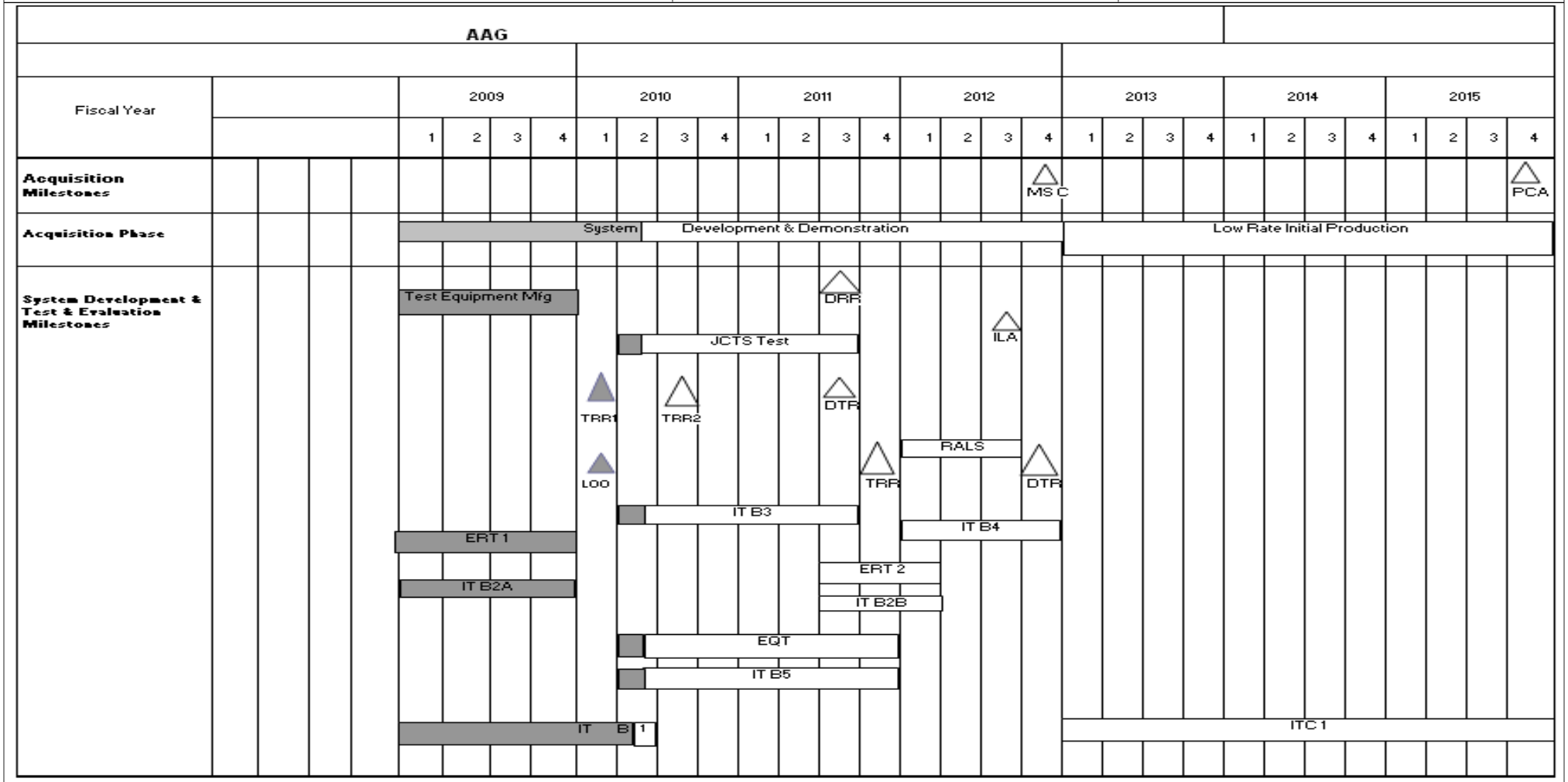


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

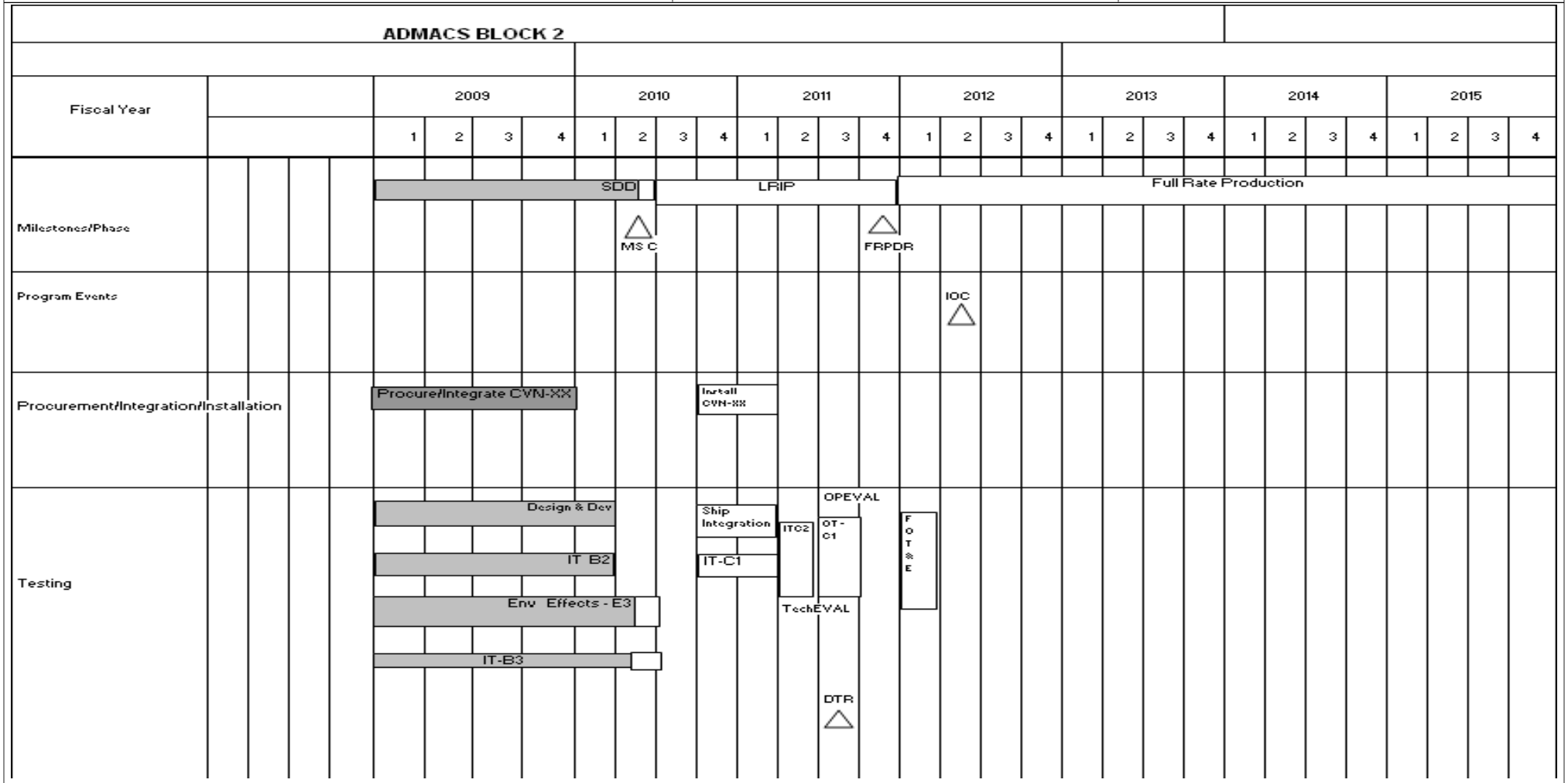


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

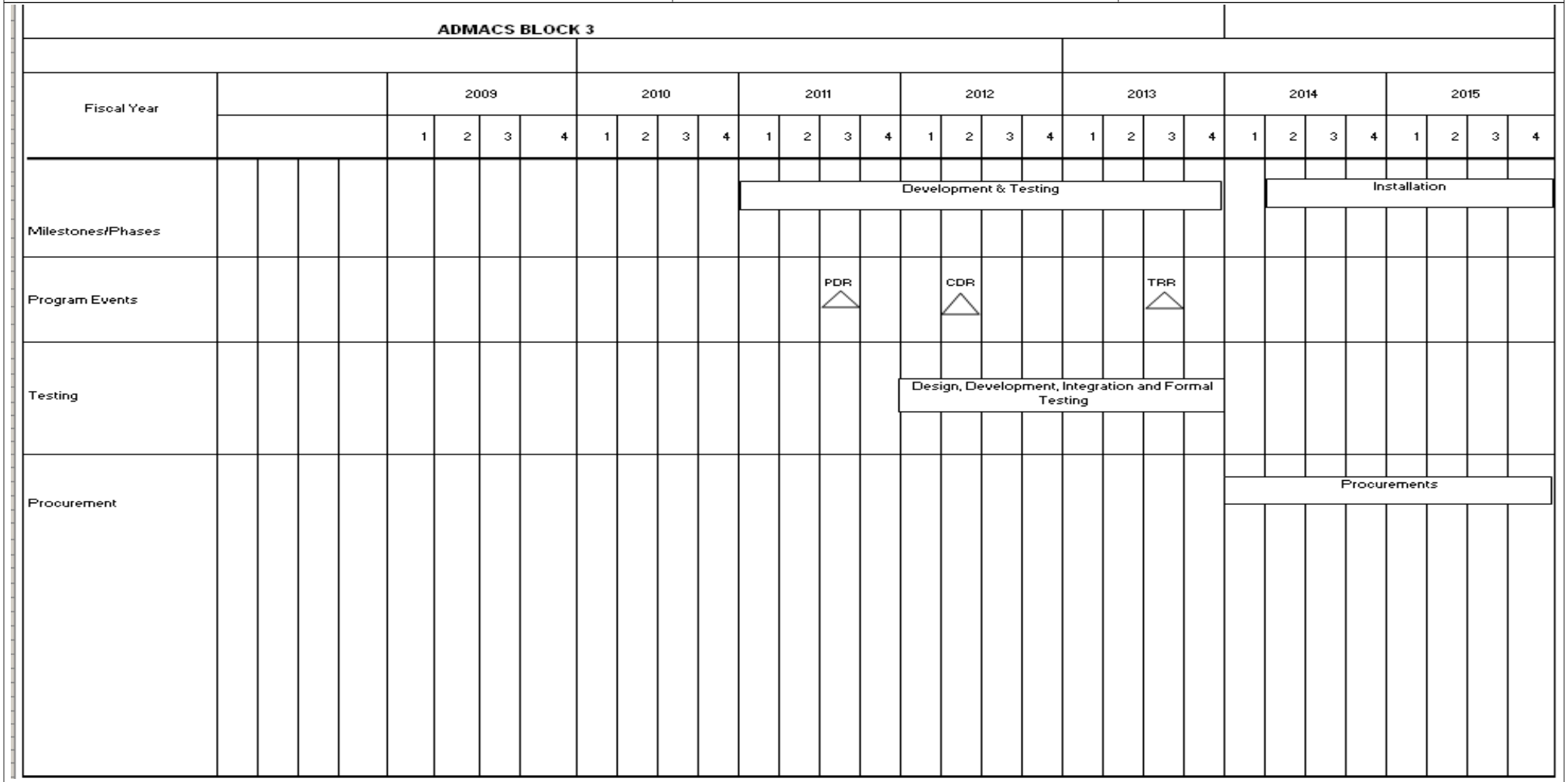


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

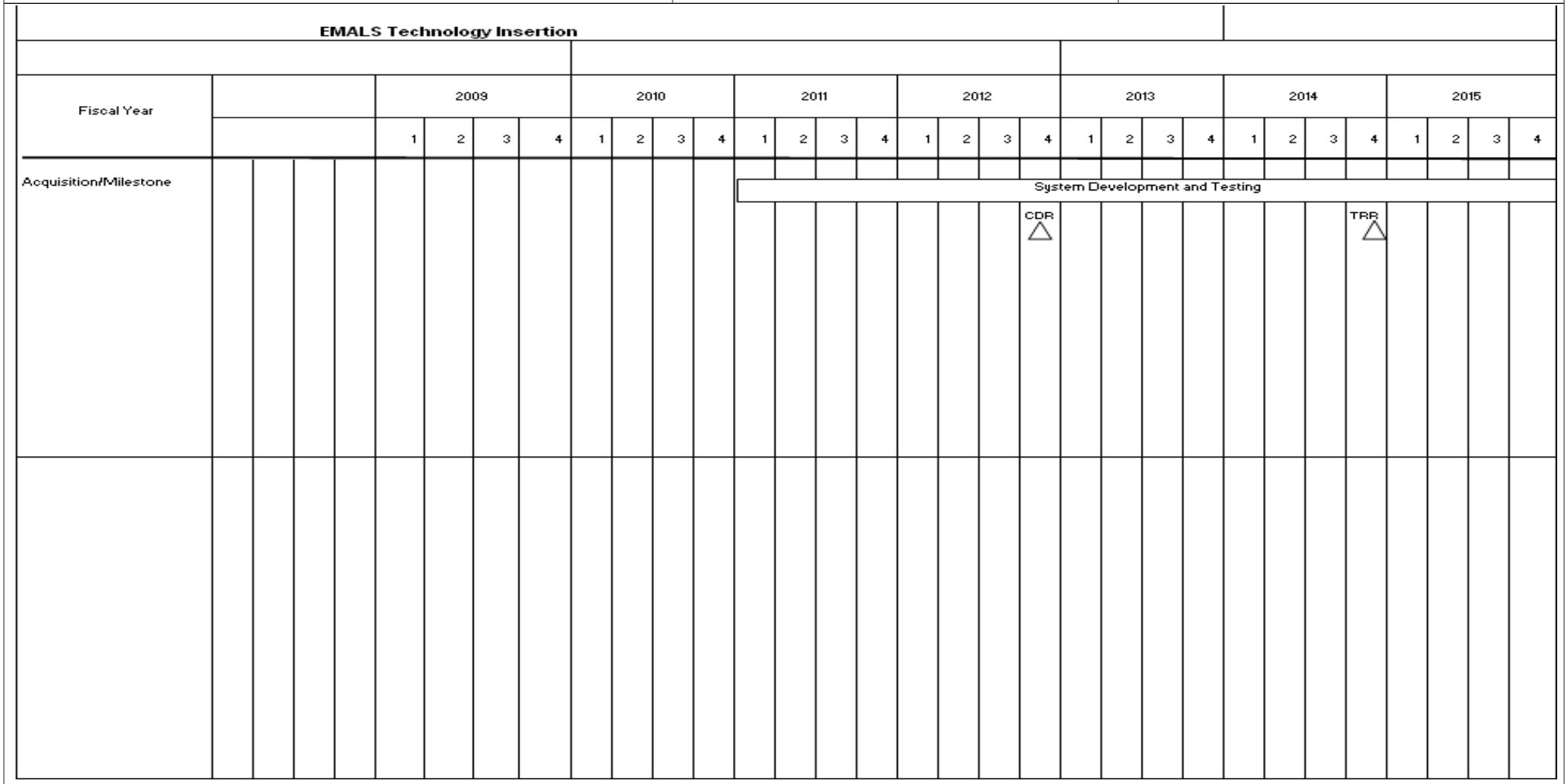


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

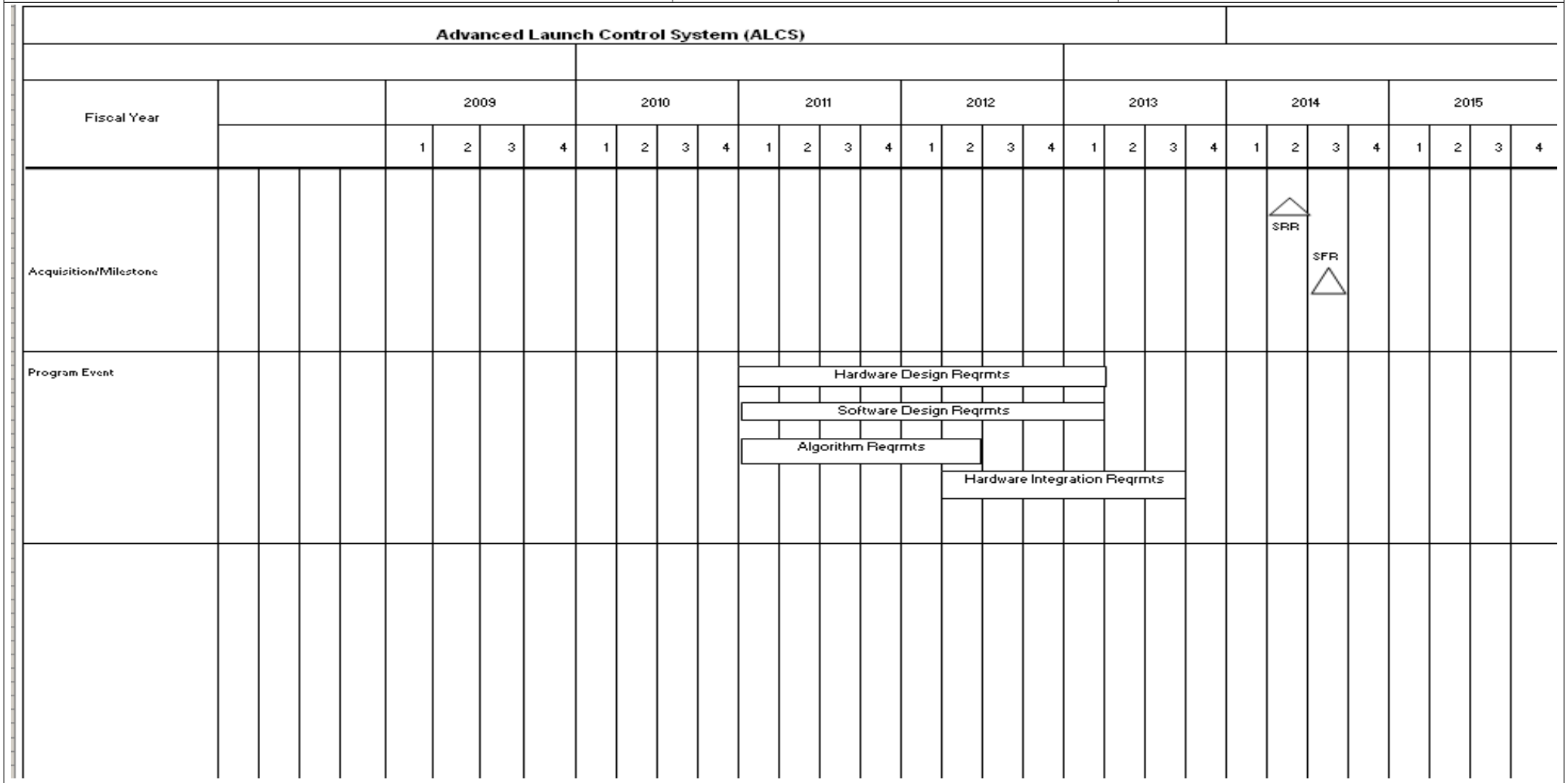


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

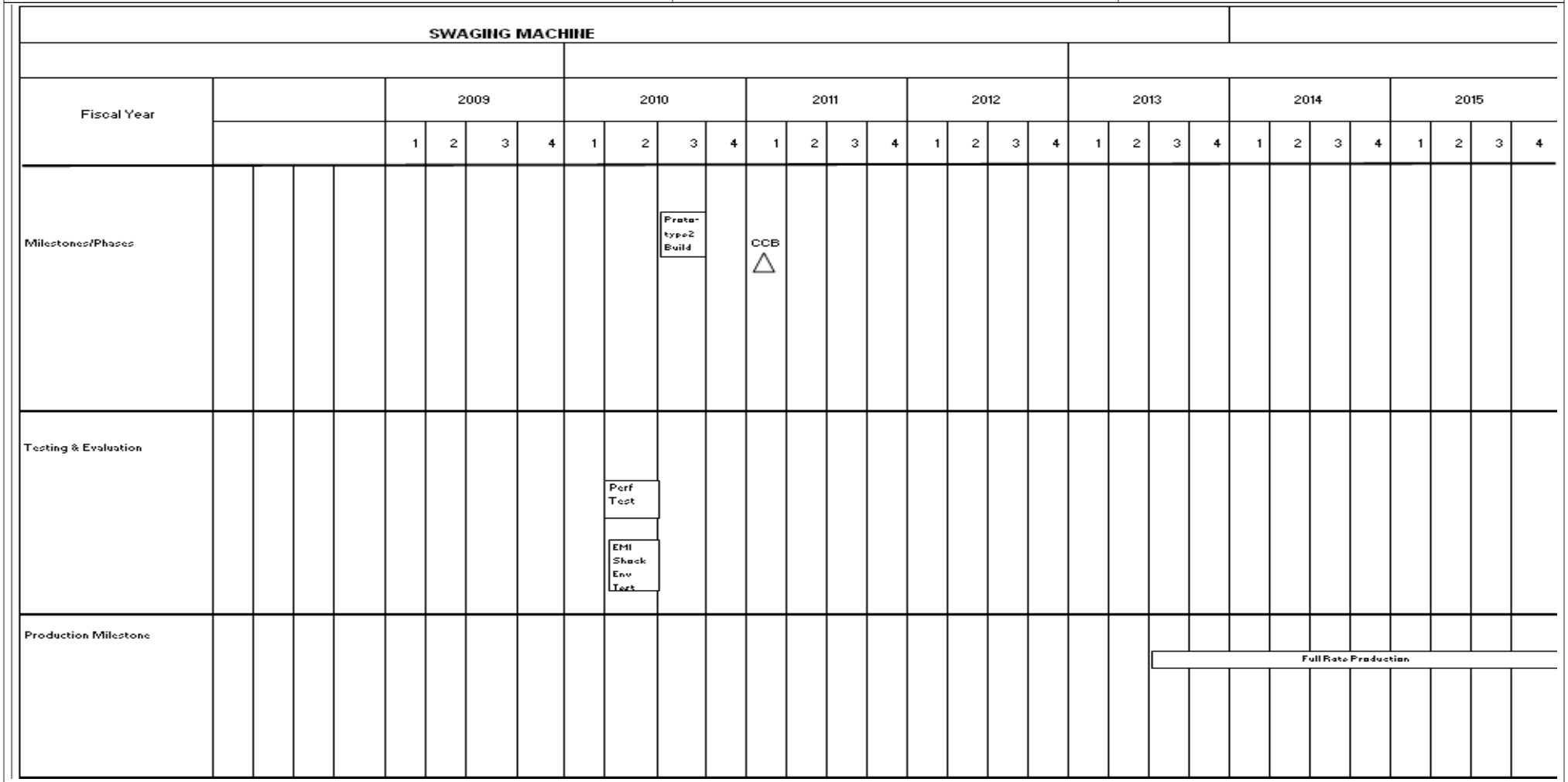


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

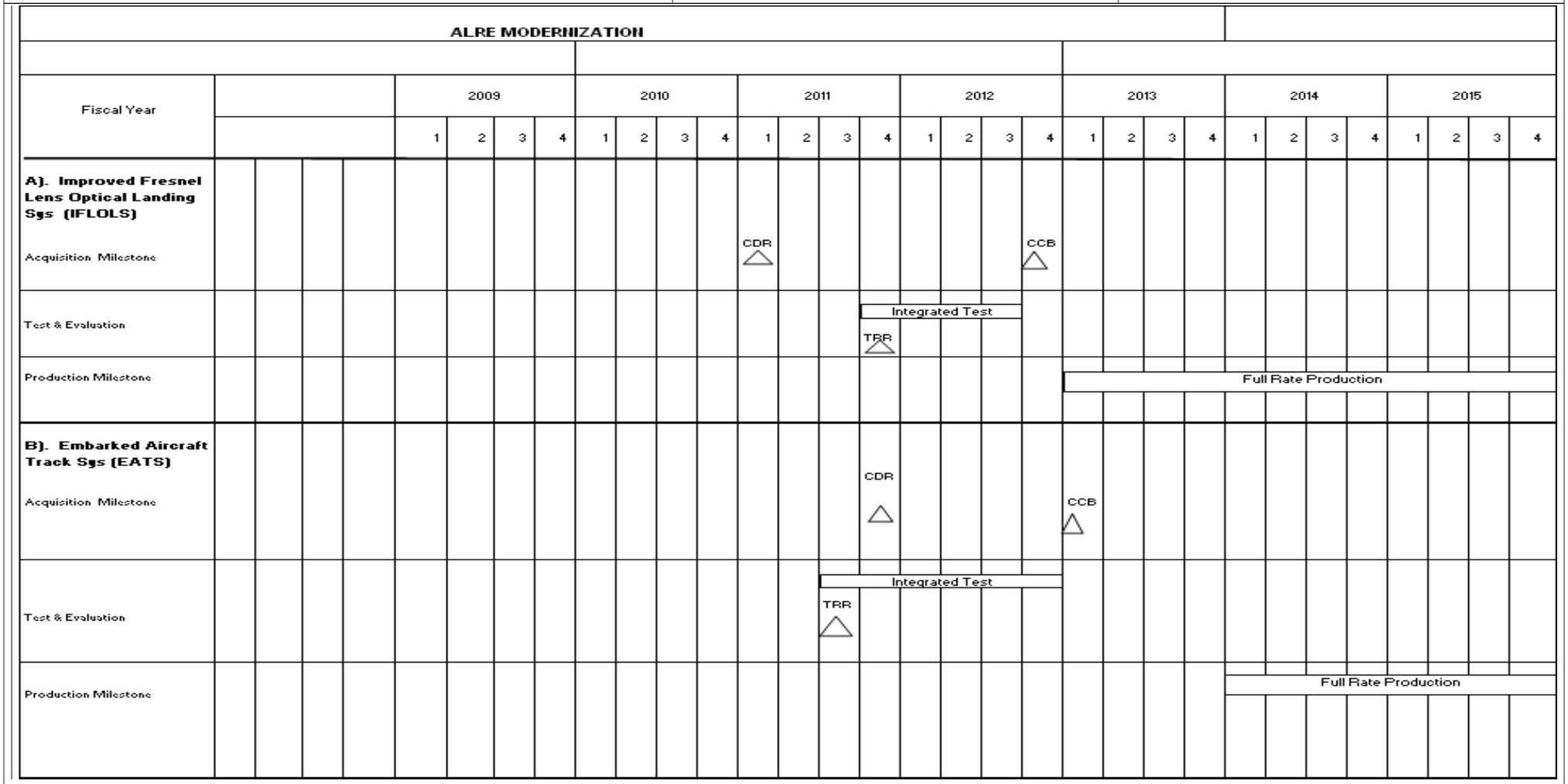


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

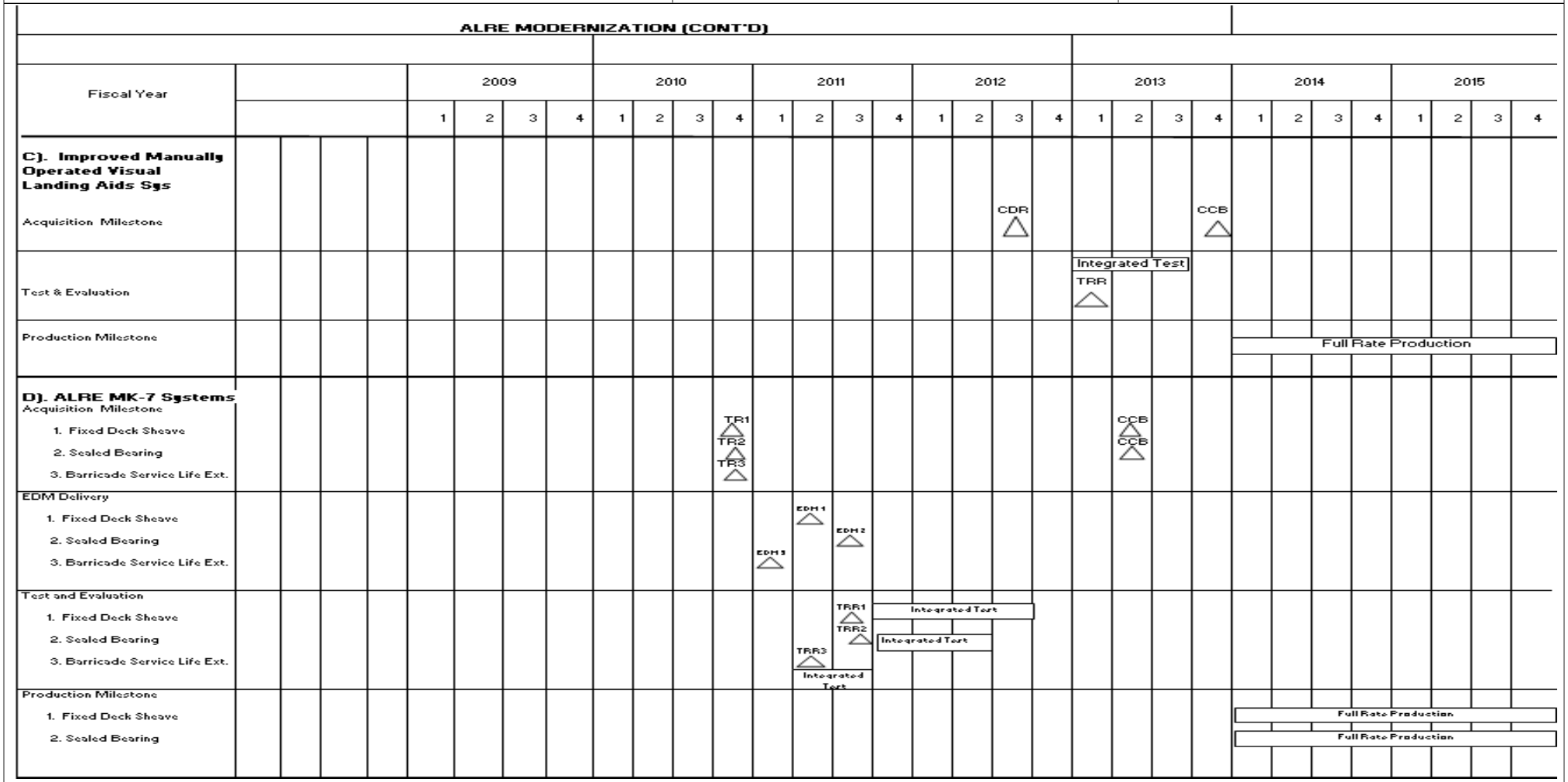


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*	**PROJECT** 2232: *CV/CVN Launch and Recover*

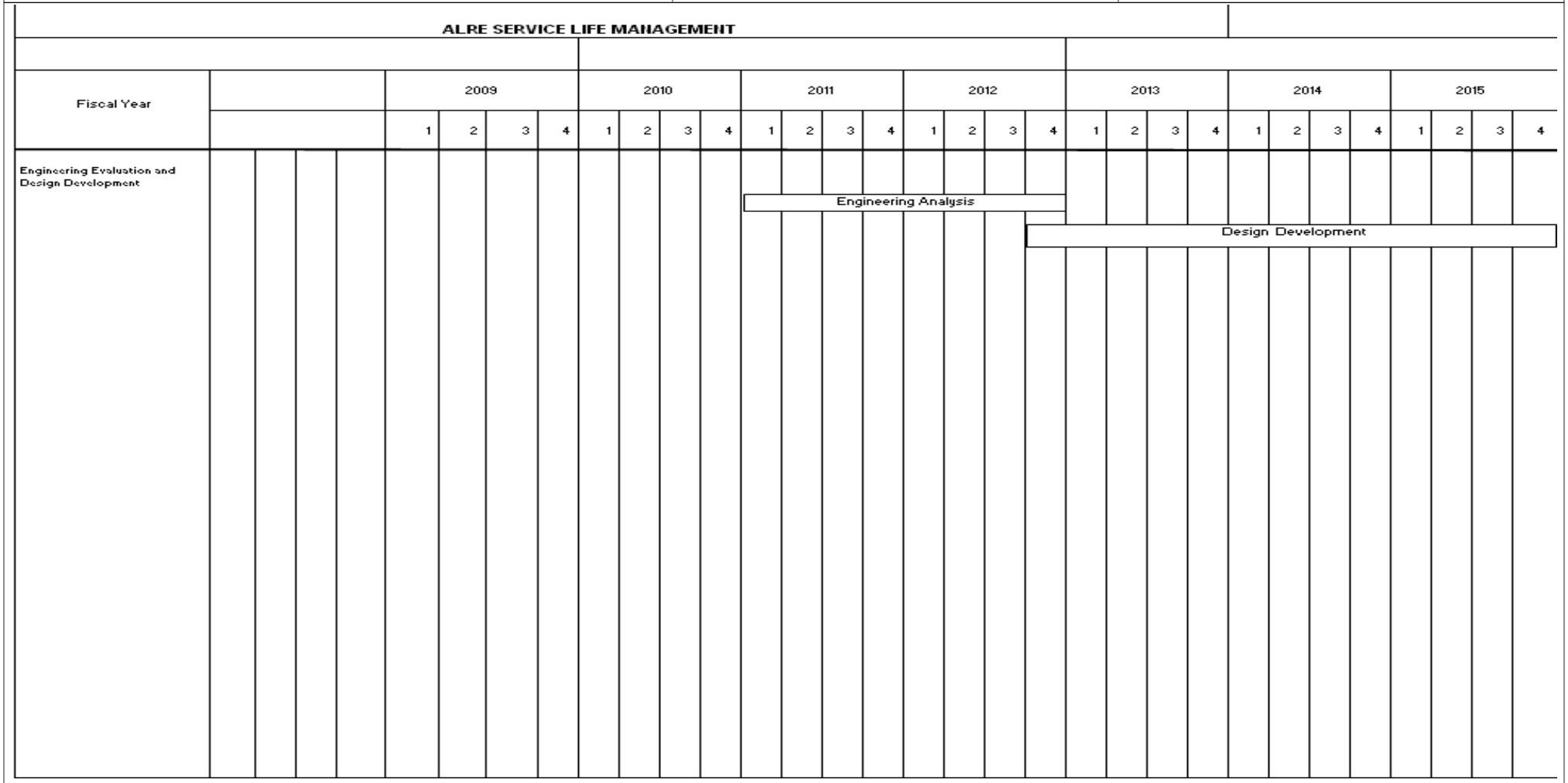


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
ADVANCED ARRESTING GEAR (AAG)	1	2009	4	2015
-- System Design & Development (SDD Phase) AAG	1	2009	4	2012
-- Test Equipment Manufacture -	1	2009	4	2009
-- Extended Reliability Testing 1 (ERT1)	1	2009	4	2009
-- Integration Testing (IT B2A)	1	2009	4	2009
-- Integration Testing (IT B1)	1	2009	2	2010
-- Letter of Observation (LOO)	1	2010	1	2010
-- Test Readiness Review1 (TRR1)	1	2010	1	2010
-- Test Readiness Review 2(TRR2)	3	2010	3	2010
-- Jet Car Track Site (JCTS) Test	2	2010	3	2011
--- Integration Testing (IT B3)	2	2010	3	2011
-- Environmental Qualification Test (EQT)	2	2010	4	2011
-- Integration Testing (IT B5)	2	2010	4	2011
-- Design Readiness Review (DRR)	3	2011	3	2011
-- Development Test Report (DTR) 1	3	2011	3	2011
--Test Readiness Review (TRR)	4	2011	4	2011
-- Extended Reliability Testing 2 (ERT2)	3	2011	1	2012
--- Integration Testing (IT B2B)	3	2011	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

	Start		End	
Event	Quarter	Year	Quarter	Year
-- Runway Arrested Landing Site Test (RALS)	1	2012	3	2012
--Integration Testing (IT B4)	1	2012	4	2012
-- Milestone C	4	2012	4	2012
-- Integrated Logistic Assessment (ILA)	3	2012	3	2012
-- Development Test Report (DTR) 2	4	2012	4	2012
-- Physical Configuration Assessment (PCA)	4	2015	4	2015
--Integrated Testing (IT C1)	1	2013	4	2015
-- Low Rate Initial Production (LRIP)	1	2013	4	2015
AVIATION DATA MANAGEMENT & CONTROL SYSTEM (ADMACS) BLK 2	1	2009	4	2015
--- System Design & Development (SDD Phase) ADMACS BLK 2	1	2009	2	2010
-- Procure/Integration CVN-XX	1	2009	4	2009
--- Design & Development Test	1	2009	1	2010
-- IT-B2 Integrated Test	1	2009	1	2010
--- Environmental Effect Test -E3	1	2009	2	2010
-- IT-B3 Integrated Test	1	2009	2	2010
-- Development Test Report (DTR)3	3	2011	3	2011
-- Milestone C (MS-C)	2	2010	2	2010
-- Low-Rate Initial Production (LRIP)	3	2010	4	2011
-- Install CVN-XX	4	2010	1	2011
-- Ship Integration	4	2010	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

	Start		End	
Event	Quarter	Year	Quarter	Year
-- Integrated Test (IT-C1)	4	2010	1	2011
-- Integrated Test (IT-C2)/Tech Eval	2	2011	2	2011
--- Operational Test Evaluation (OpEval/OTC)	3	2011	3	2011
-- Full Rate Production Decision Review (FRPDR)	4	2011	4	2011
-- Follow-on Test & Evaluation (FOT&E)	1	2012	1	2012
-- Initial Operational Capability (IOC)	2	2012	2	2012
-- Full Rate Production (FRP)4	1	2012	4	2015
-AVIATION DATA MANAGEMENT & CONTROL SYSTEM (ADMACS) BLK 3	1	2011	4	2015
-- Development and Testing	1	2011	4	2013
-- Preliminary Design Review (PDR)	3	2011	3	2011
-- Critical Design Review (CDR)5	2	2012	2	2012
-- Test Readiness Review (TRR)6	3	2013	3	2013
- Design, Development, Integration & Formal Testing	1	2012	4	2013
---- Procurements	1	2014	4	2015
- Installation	2	2014	4	2015
-EMALS TECHNOLOGY INSERTION	1	2011	4	2015
--- System Development and Testing	1	2011	4	2015
-- Critical Design Review (CDR)7	4	2012	4	2012
-- Test Readiness Review (TRR)8	4	2014	4	2014
-ADVANCED LAUNCH CONTROL SYSTEM (ALCS)	1	2011	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*	**PROJECT** 2232: *CV/CVN Launch and Recover*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
-- System Requirement Review (SRR)	2	2014	2	2014
-- System Functional Review (SFR)	3	2014	3	2014
-- Hardware Design Requirements	1	2011	1	2013
-- Software Design Requirements	1	2011	1	2013
-- Algorithm Requirements	1	2011	2	2012
-- Hardware Integration Requirements	2	2012	3	2013
-SWAGING MACHINE	3	2010	4	2015
-- Prototype Build	3	2010	3	2010
-- Performance Test	2	2010	2	2010
-- Electromagnetic Interference (EMI) Shock/Environmental Test	2	2010	2	2010
-- Configuration Control Board (CCB)9	1	2011	1	2011
- Full Rate Production	3	2013	4	2015
-ALRE MODERNIZATION	1	2011	4	2015
--A - Improved Fresnel Lens Optical Landing Sys (IFLOLS)	1	2011	4	2015
----- Critical Design Review (CDR)a	1	2011	1	2011
----- Test Readiness Review (TRR)s	4	2011	4	2011
----- Integrated Testd	4	2011	3	2012
------ Configuration Control Board (CCB)f	4	2012	4	2012
------ Full Rate Production (FRP)g	1	2013	4	2015
--B - Embarked Aircraft Track System (EATS)	3	2011	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

	Start		End	
Event	Quarter	Year	Quarter	Year
-------- Critical Design Review (CDR)h	4	2011	4	2011
-------- Test Readiness Review (TRR)j	3	2011	3	2011
-------- Integrated Test1	3	2011	4	2012
-------- Configuration Control Board (CCB)k	1	2013	1	2013
------- Full Rate Production (FRP)21	1	2014	4	2015
-C - Improved Manually Operated Visual Landing Aids Sys (IMOVLAS)	3	2012	4	2015
-------- Critical Design Review (CDR)	3	2012	3	2012
------ Test Readiness Review (TRR)	1	2013	1	2013
---------- Integrated Test32	1	2013	3	2013
-------- Configuration Control Board (CCB)4	4	2013	4	2013
-------- Full Rate Production (FRP)5	1	2014	4	2015
D - ALRE MK-7 Systems	4	2010	4	2015
-----1). Fixed Deck Sheave	4	2010	4	2015
---------- Technical Review (TR1)	4	2010	4	2010
---------- Prototype Build (EDM1)	2	2011	2	2011
---------- Test Readiness Review (TRR1)	3	2011	3	2011
---------- Integrated Test6	4	2011	3	2012
---------- Configuration Control Board (CCB)7	2	2013	2	2013
---------- Full Rate Production (FRP)	1	2014	4	2015
------2). Sealed Bearing	4	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

	Start		End	
Event	Quarter	Year	Quarter	Year
---------- Technical Review (TR2)	4	2010	4	2010
---------- Prototype Build (EDM 2)	3	2011	3	2011
---------- Test Readiness Review (TRR 2)	3	2011	3	2011
---------- Integrated Test	4	2011	2	2012
---------- Configuration Control Board (CCB)1	2	2013	2	2013
---------- Full Rate Production (FRP)23	1	2014	4	2015
----3). Barricade Service Life Extension	4	2010	3	2011
---------- Technical Review (TR3)	4	2010	4	2010
---------- Prototype Build (EDM 3)	1	2011	1	2011
---------- Test Readiness Review (TRR 3)	2	2011	2	2011
---------- Integrated Test34	2	2011	3	2011
ALRE SERVICE LIFE MANAGEMENT	1	2011	4	2015
--- Engineering Analysis	1	2011	4	2012
- Design Development	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation 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*	2.792	1.195	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.037
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: Voyage Repair Team Tool Management *FY 2010 Plans:* Design and develop an Integrated Tool Control System within the Voyage Repair Team (VRT) organizations. This will reduce cost, improve work efficiency and improve that availability of Aircraft Launch & Recovery Equipment (ALRE) in support of the Fleet's mission.	0.000	1.195
Congressional Add: Sensorless Control of Linear Motors in EMALS *FY 2009 Accomplishments:* The Navy will initiate the development of advanced sensorless control for the Electromagnetic Aircraft Launch System (EMALS) program.	2.792	0.000
Congressional Adds Subtotals	2.792	1.195

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not Applicable

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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604518N: *Combat Information Center Conv*							
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	17.314	13.250	5.044	0.000	5.044	5.036	5.098	5.210	5.316	Continuing	Continuing
3094: *USW Decision Support*	14.322	13.250	5.044	0.000	5.044	5.036	5.098	5.210	5.316	Continuing	Continuing
9999: *Congressional Adds*	2.992	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.872

A. Mission Description and Budget Item Justification

The objective of this Program Element (PE), under Project 3094, is to provide capabilities to shorten command and control (C2) decision processes for detection-to-engagement across multiple platforms, including those with low-bandwidth communications or intermittent connectivity. The Undersea Warfare Decision Support System (USW-DSS) decision support tool uses a Service Orientated Architecture (SOA) encompassing existing communication links, networks, and contact pictures comprised of sensor data from air, surface, submarine, theater, and surveillance platforms to connect sensors and weapons. The capabilities delivered by USW-DSS are critical not only for the Sea Combat Commander (SCC) but also for the Theater USW Commander (TUSWC) and Anti Submarine Warfare Commander (ASWC) to fulfill the requirement for an integrated capability to plan, conduct, and coordinate USW operations across multiple ASW platforms. USW-DSS will provide common and improved visualization, integrated USW platform sensor data sharing, reduced data entry, improved sensor performance predictions, data fusion, and reduced redundancy across USW Tactical Decision Aids (TDA). The program will provide a greater understanding of the undersea battle space by allowing the entire force (carrier/expeditionary strike group, theater, or other) to have a common and thorough understanding of the battle space with characterized uncertainties.

USW-DSS (Advanced Capability Build (ACB) 2) will be hosted on the Integrated Shipboard Network System (ISNS) as one of the first Early Adopters, leveraging initial Service Oriented Architecture (SOA) Reference Implementation. USW-DSS (ACB 3 and beyond) will be hosted on the Consolidated Automated Networks and Enterprise Services (CANES) architecture, which will be fully SOA enabled.

The objective of this PE, under Project 9D81A in FY09, is to provide infrastructure improvements to the USW-DSS - AN/UYQ-100. The current computer server approach used by USW-DSS, as well as all currently fielded Information Technology (IT) systems, requires significant investment in many areas to field capability to the Fleet. The current approach to loading applications on servers and imposed server cabinet size limitations due to ship installation location provides limited redundancy and prevents future migration to improved Commercial-Off-The-Shelf (COTS) processing power to support planned functionality improvements. To meet Fleet desires to accelerate the fielding of USW-DSS, the Navy needs to migrate to a more cost effective and efficient method of fielding a more scalable, open, upgradeable, reliable computing environment (SOURCE). The focus of this effort will be investigation into adapting and tailoring commercial standards and COTS-based hardware and open source software for SOURCE development.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604518N: *Combat Information Center Conv*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	17.709	13.305	0.000	0.000	0.000
Current President's Budget	17.314	13.250	5.044	0.000	5.044
Total Adjustments	-0.395	-0.055	5.044	0.000	5.044
• Congressional General Reductions		-0.055			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.018	0.000			
• SBIR/STTR Transfer	-0.377	0.000			
• Program Adjustments	0.000	0.000	5.044	0.000	5.044

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Scalable Open Architecture Upgradeable Reliable Co*	2.992	0.000
Congressional Add Subtotals for Project: 9999	2.992	0.000
Congressional Add Totals for all Projects	2.992	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604518N: *Combat Information Center Conv*	PROJECT 3094: *USW Decision 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
3094: *USW Decision Support*	14.322	13.250	5.044	0.000	5.044	5.036	5.098	5.210	5.316	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project 3094 will develop the USW-DSS that will provide ASW Control and Control capabilities which enables the CNO vision for ASW Superiority using a "coordinated, networked force of submarines, surface ships, aircraft, and Integrated Undersea Surveillance System (IUSS) assets" with "common and unambiguous views that yield unprecedented operational and tactical situational awareness and highly-detailed knowledge of the undersea environment."

USW-DSS provides capabilities to shorten C2 decision processes for detection-to-engagement across multiple platforms, including those with low-bandwidth communications or intermittent connectivity. The USW-DSS decision support tool uses a SOA encompassing existing communication links, networks, and contact pictures comprised of sensor data from air, surface, submarine, theater, and surveillance platforms to connect sensors and weapons. The capabilities delivered by USW-DSS are critical not only for the SCC but also for the TUSWC and ASWC to fulfill the requirement for an integrated capability to plan, conduct, and coordinate USW operations across multiple ASW platforms. USW-DSS will provide common and improved visualization, integrated USW platform sensor data sharing, reduced data entry, improved sensor performance predictions, data fusion, and reduced redundancy across USW TDAs. The program will provide a greater understanding of the undersea battle space by allowing the entire force (carrier/expeditionary strike group, theater, or other) to have a common and thorough understanding of the battle space with characterized uncertainties.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
USW-DSS Advanced Capability Build 2.0 Development / Integration / Test	10.876	1.375	0.000	0.000	0.000
Integrate and test additional USW-DSS tools/capabilities including Common Tactical Picture, Platform Data Fusion Integration, Cross-Platform Data Fusion, Automated Asset Allocation, Asset/Threat Sensor/Weapon Performance Prediction, Asset/Threat State Information, Enhance Vulnerability Analysis, Enhanced Allocation/Search, Improved ASW Track Management, Automated Re-planning,					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604518N: *Combat Information Center Conv*	PROJECT 3094: *USW Decision Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Engagement Target Pairing and improved Theater USW capabilities. Incorporate visualization/display service currently demonstrated as Theater ASW Composeable FORCEnet (CFn) prototype. *FY 2009 Accomplishments:* Complete integration, testing, and evaluation of new functionality in USW-DSS incremental ACB 2.0. Develop and implement upgrades based upon Operational Testing. Conduct development, integration, testing, and evaluation of ACB 2.0 upgrades and correct deficiencies identified during Operational Assessments. Integrate USW-DSS with ISNS architecture. *FY 2010 Plans:* Integrate USW-DSS with ISNS architecture.					
USW-DSS Advanced Capability Build 3.0 Development / Integration / Test Integrate and test additional/improved USW-DSS tools/capabilities based on ACB 2.0, including Enhanced Common Tactical Picture and Cross Platform Data Fusion. Begin incorporation of High Value Unit (HVU) protection planning tools for transit and sustained operating area conditions. Integrate Office of Naval Research (ONR) Decision Support Dynamic Target Engagement (DS-DTE) algorithms for asset/target pairing. Improve combat system integration to further reduce detect-to-engage timeline through AN/SQQ-89 ACB-11, CV-TSC AN/SQQ-34 Increment 2 and Surveillance Towed Array Sensor System (SURTASS) Build 4.0 design coordination. Define scaled Maritime Patrol and Reconnaissance Aircraft (MPRA) variant and support delivery to PMA 290 for P8 initial deliveries. *FY 2009 Accomplishments:* Initiate specification and architecture for USW-DSS ACB 3.0. *FY 2010 Plans:* Continue development and integration of USW-DSS increment ACB 3.0 through the peer review process.	1.375	11.175	3.894	0.000	3.894

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604518N: *Combat Information Center Conv*	PROJECT 3094: *USW Decision Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Complete development and integration of USW-DSS increment ACB 3.0. Conduct test in at-sea environment via Step 4 Peer Review Process.					
USW-DSS Advanced Capability Build 4.0 Development / Integration / Test Integrate and test additional/improved USW-DSS tools/capabilities based on ACB 3.0, including integrated mission planning/execution tools, ASW track management, situational awareness capabilities, data management (including automated recommendations) and interfaces with tactical and environmental sensors. *FY 2011 Base Plans:* Initiate specification and architecture for USW-DSS ACB 4.0.	0.000	0.000	0.650	0.000	0.650
ISNS/CANES Integration *FY 2009 Accomplishments:* Began the required integration and testing for migration to the Integrated Shipboard Network System (ISNS) (USW-DSS ACB 2.0). *FY 2010 Plans:* Continue the required integration and testing for migration to the Integrated Shipboard Network System (ISNS) (USW-DSS ACB 2.0) and begin planning for the migration to the Consolidated Automated Networks and Enterprise Services (CANES) (USW-DSS ACB 3.0 and out) for surface platforms. *FY 2011 Base Plans:* Continue the required integration and testing for the migration to the Consolidated Automated Networks and Enterprise Services (CANES) (USW-DSS ACB 3.0 and out) for surface platforms.	2.000	0.700	0.500	0.000	0.500

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604518N: *Combat Information Center Conv*	PROJECT 3094: *USW Decision Support*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
DAWDF	0.071	0.000	0.000	0.000	0.000
Defense Acquisition Workforce Development Fund *FY 2009 Accomplishments:* N/A					
Accomplishments/Planned Programs Subtotals	14.322	13.250	5.044	0.000	5.044

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/2176: *USW Support Equipment (Related Portion)*	1.781	2.697	2.613	0.000	2.613	3.693	3.664	3.757	3.825	Continuing	Continuing

D. Acquisition Strategy

-Hardware/Software integration contractor funded through SBIR Phase III contract.

E. Performance Metrics

- Reduce the Detect-to-Engage timeline, false contact rate, and false alarm rate by employing a service-orientated architecture between the sensors and weapons.
- ASW Search Plan/Mission Planning reduced from 6 hours to 1 hour between USW-DSS Build 1 and Build 2.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604518N: *Combat Information Center Conv*	PROJECT 3094: *USW Decision Support*	

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 H/W & S/W Development	WR	NAWC Patuxent River, MD	0.000	0.300	Oct 2009	0.300	Oct 2010	0.000		0.300	Continuing	Continuing	Continuing
Primary H/W & S/W Development	WR	NAVSEA Dahlgren, VA	0.000	0.501	Oct 2009	0.200	Oct 2010	0.000		0.200	Continuing	Continuing	Continuing
Primary H/W & S/W Development	WR	NAVSEA Carderock, MD	1.728	0.834	Oct 2009	0.405	Oct 2010	0.000		0.405	Continuing	Continuing	Continuing
Primary H/W & S/W Development	WR	NAVSEA Keyport, WA	2.073	0.764	Oct 2009	0.225	Oct 2010	0.000		0.225	Continuing	Continuing	Continuing
Primary H/W & S/W Development	WR	NAVSEA Newport, RI	6.728	2.693	Oct 2009	0.750	Oct 2010	0.000		0.750	Continuing	Continuing	Continuing
Primary H/W & S/W Development	WR	SSC San Diego, CA	0.550	0.300	Jan 2010	0.300	Oct 2010	0.000		0.300	Continuing	Continuing	Continuing
Primary H/W & S/W Development	WR	VAR1, (*See Remark) Various	0.839	0.000		0.000		0.000		0.000	0.000	0.839	Continuing
Primary H/W & S/W Development	C/CPFF	Adaptive Methods VA	3.086	2.012	Dec 2009	0.650	Nov 2010	0.000		0.650	Continuing	Continuing	Continuing
Primary H/W & S/W Development	C/CPFF	JHU/APL MD	1.888	0.537	Nov 2009	0.500	Nov 2010	0.000		0.500	Continuing	Continuing	Continuing
Primary H/W & S/W Development	C/CPFF	Progeny VA	6.279	2.024	Jan 2010	0.500	Nov 2010	0.000		0.500	Continuing	Continuing	Continuing
Primary H/W & S/W Development	C/CPFF	VAR2, (*See Remark) Various	2.074	2.565	Dec 2009	0.494	Nov 2010	0.000		0.494	Continuing	Continuing	Continuing
		Subtotal	25.245	12.530		4.324		0.000		4.324			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604518N: *Combat Information Center Conv*	PROJECT 3094: *USW Decision Support*	

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

* Consists of multiple performing activities with funding for each not greater than $1 million per year.

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
At-Sea Test and Evaluation	WR	VAR (*See Remark) Various	0.900	0.300	Dec 2009	0.300	Dec 2010	0.000		0.300	Continuing	Continuing	Continuing
		Subtotal	0.900	0.300		0.300		0.000		0.300			

Remarks

* Consists of multiple performing activities with funding for each not greater than $1 million 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604518N: *Combat Information Center Conv*	PROJECT 3094: *USW Decision Support*	

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	1.260	0.420	Jan 2010	0.420	Nov 2010	0.000		0.420	Continuing	Continuing	Continuing
DAWDF	Various/ Various	Not Specified Not Specified	0.071	0.000		0.000		0.000		0.000	0.000	0.071	Continuing
		Subtotal	1.331	0.420		0.420		0.000		0.420			

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	27.476	13.250		5.044		0.000		5.044			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604518N: *Combat Information Center Conv*	**PROJECT** 3094: *USW Decision Support*

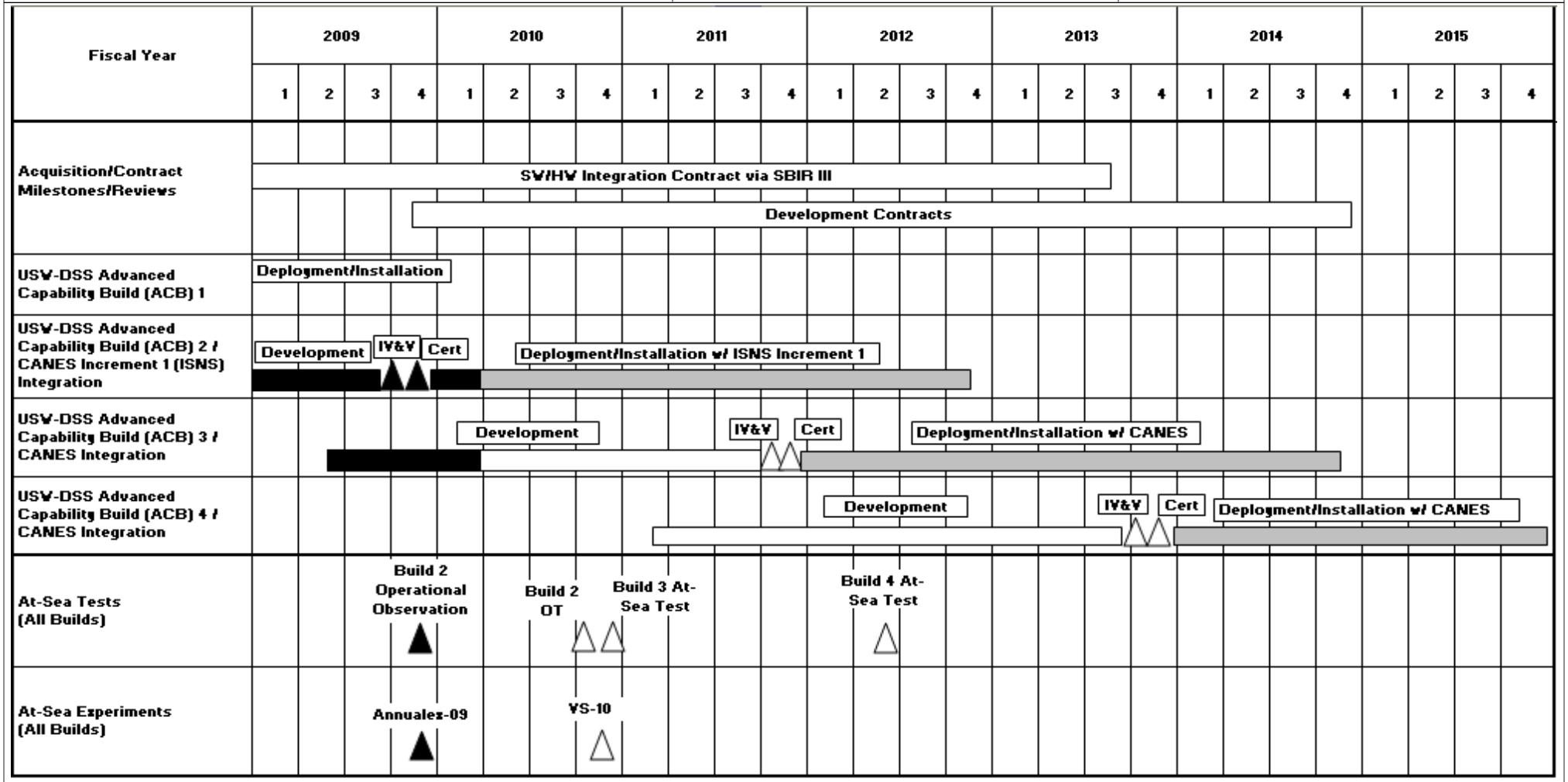


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604518N: *Combat Information Center Conv*	PROJECT 3094: *USW Decision Support*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
USW-DSS Build 1 Delivery	1	2009	1	2010
USW-DSS Build 2 Development	1	2009	3	2009
USW-DSS Build 2 Independent Validation/Verification	3	2009	4	2009
USW-DSS Build 2 Certification	4	2009	4	2009
USW-DSS Build 2 Delivery to ISNS Increment 1	4	2009	4	2012
USW-DSS Build 3 Development	2	2009	3	2011
USW-DSS Build 3 Independent Validation/Verification	4	2011	4	2011
USW-DSS Build 3 Certification	4	2011	4	2011
USW-DSS Build 3 Delivery to CANES	4	2011	4	2014
USW-DSS Build 4 Development	1	2011	3	2013
USW-DSS Build 4 Independent Validation/Verification	3	2013	4	2013
USW-DSS Build 4 Certification	4	2013	4	2013
USW-DSS Build 4 Delivery to CANES	4	2013	4	2015
USW-DSS Build 2 Operational Observation	4	2009	4	2009
ANNUALEX-09	4	2009	4	2009
USW-DSS Build 2 Operational Test	4	2010	4	2010
Valiant Shield (VS-10) Experiment	4	2010	4	2010
USW-DSS At-Sea Test - Build 3	4	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604518N: *Combat Information Center Conv*	PROJECT 3094: *USW Decision Support*

	Start		End	
Event	Quarter	Year	Quarter	Year
USW-DSS At-Sea Test - Build 4	2	2012	2	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604518N: *Combat Information Center Conv*	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*	2.992	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.872
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project 9D81A: The Scalable Open Architecture Upgradeable Reliable Computing Environment will provide infrastructure improvements to the Undersea Warfare - Decision Support System (USW-DSS - AN/UYQ-100). To meet Fleet desires to accelerate the fielding of USW-DSS, the Navy needs to migrate to a more cost effective and efficient method of fielding a more scalable, open, upgradeable, reliable computing environment (SOURCE). The focus of this effort will be an investigation into adapting and tailoring commercial standards and COTS-based hardware and open source software for SOURCE development.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Scalable Open Architecture Upgradeable Reliable Co *FY 2009 Accomplishments:* N/A	2.992	0.000
Congressional Adds Subtotals	2.992	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*							
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	184.071	184.338	155.489	0.000	155.489	151.536	144.605	147.231	161.716	Continuing	Continuing
1947: *New Design SSN HM&E*	120.468	117.540	113.711	0.000	113.711	111.279	103.984	105.692	119.314	Continuing	Continuing
1950: *New Design SSN Combat Sys Dev*	37.902	32.123	36.318	0.000	36.318	37.076	37.737	38.590	39.390	Continuing	Continuing
3062: *Submarine Multi-Mission Team Trainer*	2.762	4.401	5.460	0.000	5.460	3.181	2.884	2.949	3.012	Continuing	Continuing
9999: *Congressional Adds*	22.939	30.274	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	139.639

A. Mission Description and Budget Item Justification

The U.S. Navy must maintain a submarine fleet that is of sufficient capability and numbers to defend American interests. The VIRGINIA Class Submarine, formerly the New Attack Submarine (New SSN), is being designed to fulfill this need. It will counter the potential threats of the next century in a multi- mission capable submarine that has the ability to provide covert, sustained combat presence in denied waters. The primary goal of the program is to develop an affordable yet capable submarine by evaluating a broad range of system and technology alternatives, and pursuing cost reduction, producibility improvement, and technical risk management. This Program Element (PE) provides the technology, prototype components, and systems engineering needed to design and construct the VIRGINIA Class Submarine and build its Command, Control, Communications, and Intelligence (C3I) System. This PE directly supports the following VIRGINIA Class Submarine missions: (1) covert strike warfare; (2) anti-submarine warfare; (3) covert intelligence collection/surveillance, indication and warning, and electronic warfare; (4) anti-surface ship warfare; (5) special warfare; (6)mine warfare; and (7) battle group support.

(U) Project 3062: The Submarine Multi-Mission Team Trainer (SMMTT) funded in this RDT&E line provides the architectural foundation to replace all MIL Standard hardware with commercial emulation hardware, and rehost existing proprietary based software into COTS software systems, therefore enabling platform independence and wide area network
capability. The use of open architecture trainer systems allows for the continuous growth of functional flexibility, ultimately leading to employment training conducted for any submarine combat system.

(U) Project 9999: FY09 Congressional Plus-Ups include; Small Business Technology Insertion, Submarine Automated Test and Retest (ATRT), ASW Enhancements, Highly Corrosive Resistant Alloy Joining for Nuclear Components, and Large Scale Demonstraion Item for VIRGINIA Class. FY10 Congressional Plus-Ups include;

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604558N: *New Design SSN*

Advanced Manufacturing for Submarine Bow Domes and Rubber Boots, Mold In Place Coating Development for Submarine Fleet, Common Command Control System Module, Submarine Automated Test and Retest (ATRT), and Small Business Technology Insertion.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	189.714	154.756	0.000	0.000	0.000
Current President's Budget	184.071	184.338	155.489	0.000	155.489
Total Adjustments	-5.643	29.582	155.489	0.000	155.489
• Congressional General Reductions		-0.768			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.050			
• Congressional Adds		30.400			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-1.300	0.000			
• SBIR/STTR Transfer	-4.343	0.000			
• Program Adjustments	0.000	0.000	155.489	0.000	155.489

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Advanced Manufacturing for Sumbarine Bow Domes and Rubber Boots*	0.000	1.593
Congressional Add: *Common Command and Control System Module*	0.000	4.780
Congressional Add: *Mold in Place Coating Development for the Submarine Fleet*	0.000	1.992
Congressional Add: *Large Scale Demonstration Item For Virginia Class*	1.795	0.000
Congressional Add: *SMALL BUSINESS TECHNOLOGY INSERTION*	15.957	19.917
Congressional Add: *Highly Corrosive-Resistant Alloy Joining for Nucle*	0.798	0.000
Congressional Add: *Submarine Automated Test and Re-Test (ATRT)*	1.995	1.992
Congressional Add: *ASW Enhancements*	2.394	0.000
Congressional Add Subtotals for Project: 9999	22.939	30.274

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604558N: *New Design SSN*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add Totals for all Projects	22.939	30.274

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1947: *New Design SSN HM&E*	

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
1947: *New Design SSN HM&E*	120.468	117.540	113.711	0.000	113.711	111.279	103.984	105.692	119.314	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 all the ship system development efforts for the VIRGINIA Class Submarine and the Technology Insertion Program for reducing cost and upgrading performance of future hulls by virtue of improvements in ship and combat systems. Technology developments, training, and logistics for developmental items, and VIRGINIA Class test & evaluation are included. This project is essential for pursuit of high priority Reduced Total Ownership Cost (RTOC) initiatives while achieving balanced platform mission capability and flexibility. The thrust of these efforts will be to develop and apply multiple advanced system technologies which are integrated into the design of the VIRGINIA Class Submarine. Technologies developed in this program will, as a rule, be applicable to the Ohio Replacement Program (ORP). New technologies are being transitioned from industry and government research and development programs where doing so offers substantial performance improvement and/or affordability payoffs. Transition opportunities include those from the Defense Advanced Research Projects Agency (DARPA) Sensors & Payloads program. In the future, products from the DARPA TANGO/BRAVO Submarine technology program may transition to prototyping and/or applicability on VIRGINIA hulls.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
New Design SSN HM&E	104.512	107.015	103.061	0.000	103.061
This project encompasses all the ship system development efforts for the VIRGINIA Class Submarine and the Technology Insertion Program for reducing cost and upgrading performance of future hulls by virtue of improvements in ship and combat systems. Technology developments, training, and logistics for developmental items, and VIRGINIA Class test & evaluation are included. This project is essential for pursuit of high priority Reduced Total Ownership Cost (RTOC) initiatives while achieving balanced platform mission capability and flexibility. The thrust of these efforts will be to develop and apply multiple advanced system technologies which are integrated into the design of the VIRGINIA Class Submarine. Technologies developed in this program will, as a rule, be applicable to the Ohio Replacement Program (ORP). New technologies are being transitioned from industry and government					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1947: *New Design SSN HM&E*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
research and development programs where doing so offers substantial performance improvement and/or affordability payoffs. Transition opportunities include those from the Defense Advanced Research Projects Agency (DARPA) Sensors & Payloads program. In the future, products from the DARPA TANGO/BRAVO Submarine technology program may transition to prototyping and/or applicability on VIRGINIA hulls. *FY 2009 Accomplishments:* FY09 Accomplishments: Continued design, manufacturing, qualification testing, and logistics documentation of prototype technologies and components such as impressed current cathodic protection. Continued system verification studies, tests, and analyses in support of ship design including for example signature, hydrodynamics, materials, and survivability analyses and tests. Provided Integrated Product and Process Development (IPPD) Design/Build team support at shipyards, Navy laboratories and in-house. Continued to support ship design and construction efforts with engineering evaluations and ship integration assessments for emergent ship design and systems development issues. Continued block upgrades of Ship Control Algorithms and software. Completed shock qualification certification of large penetration components. Completed control algorithm improvements for the Turbine Generator (TG) set bearings. Initiated developments responding to SSN774 OPEVAL and TECHEVAL findings. Continued software development for Advanced Electromagnetic Silencing capability. Continued development, demonstration, and design implementation of multiple Block III Cost Reduction technologies including, for example, Large Area Bow Array, payload tubes, vendor supplied reverse osmosis, low cost sound isolation coupling, and reduced cost integrated low pressure electrolyzer and transition of Office of Naval Research Manufacturing Technology Program manufacturing process developments. Continued risk reduction design and testing of Flank Array concept. Initiated Block IV Reduced Total Ownership Costs (RTOC); i.e., Sonar Trade Studies and Business Case Analyses, Design for Affordability (DFA) Plan Development, and VIRGINIA Class Maintenance Plan Improvement.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1947: *New Design SSN HM&E*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY10 Plan: Continue block upgrades of Ship Control Algorithms and software. Continue developments responding to SSN774 OPEVAL and TECHEVAL findings. Continue software development for Advanced Electromagnetic Silencing capability. Continue development, demonstration, and design implementation of multiple Block III Cost Reduction technologies including, for example, Large Area Bow Array, payload tubes, vendor supplied reverse osmosis, low cost sound isolation coupling, and reduced cost integrated low pressure electrolyzer and transition of Office of Naval Research Manufacturing Technology Program manufacturing process developments. Develop detailed plan for Block IV Cost Reduced Total Ownership Costs (RTOC). Initiate design and model scale evaluation of Common Low Cost Sail. Implement Flank Array technology insertion plan for Block IV including Engineering Design Modules (EDM's). *FY 2011 Base Plans:* FY11 Plan: Continue developments responding to SSN774 OPEVAL and TECHEVAL findings. Complete software development for Advanced Electromagnetic Silencing capability. Acquire initial at-sea data. Complete prototype development testing for VIRGINIA Payload Tube and Large Aperture Bow Array. Continue design and development of multiple components and technologies including, for example, Large Area Bow Array, payload tubes, vendor supplied reverse osmosis, low cost sound isolation coupling, and reduced cost integrated low pressure electrolyzer incorporation into the Block III design. Continue transition of products from the Office of Naval Research Manufacturing Technology Program. Continue development of concepts and technologies for Block IV Reduced Total Ownership Cost (RTOC). Initiate detail design of Flank arrays for Block IV Implementation. Initiate Obsolescence Redesign for Block IV.					
TEST AND EVALUATION This project encompasses all the ship system development efforts for the VIRGINIA Class Submarine and the Technology Insertion Program for reducing cost and upgrading performance of future hulls	15.359	10.525	10.650	0.000	10.650

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1947: *New Design SSN HM&E*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
by virtue of improvements in ship and combat systems. Technology developments, training, and logistics for developmental items, and VIRGINIA Class test & evaluation are included. This project is essential for pursuit of high priority Reduced Total Ownership Cost (RTOC) initiatives while achieving balanced platform mission capability and flexibility. The thrust of these efforts will be to develop and apply multiple advanced system technologies which are integrated into the design of the VIRGINIA Class Submarine. Technologies developed in this program will, as a rule, be applicable to the Ohio Replacement Program (ORP). New technologies are being transitioned from industry and government research and development programs where doing so offers substantial performance improvement and/or affordability payoffs. Transition opportunities include those from the Defense Advanced Research Projects Agency (DARPA) Sensors & Payloads program. In the future, products from the DARPA TANGO/BRAVO Submarine technology program may transition to prototyping and/or applicability on VIRGINIA hulls.					
FY 2009 Accomplishments: FY09 Accomplishments: Completed Live Fire Test and Evaluation (LFT&E), TECHEVAL and OPEVAL testing, analysis, and reporting in support of Milestone III decision. Continued analysis of acoustic trials data, development of Final Operational Test and Evaluation (FOT&E) requirements and testing plans, and issue a TEMP revision. Initiated Arctic developmental and operational testing. Continued development of FOT&E requirements and testing plans for Technology Insertion (TI-08).					
FY 2010 Plans: FY10 Plan: Complete Arctic developmental and operational testing, analysis and reporting. Perform Dry Deck Shelter (DDS) developmental and operational testing, analysis, and reporting. Initiate TI-08 developmental and operational testing. Perform secure search rate operational and developmental testing. Continue development of FOT&E requirements and testing plans for Block III efforts.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1947: *New Design SSN HM&E*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY11 Plan: Complete TI-08 development and operational testing, analysis, and reporting. Continue development of FOT&E requirements and testing plans for Block III efforts.					
DAWDF *FY 2009 Accomplishments:* N/A	0.597	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	120.468	117.540	113.711	0.000	113.711

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
• SCN/2013: *VA CL*	3,573.127	3,957.409	5,132.688	0.000	5,132.688	4,730.396	4,778.041	6,127.475	6,301.397	21,384.245	82,939.403
• O&M,N/0204283N: *Submarine Opps & Safety*	44.910	53.013	59.092	0.000	59.092	58.930	58.665	59.762	60.854	Continuing	Continuing
• OPN/0942: *VA CL Support Equipment*	189.336	93.385	132.039	0.000	132.039	139.878	159.468	64.681	62.741	Continuing	Continuing

D. Acquisition Strategy

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN) to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and NGNN became a part of the IPPD process. The Program Office is managing two multi-year contracts the first is for the FY04-08 ships and the second was awarded in December 2008 for the FY09-13 ships.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604558N: *New Design SSN*	**PROJECT** 1947: *New Design SSN HM&E*

E. Performance Metrics

Successful completion of Milestone III Review. Successful completion of Final Operational Test and Evaluation (FOT&E) for Technology Insertion (TI)-08 and Block III. Successful implementation of Reduced Total Ownership (RTOC) initiatives

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1947: *New Design SSN HM&E*

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 Development1	C/TBD	Electric Boat Groton, CT	150.484	35.067	Nov 2009	65.552	Nov 2010	0.000		65.552	306.534	557.637	557.637
Component Development	PO	Supervisor of Shipbuilding Groton, CT	51.135	5.947	Jan 2010	0.117	Jan 2011	0.000		0.117	0.000	57.199	57.199
Component Development	WR	NSWC Carderock, MD	563.093	28.223	Nov 2009	14.286	Nov 2010	0.000		14.286	48.139	653.741	653.741
Component Development	WR	NUWC Newport, RI	100.905	6.019	Nov 2009	4.970	Nov 2010	0.000		4.970	13.901	125.795	125.795
Miscellaneous	Various/ Various	Various Various	43.234	2.000	Jan 2010	3.071	Dec 2010	0.000		3.071	0.455	48.760	48.760
Component Development2	C/TBD	Electric Boat Groton, CT	22.964	0.000		0.000		0.000		0.000	0.000	22.964	22.964
Component Development3	C/CPFF	Lockheed Martin Syracuse, NY	2.070	0.000		0.000		0.000		0.000	0.000	2.070	2.070
Component Development4	C/CPFF	Lockheed Martin Syracuse, NY	14.643	4.800	Dec 2009	2.200	Dec 2010	0.000		2.200	0.000	21.643	21.643
Component Development5	C/TBD	Electric Boat Groton, CT	22.597	23.459	Dec 2009	11.648	Dec 2010	0.000		11.648	3.105	60.809	60.809
		Subtotal	971.125	105.515		101.844		0.000		101.844	372.134	1,550.618	1,550.618

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1947: *New Design SSN HM&E*

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	Electric Boat Groton, CT	0.899	0.000		0.000		0.000		0.000	0.000	0.899	0.899
Test and Evaluation	WR	NSWC Carderock, MD	88.693	1.714	Nov 2009	1.597	Nov 2010	0.000		1.597	18.787	110.791	110.791
Test and Evaluation	WR	NUWC Newport, RI	97.408	5.686	Nov 2009	5.289	Nov 2010	0.000		5.289	44.783	153.166	153.166
Test and Evaluation	C/CPAF	SEAPORT D7019 Rockville, MD	18.417	0.470	Nov 2009	0.490	Nov 2010	0.000		0.490	1.100	20.477	20.477
Test and Evaluation	C/TBD	Progeny 06C6256 VA	2.856	0.585	Dec 2009	0.604	Dec 2010	0.000		0.604	3.500	7.545	7.545
Test and Evaluation	PO	COMOPTEVFOR PD	10.288	1.700	Nov 2009	2.300	Nov 2010	0.000		2.300	15.045	29.333	29.333
Test and Evaluation	C/Various	Miscellaneous Various	11.842	0.300	Nov 2009	0.300	Nov 2010	0.000		0.300	6.850	19.292	19.292
Test and Evaluation	WR	NSWC Dahlgren, VA	0.245	0.070	Nov 2009	0.070	Nov 2010	0.000		0.070	0.000	0.385	0.385
		Subtotal	230.648	10.525		10.650		0.000		10.650	90.065	341.888	341.888

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1947: *New Design SSN HM&E*

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/CPAF	SEAPORT D7019 Rockville, MD	18.025	1.500	Nov 2009	1.217	Nov 2010	0.000		1.217	2.524	23.266	23.266
Travel	PO	var Not Specified	1.919	0.000		0.000		0.000		0.000	0.000	1.919	1.919
DAWDF	Various/ Various	var Not Specified	0.597	0.000		0.000		0.000		0.000	0.000	0.597	0.597
		Subtotal	20.541	1.500		1.217		0.000		1.217	2.524	25.782	25.782

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	1,222.314	117.540		113.711		0.000		113.711	464.723	1,918.288	1,918.288

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604558N: *New Design SSN*	**PROJECT** 1947: *New Design SSN HM&E*

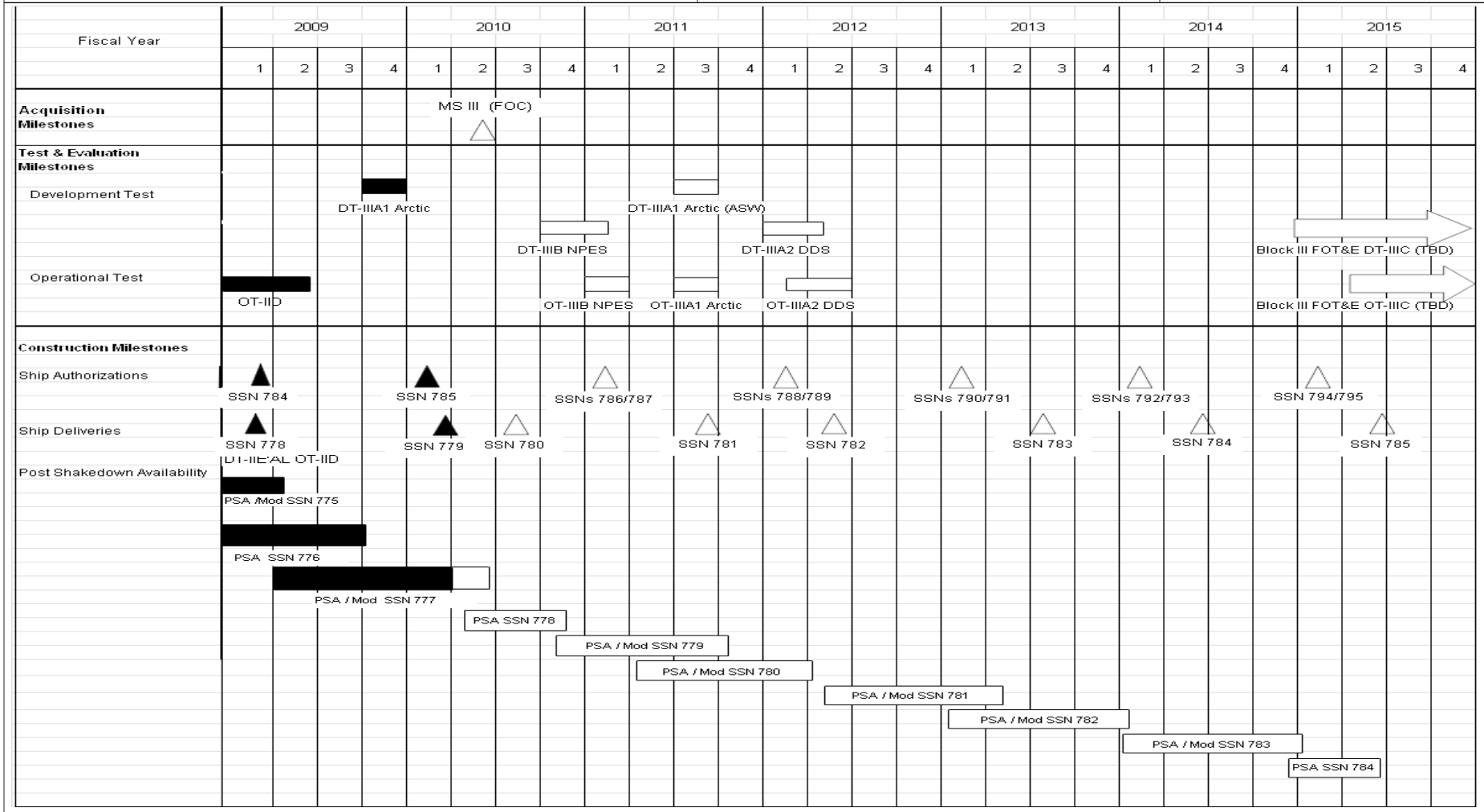


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1947: *New Design SSN HM&E*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Ship Authorization (SSN 784)	1	2009	1	2009
Post PSA Modernization (SSN 775)	1	2009	2	2009
Post Shakedown Availability (PSA SSN 776)	1	2009	3	2009
Post PSA Modernization (SSN 776)	1	2009	3	2009
Post Shakedown Availability (PSA SSN 777)	2	2009	2	2010
Post PSA Modernization (SSN 777)	2	2009	2	2010
DT-IIIA1 (Arctic)	4	2009	4	2009
Ship Authorization (SSN 785)	1	2010	1	2010
Ship Delivery (SSN 779)	1	2010	1	2010
Milestone III (MSIII)	2	2010	2	2010
Full Operational Capability (FOC)	2	2010	2	2010
Post Shakedown Availability (PSA SSN 778)	2	2010	4	2010
Ship Delivery (SSN 780)	3	2010	3	2010
Post Shakedown Availability (SSN 779)	4	2010	4	2011
Post PSA Modernization (SSN 779)	4	2010	4	2011
DT-IIIB (NPES)	4	2010	1	2011
OT-IIIB (NPES)	1	2011	1	2011
Ship Authorization (SSN 786/787)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1947: *New Design SSN HM&E*

	Start		End	
Event	Quarter	Year	Quarter	Year
Post Shakedown Availability (PSA SSN 780)	2	2011	2	2012
Post PSA Modernization (SSN 780)	2	2011	2	2012
Ship Delivery (SSN 781)	3	2011	3	2011
OT-IIIA1 (Arctic)	3	2011	3	2011
Ship Authorization (SSNs 788/789)	1	2012	1	2012
DT-IIIA2 (DDS)	1	2012	2	2012
OT-IIIA2 (DDS)	1	2012	2	2012
Ship Delivery (SSN 782)	2	2012	2	2012
Post Shakedown Availability (PSA SSN 781)	2	2012	2	2013
Post PSA Modernization (SSN 781)	2	2012	2	2013
Ship Authorization (SSNs 790/791)	1	2013	1	2013
Post Shakedown Availability (SSN 782)	1	2013	1	2014
Post PSA Modernization (SSN 782)	1	2013	1	2014
Ship Delivery (SSN 783)	3	2013	3	2013
Ship Authorization (SSNs 792/793)	1	2014	1	2014
Post Shakedown Availability (SSN 783)	1	2014	1	2015
Post PSA Modernization (SSN 783)	1	2014	1	2015
Ship Delivery (SSN784)	2	2014	2	2014
Post Shakedown Availability (SSN 784)	4	2014	2	2015
Ship Authorization (SSNs 794-795)	1	2015	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1947: *New Design SSN HM&E*

	Start		End	
Event	Quarter	Year	Quarter	Year
Ship Delivery (SSN 785)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1950: *New Design SSN Combat 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
1950: *New Design SSN Combat Sys Dev*	37.902	32.123	36.318	0.000	36.318	37.076	37.737	38.590	39.390	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

A. (U) Mission Description and Budget Item Justification: (U) This project encompasses the top level systems development, test and integration into the ship of the VIRGINIA Class Submarine C3I System (formerly referred to as Combat Systems), which includes multiple subsystems. The scope of the system is expanded from Sonar and Combat Control
subsystems to include AN/BLQ-10 Electronic Support (ES) Measures, Exterior Communications, Submarine Regional Warfare System, Navigation, Total Ship Monitoring, Imaging, Tactical Acoustic Communications, Radar, Interior Communications, Tactical Support Devices, Fiber Optic Cable Subsystem, and Special Purpose Subsystems, such as Battle Force Team Trainer and others. VIRGINIA Class Submarine specific development efforts include requirements definition, software, hardware development, software/hardware test, prototype production, and electronic integration as well as physical integration into the platform.

(U) The VIRGINIA Class Submarine implementation approach is based on Open System, Commercial-off-the-Shelf (COTS) Non-Developmental Items or subsystems. The program leverages on-going subsystems developments or developing new subsystems where needed to satisfy VIRGINIA Class requirements. The recurring cost of VIRGINIA Class Submarine C3I Systems is being reduced to meet the program's affordability goals. Modifications to many subsystems must be developed to: (1) reduce the shipbuilding and construction recurring costs through the use of COTS components; (2) use proven computer technologies to evolve to an Open System design; (3) enhance capabilities to support expanded operational
requirements, reduced manning, and reduced shipboard component footprint.

(U) To meet the collective future threat, the submarine force must operate as effectively in littoral regions as it traditionally has in open ocean. Close coordination with surface battle groups and airborne units is essential to mission accomplishment. To meet the VIRGINIA Class Submarine mission, the following capabilities are provided by the
VIRGINIA Class Submarine C3I System: (1) Passive and Active detection of multiple contacts, including early warning threat determination through processing and analysis of sensor data; (2) classification of sensor data for the purpose of identifying contacts; (3) localization (tracking) of contacts through target motion analysis; (4) preset, launch, and control of weapons and countermeasures; (5) improved communication and connectivity with other battle group elements, airborne units, and special operations forces; (6) incorporation of vertical launch system to enhance strike warfare; and (7) more effective covert surveillance through video imaging with onboard digital enhancement capabilities, and improved electronic warfare analysis capabilities.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1950: *New Design SSN Combat Sys Dev*

(U) The F1950 project mission includes an ongoing post VIRGINIA Class TECH/OPEVAL RDT&E effort to continue the development of VIRGINIA Unique Combat System Improvements. The VIRGINIA Class C3I will continue to leverage backfit communities efforts, but even with common systems that the Navy has developed there will continue to be VIRGINIA Unique
capability improvements required. The FY09 and out funding identified is for those efforts.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Sonar Combat Control and Architecture Subsystems	11.554	17.393	19.443	0.000	19.443
FY 2009 Accomplishments: FY09 Accomplishments: Completed Live Fire Test and Evaluation (LFT&E), TECHEVAL and OPEVAL testing, analysis, and reporting in support of Milestone III decision. Continued analysis of acoustic trials data, development of Final Operational Test and Evaluation (FOT&E) requirements and testing plans, and issue a TEMP revision. Initiated Arctic developmental and operational testing. Continued development of FOT&E requirements and testing plans for Technology Insertion (TI-08). *FY 2010 Plans:* FY10 Plan: Continue the development of S/CC/A System Improvements to maintain VIRGINIA Class Commonality to backfit fleet. *FY 2011 Base Plans:* FY11 Plan: Continue the development of S/CC/A System Improvements to maintain VIRGINIA Class Commonality to backfit fleet.					
C3I Systems Engineering	26.153	14.730	16.875	0.000	16.875
This project encompasses the top level systems development, test and integration into the ship of the VIRGINIA Class Submarine C3I System (formerly referred to as Combat Systems), which includes multiple subsystems. The scope of the system is expanded from Sonar and Combat Control subsystems to include AN/BLQ-10 Electronic Support (ES) Measures, Exterior Communications,					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1950: *New Design SSN Combat Sys Dev*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Submarine Regional Warfare System, Navigation, Total Ship Monitoring, Imaging, Tactical Acoustic Communications, Radar, Interior Communications, Tactical Support Devices, Fiber Optic Cable Subsystem, and Special Purpose Subsystems, such as Battle Force Team Trainer and others. VIRGINIA Class Submarine specific development efforts include requirements definition, software, hardware development, software/hardware test, prototype production, and electronic integration as well as physical integration into the platform. *FY 2009 Accomplishments:* FY09 Accomplishments: Completed development of high priority ship safety/self-protect and mission specific deficiencies identified during integration and lead ship sea test efforts including DT and OT events. Continued the development of System Level and other subsystem Improvements to maintain VIRGINIA Class Commonality to backfit fleet. *FY 2010 Plans:* FY10 Plan: Continue the development of System Level and other subsystem Improvements to maintain VIRGINIA Class Commonality to backfit fleet. *FY 2011 Base Plans:* FY11 Plan: Continue the development of System Level and other subsystem Improvements to maintain VIRGINIA Class Commonality to backfit fleet.					
DAWDF *FY 2009 Accomplishments:* N/A	0.195	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	37.902	32.123	36.318	0.000	36.318

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1950: *New Design SSN Combat 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
• SCN/2013: *VA CL*	3,573.127	3,957.409	5,132.688	0.000	5,132.688	4,730.396	4,778.041	6,127.475	6,301.397	21,384.245	82,939.403
• O&M,N/0204283N: *Enter Other Funding Description.*	44.910	53.013	59.092	0.000	59.092	58.930	58.665	59.762	60.854	0.000	395.226
• OPN/0942: *VA CL Support Equipment*	189.336	93.385	132.039	0.000	132.039	139.888	159.468	64.681	62.741	0.000	841.538

D. Acquisition Strategy

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN) to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and NGNN became a part of the IPPD process. The Program Office is managing two multi-year contracts the first is for the FY04-08 ships and the second was awarded in December 2008 FY09-13 ships.

E. Performance Metrics

Successful completion of Milestone III Review. Successful completion of Final Operational Test and Evaluation (FOT&E) for Technology Insertion (TI)-08 and Block III. Successful implementation of Reduced Total Ownership (RTOC) initiatives

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1950: *New Design SSN Combat 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
PTR Corrections	Various/ TBD	Various TBD	30.088	0.000		0.000		0.000		0.000	0.000	30.088	30.088
Unique Virginia Class Improvements	Various/ TBD	Various TBD	8.854	10.491	Nov 2009	13.254	Nov 2010	0.000		13.254	55.098	87.697	87.697
Advanced Display Sys (AN/UYQ-70)	SS/CPIF	Lockheed St. Paul, MN	30.086	1.019	Nov 2009	1.038	Nov 2010	0.000		1.038	13.712	45.855	45.855
Photonics	C/CPIF	Kollmorgen Northampton, MA	39.688	1.300	May 2010	1.500	May 2011	0.000		1.500	3.610	46.098	46.098
Electronic Support Measures	C/FFP	Lockheed Syracuse, NY	38.067	0.000		0.000		0.000		0.000	6.410	44.477	44.477
Platform Integration	SS/CPFF	Electric Boat Groton, CT	43.276	1.100	Nov 2009	1.200	Nov 2010	0.000		1.200	10.523	56.099	56.099
Technology Refreshment	Various/ Various	Various TBD	20.355	0.000		0.000		0.000		0.000	0.000	20.355	20.355
Technical Direction Agent	WR	NUWC Newport, RI	257.505	8.000	Jan 2010	8.000	Jan 2011	0.000		8.000	11.158	284.663	284.663
Technology Refreshment/Info. Assurance	C/CPFF	Progeny Systems Manassas, VA	28.986	1.200	Nov 2009	1.500	Nov 2010	0.000		1.500	3.710	35.396	35.396
Systems Engineering	WR	NSWC Carderock, MD	7.923	0.720	Nov 2009	0.800	Nov 2010	0.000		0.800	0.000	9.443	9.443
Systems Engineering	WR	SSC Charleston, SC	5.046	0.500	Nov 2009	0.500	Nov 2010	0.000		0.500	2.300	8.346	8.346
Systems Engineering	WR	NUWC Keyport, WA	10.053	0.200	Nov 2009	0.225	Nov 2010	0.000		0.225	7.387	17.865	17.865

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1950: *New Design SSN Combat 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
Miscellaneous	Various/ Various	Various TBD	115.552	5.243		5.801		0.000		5.801	24.550	151.146	151.146
		Subtotal	635.479	29.773		33.818		0.000		33.818	138.458	837.528	837.528

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
Various	Various/ Various	Various TBD	6.212	0.000		0.000		0.000		0.000	0.000	6.212	6.212
		Subtotal	6.212	0.000		0.000		0.000		0.000	0.000	6.212	6.212

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1950: *New Design SSN Combat Sys Dev*

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 Support Services/ETS	C/CPAF	EG&G Rockville, MD	16.921	2.350	Dec 2009	2.500	Dec 2010	0.000		2.500	14.335	36.106	36.106
DAWDF	Various/ Various	Various Various	0.195	0.000		0.000		0.000		0.000	0.000	0.195	0.195
		Subtotal	17.116	2.350		2.500		0.000		2.500	14.335	36.301	36.301

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	658.807	32.123		36.318		0.000		36.318	152.793	880.041	880.041

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1950: *New Design SSN Combat Sys Dev*

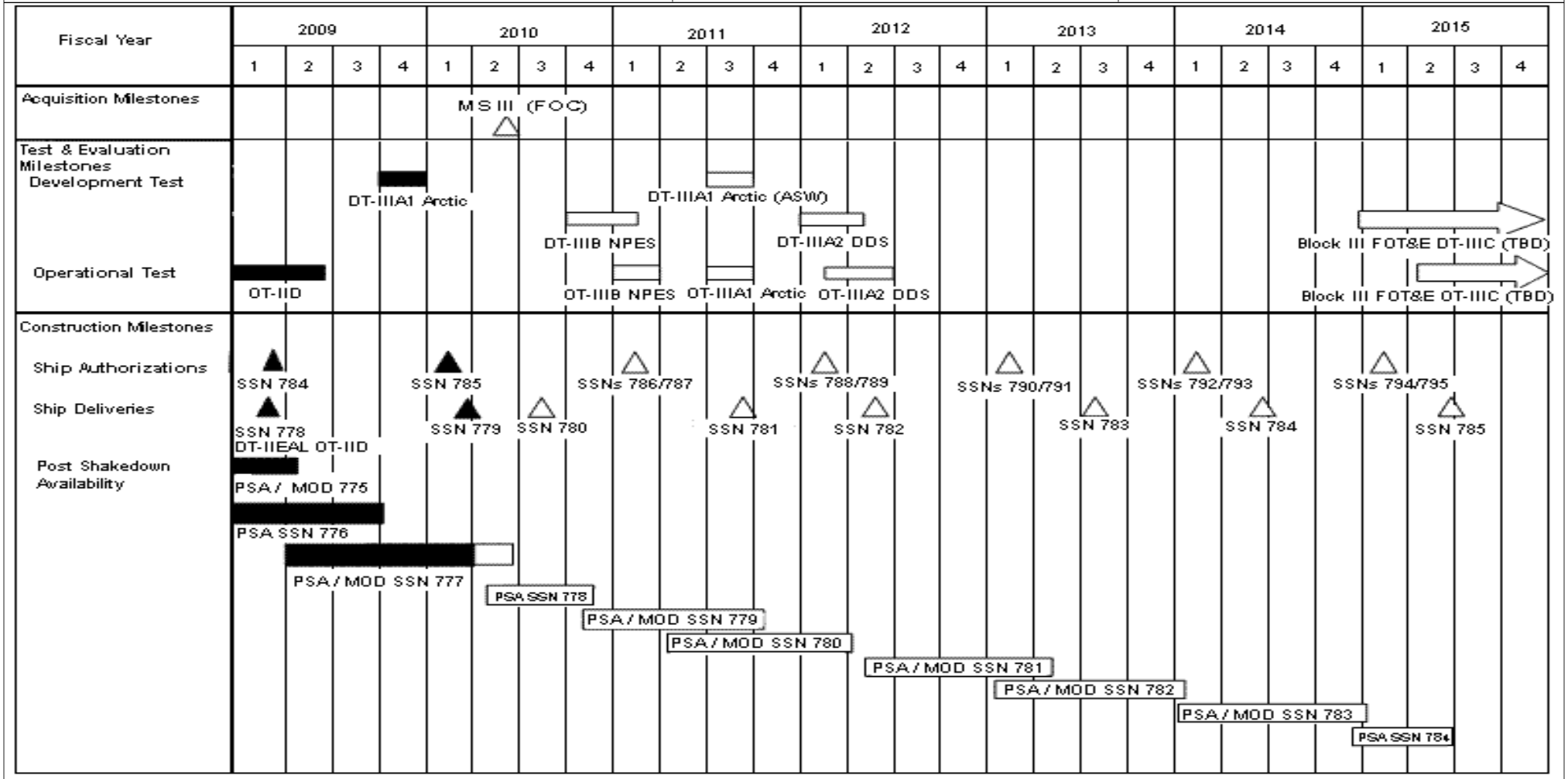


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1950: *New Design SSN Combat Sys Dev*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Ship Authorization (SSN 784)	1	2009	1	2009
Post PSA Modernization (SSN 775)	1	2009	2	2009
Post Shakedown Availability (PSA SSN 776)	1	2009	3	2009
Post PSA Modernization (SSN 776)	1	2009	3	2009
Post Shakedown Availability (PSA SSN 777)	2	2009	2	2010
Post PSA Modernization (SSN 777)	2	2009	2	2010
DT-IIIA1 (Arctic)	4	2009	4	2009
Ship Authorization (SSN 785)	1	2010	1	2010
Ship Delivery (SSN 779)	1	2010	1	2010
Milestone III (MSIII)	2	2010	2	2010
Full Operational Capability (FOC)	2	2010	2	2010
Post Shakedown Availability (PSA SSN 778)	2	2010	4	2010
Ship Delivery (SSN 780)	3	2010	3	2010
Post Shakedown Availability (SSN 779)	4	2010	4	2011
Post PSA Modernization (SSN 779)	4	2010	4	2011
DT-IIIB (NPES)	4	2010	1	2011
OT-IIIB (NPES)	1	2011	1	2011
Ship Authorization (SSN 786/787)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1950: *New Design SSN Combat Sys Dev*

	Start		End	
Event	Quarter	Year	Quarter	Year
Post Shakedown Availability (PSA SSN 780)	2	2011	2	2012
Post PSA Modernization (SSN 780)	2	2011	2	2012
Ship Delivery (SSN 781)	3	2011	3	2011
OT-IIIA1 (Arctic)	3	2011	3	2011
Ship Authorization (SSNs 788/789)	1	2012	1	2012
DT-IIIA2 (DDS)	1	2012	2	2012
OT-IIIA2 (DDS)	1	2012	2	2012
Ship Delivery (SSN 782)	2	2012	2	2012
Post Shakedown Availability (PSA SSN 781)	2	2012	2	2013
Post PSA Modernization (SSN 781)	2	2012	2	2013
Ship Authorization (SSNs 790/791)	1	2013	1	2013
Post Shakedown Availability (SSN 782)	1	2013	1	2014
Post PSA Modernization (SSN 782)	1	2013	1	2014
Ship Delivery (SSN 783)	3	2013	3	2013
Ship Authorization (SSNs 792/793)	1	2014	1	2014
Post Shakedown Availability (SSN 783)	1	2014	1	2015
Post PSA Modernization (SSN 783)	1	2014	1	2015
Ship Delivery (SSN784)	2	2014	2	2014
Post Shakedown Availability (SSN 784)	4	2014	2	2015
Ship Authorization (SSNs 794-795)	1	2015	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 1950: *New Design SSN Combat Sys Dev*

	Start		End	
Event	Quarter	Year	Quarter	Year
Ship Delivery (SSN 785)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 3062: *Submarine Multi-Mission Team Trainer*	

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
3062: *Submarine Multi-Mission Team Trainer*	2.762	4.401	5.460	0.000	5.460	3.181	2.884	2.949	3.012	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

To achieve desired submarine force readiness levels, it is necessary to construct highly sophisticated shore based Combat System Team Trainers capable of training personnel in all aspects of submarine approach, attack and surveillance operations in a controlled, simulated environment. The Combat Control System (CCS) MK1, CCS MK2, and AN/BYG-1, along with sonar systems AN/BSY-1, AN/BQQ-5, and AN/BQQ-10 are installed on SSN and SSGN Class submarines. These tactical systems are planned for future upgrades with the next hardware and software revisions which will provide enhanced war fighter capabilities. The Tactical Acoustic Rapid COTS (commercial-off-the-shelf) Insertion (ARCI) Phased upgrades are also being installed with future revisions. The Advanced Processing Builds (APB) and Technical Insertion (TI) sensors, which feed technology insertion into the CCS/Acoustic development, directly impact the trainers.

The Submarine Multi-Mission Team Trainer (SMMTT) supports operator, employment, strike, and Battle Group training for enlisted and officer pipelines. The SMMTT providesoperators and combat teams the opportunity to train ashore, prior to, and between deployments. The shore based training provides a means of maintaining team proficiency in stand alone or in combined team mode prior to ship deployment.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Submarine Multi-Mission Team Trainer	2.748	4.401	5.460	0.000	5.460
To achieve desired submarine force readiness levels, it is necessary to construct highly sophisticated shore based Combat System Team Trainers capable of training personnel in all aspects of submarine approach, attack and surveillance operations in a controlled, simulated environment.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 3062: *Submarine Multi-Mission Team Trainer*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY09 Developed implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. *FY 2010 Plans:* FY10 Develops implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. This effort also includes new sensor developments and simulation to match advancements in tactical systems supported by SMMTT. *FY 2011 Base Plans:* FY10 Develops implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. This effort also includes new sensor developments and simulation to match advancements in tactical systems supported by SMMTT.					
Defense Acquisition Workforce *FY 2009 Accomplishments:* DAWDF	0.014	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	2.762	4.401	5.460	0.000	5.460

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/566100: *Submarine Training Device Mods*	27.413	17.313	26.603	0.000	26.603	30.727	16.767	17.103	17.443	Continuing	Continuing

D. Acquisition Strategy

The SMMTT program software development is accounted for in this RDT&E line. All production kits are procured in OPN PE 0804731N BLI 566100, cost code TD009.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604558N: *New Design SSN*	**PROJECT** 3062: *Submarine Multi-Mission Team Trainer*

E. Performance Metrics

Within 90 days of introduction to the Fleet, this RDTEN project shall develop required changes to the Control's & Display's Documentation and Interface Description Language (IDL) Interfaces for the initial development for new sensors that are required to simulate/stimulate that TI/APB for the AN/BQQ-5 and AN/BYG-1 in the Submarine Multi-Mission Team Trainer.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 3062: *Submarine Multi-Mission Team Trainer*

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	Reqn	NSWC/CD Bethesda, MD	10.940	4.001	Dec 2009	5.060	Dec 2010	0.000		5.060	10.426	30.427	30.427
Component Development	C/CPFF	ARL UT Austin	0.755	0.400	Jan 2010	0.400	Jan 2011	0.000		0.400	1.600	3.155	3.155
		Subtotal	11.695	4.401		5.460		0.000		5.460	12.026	33.582	33.582

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	11.695	4.401		5.460		0.000		5.460	12.026	33.582	33.582

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604558N: *New Design SSN*	**PROJECT** 3062: *Submarine Multi-Mission Team Trainer*

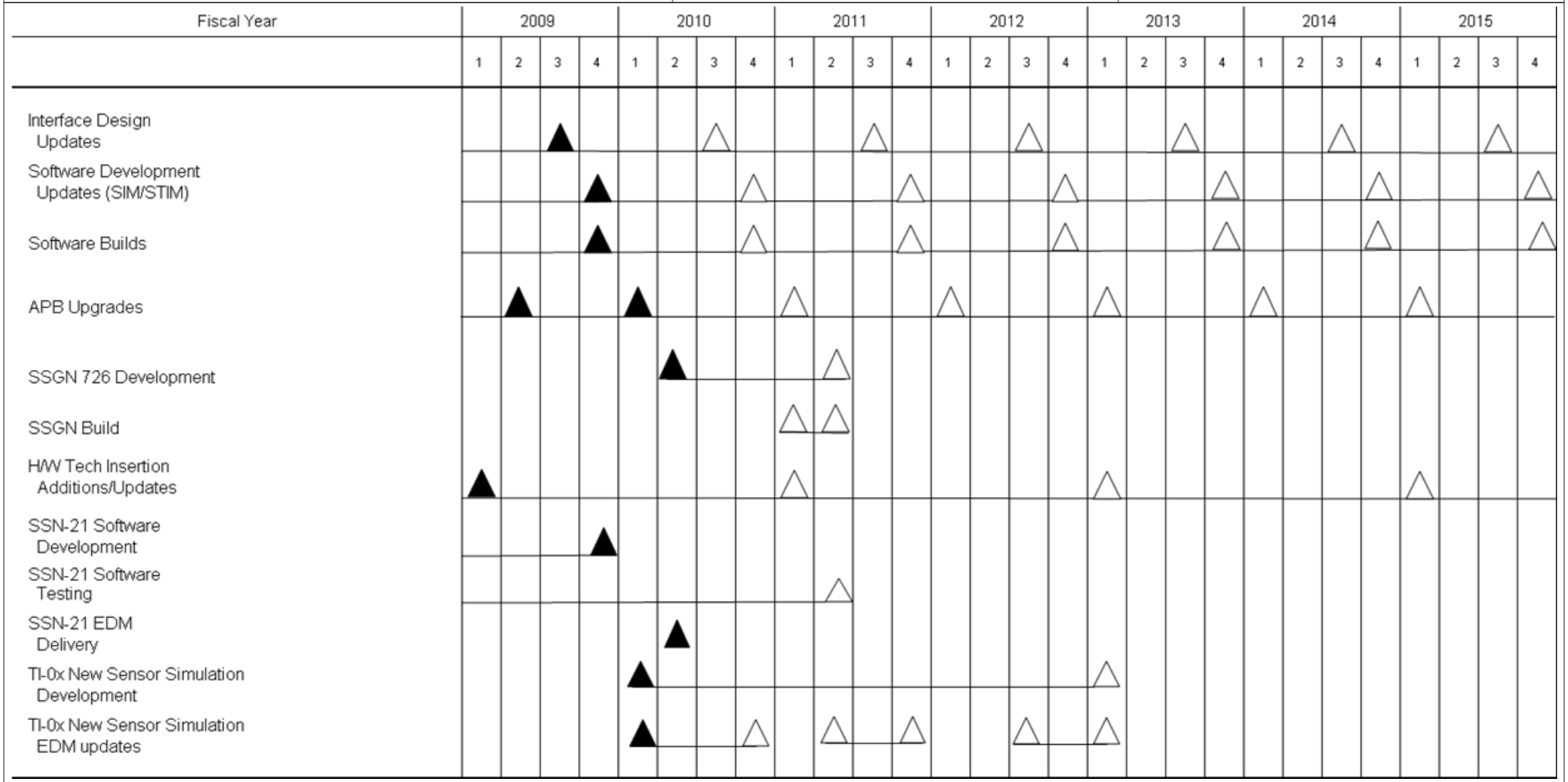


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 3062: *Submarine Multi-Mission Team Trainer*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Interface Design Updates	3	2009	3	2015
Software Development Updates (SIM/STIM)	4	2009	4	2015
Software Builds	4	2009	4	2015
Advanced Processing Build (APB) Upgrades	2	2009	1	2015
SSGN 726 Development	2	2010	2	2011
SSGN Build	1	2011	2	2011
Hard Ware Tech Insertion Updates	1	2009	1	2015
SSN 21 Software Development	1	2009	4	2009
SSN 21 Software Testing	1	2009	2	2011
SSN 21 EDM Delivery	2	2010	2	2010
TI-0x New Sensor Simulation Development	1	2010	1	2013
TI-0x New Sensor Simulation EDM Updates	1	2010	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	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*	22.939	30.274	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	139.639
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 Manufacturing for Sumbarine Bow Domes and Rubber Boots *FY 2010 Plans:* Develop manufacturing processes for bow domes w/o autoclave	0.000	1.593
Congressional Add: Common Command and Control System Module *FY 2010 Plans:* Develop a Common Command and Control System Module for submarines that is less costly and facilitates more efficient upgrades / changes and use of personnel.	0.000	4.780
Congressional Add: Mold in Place Coating Development for the Submarine Fleet *FY 2010 Plans:* Development of Mold-In-Place (or Cast-In-Place) technology for composite bow domes.	0.000	1.992
Congressional Add: Large Scale Demonstration Item For Virginia Class	1.795	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: Complete efforts associated with manufacturing a composite bow dome with the objective of establishing an alternate source for submarine bow domes.		
Congressional Add: SMALL BUSINESS TECHNOLOGY INSERTION *FY 2009 Accomplishments:* Research and development efforts for fresh, creative, and innovative solutions to the Navy's requirements for high risk/high reward components of submarine combat system development. Various combat system component technology insertions/upgrades (torpedo, photonics, navigation data distribution, etc.) to reduce the cost of ship acquisition. *FY 2010 Plans:* Research and development efforts for fresh, creative, and innovative solutions to the Navy's requirements for high risk/high reward components of submarine combat system development. Various combat system component technology insertions/upgrades (torpedo, photonics, navigation data distribution, etc.) to reduce the cost of ship acquisition.	15.957	19.917
Congressional Add: Highly Corrosive-Resistant Alloy Joining for Nucle *FY 2009 Accomplishments:* Highly Corrosive-Resist Alloy Joining for Nuclear Applications Assist the Naval Nuclear Propulsion Program Laboratory in developing a system for packaging and sealing nuclear material in highly corrosion-resistant alloy cans for disposal.	0.798	0.000
Congressional Add: Submarine Automated Test and Re-Test (ATRT)	1.995	1.992

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604558N: *New Design SSN*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: Submarine Automated Test and Re-Test (ATRT) Develop an application to use Automated Test and Re-Test (ATRT) technology in testing of submarine systems. *FY 2010 Plans:* Submarine Automated Test and Re-Test (ATRT) Develop an application to use Automated Test and Re-Test (ATRT) technology in testing of submarine systems.		
Congressional Add: ASW Enhancements *FY 2009 Accomplishments:* Conduct analyses to support high priority performance issues with the outboard sonar sensors needed for ship safety/self protect. Consider engineering required for the migration of the Acoustic-Rapid COTS Insertion (ARCI) inboard processing to align with the (backfit) TI-10 baseline.	2.394	0.000
Congressional Adds Subtotals	22.939	30.274

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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical 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**
Total Program Element	64.526	67.024	50.537	0.000	50.537	53.826	54.757	55.997	57.152	Continuing	Continuing
0236: *SSN Comb Cont Sys Imprvmnt (ENG)*	56.548	59.455	50.537	0.000	50.537	53.826	54.757	55.997	57.152	Continuing	Continuing
9999: *Congressional Adds*	7.978	7.569	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	27.406

A. Mission Description and Budget Item Justification

Project Unit 0236: This program develops Commercial-Off-The-Shelf (COTS) based software and hardware upgrades to integrate improved tactical and weapons control capabilities for multiple submarine Classes (SSN688, SSGN, SEAWOLF, and VIRGINIA (Post Shakedown Availability). The AN/BYG-1 is the combat control system common across submarine platforms which incorporates tactical control, weapon control and tactical Local Area Network (LAN) functions into a single development program. The hardware upgrades (technology insertions (TI's) are developed on a biennial basis to provide improved capability and address COTS obsolescence. Funding also accommodates the biennial integration of software Advanced Processing Builds (APBs) for both tactical control (APB(T) and weapon control (APB(W)) subsystems. The tactical control integration effort incorporates the integration of other sensor (ESM, sonar, radar, etc.) inputs to provide a common operation picture and improved situational awareness in an information assurance (IA) compliant environment. The weapon control development effort provides improvements to the weapons control subsystem based on improvements to missiles and torpedoes. AN/BYG-1 allows the submarine Navy to rapidly update the ship safety tactical picture, integrates the common tactical picture into the battlegroup, improves torpedo interfaces and provides Tactical TOMAHAWK (TOMAHAWK Block IV) capability.

This program also develops and tests a Common Weapon Launcher, a COTS-based software weapons launch capability for Virginia Class submarines. This upgrade provides a more reliable capability for launching missiles and torpedoes from submarines while providing the architecture to support the introduction of the next generation of payloads and sensors. This new design will also reduce the recurring costs of VA Class submarine weapon launch systems.

Project Unit 9999 is comprised of FY09 congressional adds for Submarine Maintenance Automation and Communication System, Advanced Tactical Control System, Water Space Management Navigation Decision Aid and Submarine Environment for Evaluation and Development. FY10 congressional adds for Artificial Intelligence-Based Combat System Kernel, Submarine System Biometrics Access Control and Submarine Environment for Evaluation and Development.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604562N: *Submarine Tactical Warfare System*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	66.364	59.703	0.000	0.000	0.000
Current President's Budget	64.526	67.024	50.537	0.000	50.537
Total Adjustments	-1.838	7.321	50.537	0.000	50.537
• Congressional General Reductions		-0.279			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		7.600			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.838	0.000			
• Program Adjustments	0.000	0.000	50.537	0.000	50.537

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Artificial Intelligence-Based Combat System Kernel*	0.000	3.187
Congressional Add: *Submarine System Biometrics Access Control*	0.000	1.992
Congressional Add: *SUBMARINE MAINTENANCE AUTOMATION AND COMMUNICATION*	1.596	0.000
Congressional Add: *Advanced Tactical Control System*	1.596	0.000
Congressional Add: *Submarine Environment for Evaluation and Developme*	2.393	2.390
Congressional Add: *Water Space Management Navigation Decision Aid*	2.393	0.000
Congressional Add Subtotals for Project: 9999	7.978	7.569
Congressional Add Totals for all Projects	7.978	7.569

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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604562N: *Submarine Tactical Warfare System*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*	

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
0236: *SSN Comb Cont Sys Imprvmnt (ENG)*	56.548	59.455	50.537	0.000	50.537	53.826	54.757	55.997	57.152	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project Unit 0236: This program develops Commercial-Off-The-Shelf (COTS) based software and hardware upgrades to integrate improved tactical and weapons control capabilities for multiple submarine Classes (SSN 688, SSGN, SEAWOLF, and VIRGINIA (Post Shakedown Availability). The AN/BYG-1 is the combat control system common across submarine platforms which incorporates tactical control, weapon control and tactical Local Area Network (LAN) functions into a single development program. The hardware upgrades (technology insertions (TI's) are developed on a biennial basis to provide improved capability and address COTS obsolescence. Funding also accommodates the biennial integration of software Advanced Processing Builds (APBs) for both tactical control (APB T) and weapon control (APB W) subsystems. The tactical control integration effort incorporates the integration of other sensor (ESM, sonar, radar, etc.) inputs to provide a common operation picture and improved situational awareness in an information assurance (IA) compliant environment. The weapon control development effort provides improvements to the weapons control subsystem based on improvements to missiles and torpedoes. AN/BYG-1 allows the submarine Navy to rapidly update the ship safety tactical picture, integrates the common tactical picture into the battlegroup, improves torpedo interfaces and provides Tactical TOMAHAWK (TOMAHAWK Block IV) capability.

This program also develops and tests a Common Weapon Launcher, a COTS-based software weapons launch capability for Virginia Class submarines. This upgrade provides a more reliable capability for launching missiles and torpedoes from submarines while providing the architecture to support the introduction of the next generation of payloads and sensors. This new design will also reduce the recurring costs of VA Class submarine weapon launch systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Advanced Processor Builds	26.254	25.030	25.378	0.000	25.378

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Completed APB-07 integration into AN/BYG-1 baseline. Completed integration of APB-09 into AN/BYG-1 (TI08) baseline. One capability for delivery, will be the ability to operate the TOMAHAWK Weapon System at the SECRET level, while maintaining the ability to operate at the TOP SECRET level if the need arises. *FY 2010 Plans:* Complete APB-09 integration into AN/BYG-1 (TI10) baseline. Support development of APB-11 into AN/BYG-1 baseline. *FY 2011 Base Plans:* Continue development of APB-11 into AN/BYG-1 baseline.					
AN/BYG-1 TI-08 *FY 2009 Accomplishments:* Completed development, integration and test of the next generation AN/BYG-1 (TI08) for SSN 688/ Seawolf/Virginia Class submarines scheduled for initial delivery in FY09. *FY 2010 Plans:* Complete development, integration and test of the next generation AN/BYG-1 (TI08) for SSN 688/ Seawolf/Virginia Class submarines scheduled for final delivery in FY10.	10.637	3.183	0.000	0.000	0.000
AN/BYG-1 TI-10 *FY 2009 Accomplishments:* Completed development, integration and test of the next generation AN/BYG-1 (TI10) for SSN 688/ SSGN/VA Class submarines. One capability for delivery will include hardware improvements to provide the Officer of the Deck improved situational awareness, particularly in the area of navigation and contact management.	6.875	13.482	6.616	0.000	6.616

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue development, integration and test of the next generation AN/BYG-1 (TI10) for SSN 688/ SSGN/VA Class submarines. *FY 2011 Base Plans:* Complete development, integration and test of the next generation AN/BYG-1 (TI10) for SSN 688/ SSGN/VA Class submarines.					
AN/BYG-1 TI-12 *FY 2010 Plans:* Begin engineering development process for selection and prototyping of new technologies. *FY 2011 Base Plans:* Continue development process for selection and prototyping of new technologies.	0.000	2.660	6.001	0.000	6.001
Testing *FY 2009 Accomplishments:* Completed DT/OT for AN/BYG-1 TI08 and APB-07 on 688 Class/SSGN/Seawolf/VA Class submarines. *FY 2010 Plans:* Complete DT/OT for AN/BYG-1 TI08 and APB-07 on 688 Class/SSGN/Seawolf/VA Class submarines. Begin DT/OT for AN/BYG-1 APB-09 on 688 Class/SSGN/VA Class submarines. *FY 2011 Base Plans:* Complete DT/OT for AN/BYG-1 APB-09 on 688 Class/SSGN/VA Class submarines. Begin DT/OT for AN/BYG-1 TI-10 on 688 Class/SSGN/Seawolf/VA Class submarines.	6.000	4.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Information Assurance (IA) *FY 2010 Plans:* Develop and Integrate IA Toolkit and conduct IA Certification Testing on BYG-1 TI-10. *FY 2011 Base Plans:* Continue integration of IA Toolkit and continue IA Certification Testing on BYG-1 TI-10.	0.000	6.100	6.542	0.000	6.542
Common Weapon Launcher (CWL) *FY 2009 Accomplishments:* Completed integration of CWL with AN/BYG-1 TI-10 on VA Class submarines. *FY 2010 Plans:* Complete integration of CWL with AN/BYG-1 TI-10 on VA Class submarines.	6.500	5.000	0.000	0.000	0.000
Acquisition Workforce *FY 2009 Accomplishments:* DAWDF	0.282	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	56.548	59.455	50.537	0.000	50.537

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

This budget integrates APBs developed by the advanced development community.
This program has been tailored in accordance with the new DoD5000 directive to incorporate annual MDA production reviews.
Advanced Processing Builds (APB) products associated with AN/BYG-1 Release-To- Fleet 3Q 2009, 3Q 2011, 3Q 2013 and 3Q 2015.
Follow-On contracts for both tactical and weapons control subsystems were awarded in July 2009.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604562N: *Submarine Tactical Warfare System*	**PROJECT** 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

E. Performance Metrics

AN/BYG-1 Submarine Combat and Weapon Control System performance metrics for each Advanced Processor Build (APB) and Technology Insertion (TI) cycle are contained in the classified Capability Production Document (CPD) annex to the overarching system requirements as laid out in the Capabilities Development Document (CDD). Each APB cycle receives an updted CPD based on fleet desired 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

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
MULTI TUBE WEAPON SIMULATOR	Various/ Various	PROGENY Not Specified	2.635	0.000		0.000		0.000		0.000	0.000	2.635	2.635
AN/BYG-1 TECH INSERTION	C/CPAF	RAYTHEON PORTSMOUTH, RI	47.768	5.582	Oct 2009	2.500	Oct 2010	0.000		2.500	Continuing	Continuing	Continuing
AN/BYG-1 TECH INSERTION	C/CPIF	GENERAL DYNAMICS (GDAIS) Not Specified	40.964	19.157	Oct 2009	17.016	Oct 2010	0.000		17.016	Continuing	Continuing	Continuing
GOVERNMENT ENGINEERING	WR	NUWC NEWPORT, RI	68.976	2.430	Oct 2009	2.588	Oct 2010	0.000		2.588	Continuing	Continuing	Continuing
AN/BYG-1 TECH INSERTION	Various/ Various	MITRE Not Specified	2.429	0.000		0.000		0.000		0.000	0.000	2.429	2.429
AN/BYG-1 TECH INSERTION	C/CPIF	ANTEON Not Specified	6.000	0.000		0.000		0.000		0.000	0.000	6.000	6.000
COTS HARDWARE & SOFTWARE	C/CPAF	DDL OMNI Not Specified	8.500	0.000		0.000		0.000		0.000	0.000	8.500	8.500
INFORMATION ASSURANCE	C/CPAF	PROGENY Not Specified	0.000	6.100	Jan 2010	6.542	Jan 2011	0.000		6.542	0.000	12.642	12.642
COMMON WEAPON LAUNCHER	C/CPAF	PROGENY Not Specified	33.329	5.000	Jan 2010	0.000		0.000		0.000	0.000	38.329	38.329
		Subtotal	210.601	38.269		28.646		0.000		28.646			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

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
APB SOFTWARE INTEGRATION	C/CPAF	RAYTHEON PORTSMOUTH, RI	42.466	2.000	Oct 2009	1.977	Oct 2010	0.000		1.977	Continuing	Continuing	Continuing
APB SOFTWARE INTEGRATION	C/CPIF	GENERAL DYNAMICS (GDAIS) Not Specified	38.689	8.596	Oct 2009	7.194	Oct 2010	0.000		7.194	Continuing	Continuing	Continuing
APF SOFTWARE INTEGRATION	WR	NUWC NEWPORT, RI	24.388	5.590	Oct 2009	5.720	Oct 2010	0.000		5.720	Continuing	Continuing	Continuing
SOFTWARE DEVELOPMENT	Various/ Various	VARIOUS Not Specified	36.679	0.000		0.000		0.000		0.000	0.000	36.679	36.679
		Subtotal	142.222	16.186		14.891		0.000		14.891			

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	NUWC NEWPORT, RI	23,812.000	2.300	Oct 2009	3.800	Oct 2010	0.000		3.800	Continuing	Continuing	Continuing
OPERATIONAL TEST & EVALUATION	WR	COMOPTEVFOR Not Specified	15.469	0.700	Oct 2009	1.000	Oct 2010	0.000		1.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

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	Various/ Various	VARIOUS Not Specified	1.295	1.000	Oct 2009	1.200	Oct 2010	0.000		1.200	0.000	3.495	3.495
		Subtotal	23,828.764	4.000		6.000		0.000		6.000			

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
PROGRAM MANAGEMENT SUPPORT	C/CPFF	EG&G ARLINGTON, VA	10.330	1.000	Oct 2009	1.000	Oct 2010	0.000		1.000	0.000	12.330	12.330
TRAVEL	WR	NAVSEA ARLINGTON, VA	0.370	0.000		0.000		0.000		0.000	0.000	0.370	0.370
ACQUISITION WORKFORCE	Various/ Various	Not Specified Not Specified	0.282	0.000		0.000		0.000		0.000	0.000	0.282	0.282
		Subtotal	10.982	1.000		1.000		0.000		1.000	0.000	12.982	12.982

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*	

	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	24,192.569	59.455		50.537		0.000		50.537			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604562N: *Submarine Tactical Warfare System*	**PROJECT** 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

CLASSIFICATION:

EXHIBIT R4, SCHEDULE PROFILE

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604562N / Submarine Tactical Warfare System	0236 / Submarine Combat System Improvements

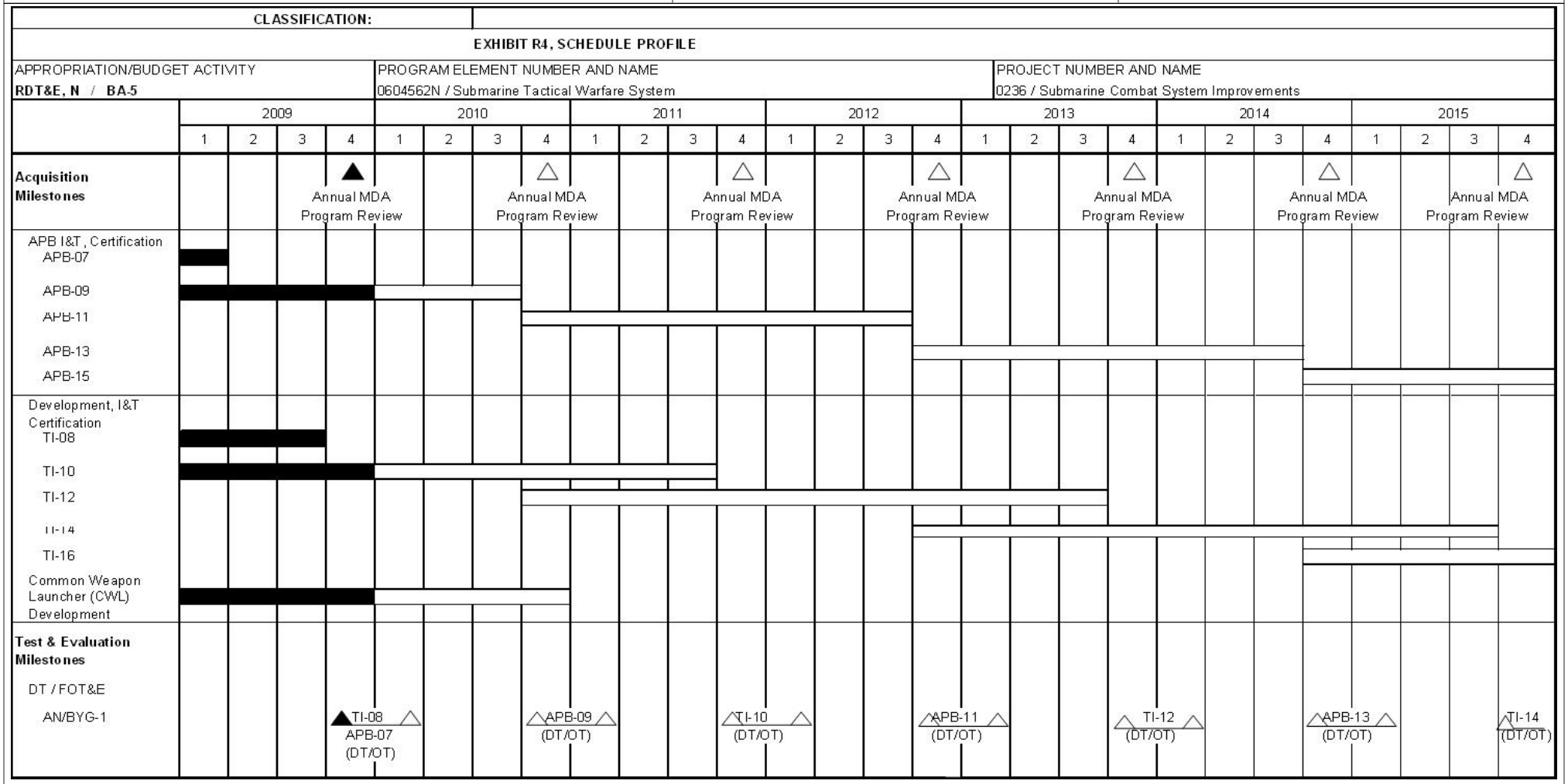


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 0236: *SSN Comb Cont Sys Imprvmnt (ENG)*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Common Weapon Launcher - Development	1	2009	4	2010
AN/BYG-1 APB07 Integration & Test, Certification	1	2009	1	2009
AN/BYG-1 TI08 - Development	1	2009	3	2010
AN/BYG-1 APB07/TI08 DT/OT	4	2009	1	2010
AN/BYG-1 APB09 Integration & Test, Certification	1	2009	3	2010
AN/BYG-1 APB09 MDA Review	4	2009	4	2009
AN/BYG-1 APB09 DT/OT	4	2010	1	2011
AN/BYG-1 TI10 Development	1	2009	3	2011
AN/BYG-1 TI10 DT/OT	4	2011	1	2012
AN/BYG-1 APB11 Integration & Test, Certification	4	2010	3	2012
AN/BYG-1 APB11 DT/OT	4	2012	1	2013
AN/BYG-1 TI12 Development	4	2010	3	2013
AN/BYG-1 TI12 DT/OT	4	2013	1	2014
AN/BYG-1 APB13 Integration & Test, Certification	4	2012	3	2014
AN/BYG-1 APB13 DT/OT	4	2014	1	2015
AN/BYG-1 TI14 Development	4	2012	3	2015
AN/BYG-1 APB15 Integration & Test, Certification	4	2014	4	2015
AN/BYG-1 TI16 Development	4	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare 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*	7.978	7.569	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	27.406
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: Artificial Intelligence-Based Combat System Kernel *FY 2010 Plans:* The congressional add will be used to incorporate a mission focused, decision-tailored Command Decision Support System (CDSS) with a CANES-compliant and COTS-based Services Oriented Architecture framework, which will enable optimized manning through the introduction of Intelligent Agent-Based automation, advanced visualization, and emerging collaboration technologies.	0.000	3.187
Congressional Add: Submarine System Biometrics Access Control *FY 2010 Plans:* This congressional add will use properly configured biometrics systems, engineered into tactical system workstations and submarine ship infrastructure, that will offer the ability for systems to reliably recognize users without user intervention, resulting in rapid, automatic, secure system access for the varying levels of system capabilities, based on user privileges.	0.000	1.992
Congressional Add: SUBMARINE MAINTENANCE AUTOMATION AND COMMUNICATION	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: The congressional add will be used to expand the Submarine Maintenance Free Operating Period (MFOP) effort, designed to automate scheduled preventive maintenance events, potentially reducing the weekly allocation of man-hours dedicated to maintenance.		
Congressional Add: Advanced Tactical Control System *FY 2009 Accomplishments:* The Congressional add automatically fuses contact data to provide the commanding officer and crew a clear and accurate tactical picture. This will enable the submarine commanding officer and crew to make better, faster tactical decisions while at sea.	1.596	0.000
Congressional Add: Submarine Environment for Evaluation and Developme *FY 2009 Accomplishments:* The congressional add will provide a low-cost test bed for industry and academia to create and evaluate innovative ideas and to integrate their products into currently deployed and conceptual systems. *FY 2010 Plans:* N/A	2.393	2.390
Congressional Add: Water Space Management Navigation Decision Aid *FY 2009 Accomplishments:* The congressional add will provide navigational decision aide and message editor that automatically drafts standard US Navy submarine planning and asset assignment messages (e.g., SUBNOTES, OPSKDS, MODUS) for transmission, but also converts these messages into 2-dimensional and 3-	2.393	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604562N: *Submarine Tactical Warfare System*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
dimensional graphic renderings of an asset's waterspace for enhanced navigational awareness and contact avoidance.		
Congressional Adds Subtotals	7.978	7.569

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Adds.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*							
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	84.639	91.587	153.686	0.000	153.686	153.107	172.749	110.312	103.862	Continuing	Continuing
1803: *Ship Contract Design*	13.744	8.363	18.464	0.000	18.464	20.482	22.328	23.305	21.540	Continuing	Continuing
2465: *DC/Survivability*	7.604	6.277	10.383	0.000	10.383	10.146	12.166	10.238	8.069	Continuing	Continuing
3108: *CVN 80 Total Ship Integration*	0.000	0.000	0.000	0.000	0.000	0.000	43.109	49.078	48.977	Continuing	Continuing
3133: *Sea Base to Shore Connectors (Contract Des)*	25.017	35.328	20.349	0.000	20.349	5.590	1.805	1.897	4.360	Continuing	Continuing
3137: *SSC Construction*	0.000	0.000	80.463	0.000	80.463	95.672	77.233	9.575	4.358	Continuing	Continuing
3179: *CVN-79 Total Ship Integration*	32.460	37.261	21.324	0.000	21.324	19.548	14.922	15.035	15.349	Continuing	Continuing
4007: *CVN 21 LFT&E*	2.024	2.366	2.703	0.000	2.703	1.669	1.186	1.184	1.209	Continuing	Continuing
9999: *Congressional Adds*	3.790	1.992	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.642

A. Mission Description and Budget Item Justification

This Program Element (PE) directly supports the Navy's Shipbuilding Plan by providing for the development of engineering, programmatic and acquisition documentation including ship specifications (including performance specifications) and contractual documentation associated with acquisition of Navy ships. This PE also supports the Congressionally mandated Live Fire Test and Evaluation (LFT&E) program for new ship designs.

Contract Design has traditionally been the engineering development of the technical and contractual definition of the ship design (including ship specifications and drawings) to a level of detail sufficient for shipbuilders to make a sound estimate of the construction cost and schedule. Additionally, the contract design package developed under this PE has provided the technical baseline from which the Navy selects the shipbuilder who then develops the detail design package required to support the construction and eventual delivery of the ship. This PE also supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to efficient production of new ships and ship conversions, and supports engineering planning and ship affordability studies.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*

Under Acquisition Reform for new design ships, traditional distinct phasing of the design process has been replaced with a continuous concurrent engineering Integrated Product and Process Development (IPPD) process extending through and after contract award. This serves to maintain the focus of multi-discipline teams consisting of the government,
shipbuilder, system programs, and suppliers. Government/Industry Integrated Product Team(s) (IPTs) will utilize the IPPD process to develop the design in an Integrated Product and Data Environment (IPDE). The design approach is part of an acquisition strategy that is based on commercial practices and incorporates a phased technical definition.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	80.869	89.988	0.000	0.000	0.000
Current President's Budget	84.639	91.587	153.686	0.000	153.686
Total Adjustments	3.770	1.599	153.686	0.000	153.686
• Congressional General Reductions		-0.381			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.020			
• Congressional Adds		2.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	5.854	0.000			
• SBIR/STTR Transfer	-2.083	0.000			
• Program Adjustments	0.000	0.000	153.686	0.000	153.686
• 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: *AUTOMATED FIBER OPTIC MANUFACTURING INITIATIVE*	2.793	1.992
Congressional Add: *Landing Craft Composite Lift Fan*	0.997	0.000
Congressional Add Subtotals for Project: 9999	3.790	1.992
Congressional Add Totals for all Projects	3.790	1.992

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 1803: *Ship 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
1803: *Ship Contract Design*	13.744	8.363	18.464	0.000	18.464	20.482	22.328	23.305	21.540	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 development of all technical, programmatic and contractual documentation required for the acquisition of various ships in the Navy s Shipbuilding Program. The major effort is the engineering development of the technical and contractual definition of the ship's design (e.g. ship specifications and drawings), with sufficient details for the prospective shipbuilder to make a sound estimate of construction cost and schedule. It also serves as the technical definition from which the shipbuilder develops the shipbuilding detailed design and testing package required to build and test the ship. This funding also provides for Navy retention of unique ship
design knowledge. It provides the Navy with a digital, ship design knowledge base, including lessons learned, required to ensure that a proper development, analysis and evaluation can be conducted of any current or future planned Navy ship. This data base will serve as the basis to evaluate and qualify any future ship design. Another area
this project funds is the development of specific Navy ship criteria and standards for newly developed technologies. Additionally, as new laws are passed, new safety regulations and environmental criteria are developed and other legal/Congressional requirements identified, this project funds the translation into Navy ship design criteria
and standards. This project also funds the translation of the traditional Ship Specifications into performance-based criteria, which will serve for the future acquisition of Navy Ship and supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to efficient production of new ships and ship conversions. This project also funds the research, development, test, and evaluation of shipyard workload and resource management tools. The funding in this project unit supports Cruiser and DDG Modernization Program.

Beginning in FY 2011, this project includes an increment for the DON Energy Initiative related to the DDG 51 Hybrid Electric Drive.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Ship Contract Design	13.721	8.363	4.864	0.000	4.864

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 1803: *Ship Contract Design*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Continued CG Modernization design and engineering efforts, the completion of Engineering Change Proposal development for AN/SQQ-89 (V) Mod 4A/6 to MK 116 Mod 7 upgrade, and the continuation of, but not limited to: Primary Damage Modeling Studies, Planning Yard Corrosion Reduction Studies, Brass Model Studies, and Power Node Control Center (PNCC) Risk Mitigation studies. *FY 2010 Plans:* For Cruisers, specific efforts include, but are not limited to Technical Data Package development, Detailed Design Products, Engineering Analysis, feasibility studies, and topside analysis, related to the next generation Advanced Capability Baseline (ACB-12). For DDGs, specific efforts are related to Gun Computing System (GCS) development for the MK 45 interface to a digital MK 116 Gun Computing System. *FY 2011 Base Plans:* N/A					
Defense Acquisition Workforce *FY 2009 Accomplishments:* Defense Acquisition Workforce Development Fund (DAWDF)	0.023	0.000	0.000	0.000	0.000
DON Energy Initiative Beginning in FY 2011, this project reflects an increment of the DON Energy Initiative. *FY 2011 Base Plans:* DON Energy Initiative - Beginning in FY 2011, this project reflects an increment of the DON Energy Initiative.	0.000	0.000	13.600	0.000	13.600

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 1803: *Ship Contract Design*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	13.744	8.363	18.464	0.000	18.464

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 0900: *DDG Modernization*	167.048	144.300	296.691	0.000	296.691	293.847	463.051	476.493	410.169	Continuing	Continuing
• OPN 0960: *CG Modernization*	165.165	313.149	356.958	0.000	356.958	448.737	575.985	632.640	253.809	Continuing	Continuing
• WPN 4223: *CG Modernization*	29.910	51.069	52.426	0.000	52.426	53.266	54.148	55.088	31.046	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

Electrochemical Methodology Development and verification at The Office of Naval Research for 5456-H116 including developing a statistically valid data set at pH11, working to establish the role of anions in the electrolyte, and decreasing the pH of the electrolyte to a more neutral pH solution, as well as development of a handheld, electrochemical test kit probe.

Aluminum sensitization study to determine the lifetime until sensitization for a 5xxx series aluminum alloy and Stress and buckling analysis of the CG 52 Class ship structure and develop proposed fatigue fixes in the high stress areas to produce a technical report with modifications or improvements to the ship that may be necessary to preclude cracking in the areas of concern. BASELINE 2 CRUISER SURVIVABILITY ANALYSIS will develop a CG 52 ship description database (current and modernized designs). Conduct database and IRM Simulation verification and validation. Conduct IRM runs and analysis for selected threats and hit distributions. Development, integration, and testing of a digital video capability for the MK 34 Gun Weapon System with the Common Display System (CDS) and Common Processing System (CPS) as part of the TI-12 ACB-12 AEGIS Combat System upgrade for Cruiser and Destroyer Modernization programs. Integration of an Inertial Measuring Unit into the Electro-Optical Sensor System to compensate for the dynamic motion, providing accurate bearing and elevation data to the MK 160 GCS, thus eliminating the errors introduced by mast flexure and stabilize the sensors (TIS and DIS) video image.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 1803: *Ship 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
CG Mod Electronics Systems Eng	C/CPAF	Lockheed Martin, Moorestown, NJ	16.002	0.000		1.411	Nov 2010	0.000		1.411	0.842	18.255	Continuing
		Subtotal	16.002	0.000		1.411		0.000		1.411	0.842	18.255	

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
DDG/CGM Program / Engineering Spt	WR	NSWC/DD Not Specified	3.298	0.847	Oct 2009	0.560	Oct 2010	0.000		0.560	3.655	8.360	Continuing
DDGM Program/ Engineering Spt	Various/ Various	SUPSHIP/BATH Not Specified	0.000	1.279	Dec 2009	1.000	Dec 2010	0.000		1.000	5.442	7.721	Continuing
DDG/CGM Program / Engineering Spt	C/Various	CSC/BAE Not Specified	4.402	0.817	Dec 2009	0.300	Dec 2010	0.000		0.300	1.924	7.443	Continuing
DDG/CGM Program / Engineering Spt	WR	SPAWARSYSCEN Not Specified	0.376	0.957	Dec 2009	0.300	Dec 2010	0.000		0.300	1.715	3.348	Continuing
CGM Program / Engineering Spt	WR	NRL Not Specified	0.288	0.375	Dec 2009	0.030	Dec 2010	0.000		0.030	0.125	0.818	Continuing
CGM Program / Engineering Spt	C/Various	JJMA/ALION Not Specified	2.100	0.400	Dec 2009	0.000		0.000		0.000	0.000	2.500	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 1803: *Ship 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
CGM Program / Engineering Spt	WR	NSWC/PHD Not Specified	1.825	0.000		0.000		0.000		0.000	0.000	1.825	Continuing
DDG/CGM Program / Engineering Spt	WR	NSWC/ BETHESDA Not Specified	1.993	0.806	Dec 2009	0.350	Dec 2010	0.000		0.350	3.336	6.485	Continuing
CGM Program / Engineering Spt	Various/ Various	SUPSHIP/ PASCAGOULA Not Specified	2.361	0.925	Dec 2009	0.310	Dec 2010	0.000		0.310	1.564	5.160	Continuing
CGM Program / Engineering Spt	WR	COMOPTEVFOR Not Specified	0.030	0.000		0.000		0.000		0.000	0.000	0.030	Continuing
DDG/CGM Program / Engineering Spt	WR	NSWC/SSES Not Specified	2.249	1.649	Dec 2009	0.603	Dec 2010	0.000		0.603	3.987	8.488	Continuing
CGM Program / Engineering Spt	C/Various	L3 Not Specified	0.740	0.308	Dec 2009	0.000		0.000		0.000	0.000	1.048	Continuing
		Subtotal	19.662	8.363		3.453		0.000		3.453	21.748	53.226	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 1803: *Ship Contract Design*

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
DON Energy Initiative	Various/ Various	VAR Not Specified	0.000	0.000		13.600	Dec 2010	0.000		13.600	70.202	83.802	Continuing
Defense Acquisition Workforce	Various/ Various	Not Specified Not Specified	0.023	0.000		0.000		0.000		0.000	0.000	0.023	Continuing
		Subtotal	0.023	0.000		13.600		0.000		13.600	70.202	83.825	

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	35.687	8.363		18.464		0.000		18.464	92.792	155.306	

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 1803: *Ship Contract Design*

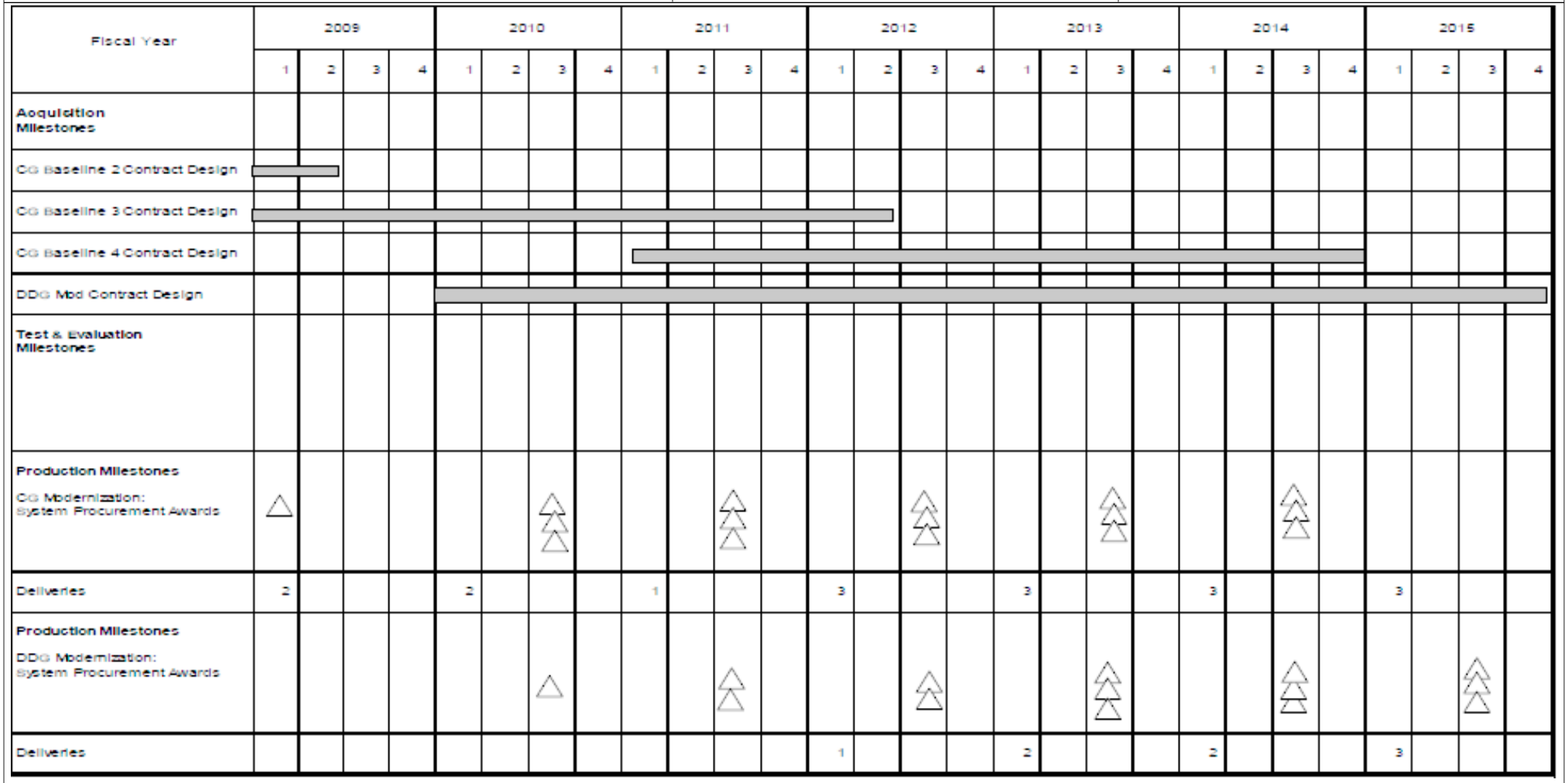


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 1803: *Ship Contract Design*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
CONTINUE CGM BASELINE 2 ENGINEERING	1	2009	2	2009
CONTINUE CGM BASELINE 3 ENGINEERING	1	2009	2	2012
CONTINUE CGM BASELINE 4 ENGINEERING	1	2011	4	2014
DDGM ENGINEERING	1	2010	4	2015
CGM PROCUREMENT AWARD (CG-57)	1	2009	1	2014
CGM PROCUREMENT AWARD (CG-55,62,60)	3	2010	3	2010
CGM PROCUREMENT AWARD (CG-59,64,63)	3	2011	3	2011
CGM PROCUREMENT AWARD (CG-65,71,66)	3	2012	3	2012
CGM PROCUREMENT AWARD (CG-67,70,69)	3	2013	3	2013
CGM PROCUREMENT AWARD (CG-73,72,68)	3	2014	3	2014
DDGM PROCUREMENT AWARD 1	4	2010	4	2010
DDGM PROCUREMENT AWARD 2	4	2011	4	2011
DDGM PROCUREMENT AWARD 3	3	2012	3	2012
DDGM PROCUREMENT AWARD 4	3	2013	3	2013
DDGM PROCUREMENT AWARD 5	3	2014	3	2014
DDGM PROCUREMENT AWARD 6	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 2465: *DC/Survivability*	

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
2465: *DC/Survivability*	7.604	6.277	10.383	0.000	10.383	10.146	12.166	10.238	8.069	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 the contract design, development and testing efforts for the Amphibious Assault Ship Replacement Program LHA(R), a ship construction program designed to: provide a functional replacement for the LHA 1 Class ships which will reach the end of their extended service lives after FY10; be a key platform in the Amphibious Readiness Group (ARG) of the future and provide for an affordable and sustainable amphibious ship development program. LHA(R) ships will provide forward presence and power projection as an integral part of Joint, inter agency, and multi-national maritime expeditionary forces. Additionally, LHA(R) will be designed to operate for sustained periods in transit to and operations in an Amphibious Objective Area to include the embarkation, deployment, and landing of a Marine Landing Force in an assault by helicopters and tilt rotors (MV-22) supported by Joint Strike Fighters (F-35B).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Defense Acquisition Workforce	0.011	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Defense Acquisition Workforce Development Fund (DAWDF)					
2465 DC/Survivability	7.593	6.277	10.383	0.000	10.383
FY 2009 Accomplishments: Continued Development Testing and Operational Testing Preparations: Continued preparing update to the Test and Evaluation Master Plan (TEMP) Continued preparing update to the Live Fire Test & Evaluation (LFT&E) Management Plan to OSD. Continued revising the Vulnerability Assessment Report (VAR). Completed LFT&E surrogate testing. Continued evaluating the interoperability data supporting Key Performance Parameters (KPP).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 2465: *DC/Survivability*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continued developing LHA 7 contract technical package; anticipate 3rd quarter FY10 RFP Release. Continued LHA 8 (Flight 1) Concept Studies in support of Amphibious Ships Recapitalization Capability Base Assessment (CBA). Finalized the Survivability Assessment Report (SAR) to OSD. *FY 2010 Plans:* Continue Development Testing and Operational Testing Preparations: Complete updating the Test and Evaluation Master Plan (TEMP). Continue updating the LFT&E Management Plan. Continue revising the Vulnerability Assessment Report (VAR). Continue evaluating the interoperability data support Key Performance Parameters (KPP). Release LHA 7 RFP for Advance Procurement (AP) and Detail Design and Construction (DD&C) contract. Continue LHA 8 Concept studies. Award LHA 7 AP Contract *FY 2011 Base Plans:* Continue Development Testing Preparations: Continue Operational Testing Preparations. Complete updating the LFT&E Management Plan and submit to OSD. Continue revising the Vulnerability Assessment Report (VAR). Continue evaluting the interoperability data supporting Key Performance Parameters (KPP). Award LHA 7 DD&C Contract. Begin LHA 8 Trade Studies and Preliminary Design efforts.					
Accomplishments/Planned Programs Subtotals	7.604	6.277	10.383	0.000	10.383

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 2465: *DC/Survivability*

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
• SCN/3041: *LHA(R) Ships*	192.077	169.476	949.897	0.000	949.897	2,100.752	0.000	0.000	0.000	0.000	3,412.202
• SCN: *LHA 6 - Cost to Complete*	14.310	0.000	0.000	0.000	0.000	66.085	0.000	0.000	0.000	0.000	80.395

D. Acquisition Strategy

Acquisition strategy signed February 7, 2005 approved strategy for sole source to Northrop Grumman Ship Systems (NGSS) to incorporate previous LHD engineering, design and producibility lessons-learned into LHA(R). Advanced Procurement (AP) contract for Long Lead-Time Material (LLTM) procurement and engineering support awarded July 05 with continuation of these efforts in FY06 prior to award of Detail Design and Construction (DD&C)contract on 1 June 2007.The Advance Procurement contract was subsumed by the FPI DD&C contract. .

E. Performance Metrics

Successfully achieve Initial Operational Capability, successfully complete Operational Test and 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 2465: *DC/Survivability*

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 Design	Various/ Various	Various Not Specified	91.610	1.317	Dec 2009	5.474	Dec 2010	0.000		5.474	3.679	102.080	Continuing
		Subtotal	91.610	1.317		5.474		0.000		5.474	3.679	102.080	

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	2.503	0.400	Dec 2009	0.400	Dec 2010	0.000		0.400	1.900	5.203	Continuing
Operational Test & Evaluation	WR	COMPOTEVOR Not Specified	3.801	1.454	Dec 2009	1.700	Dec 2010	0.000		1.700	7.193	14.148	Continuing
Live Fire Test & Evaluation	WR	Various Various	38.463	2.900	Dec 2009	2.500	Dec 2010	0.000		2.500	6.200	50.063	Continuing
		Subtotal	44.767	4.754		4.600		0.000		4.600	15.293	69.414	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 2465: *DC/Survivability*

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	Various/ Various	Not Specified Not Specified	7.464	0.186	Dec 2009	0.259	Dec 2010	0.000		0.259	0.535	8.444	Continuing
Travel	Various/ Various	Not Specified Not Specified	0.262	0.020	Dec 2009	0.050	Dec 2010	0.000		0.050	0.050	0.382	Continuing
Defense Acquisition Workforce	Various/ Various	Not Specified Not Specified	0.011	0.000		0.000		0.000		0.000	0.000	0.011	Continuing
		Subtotal	7.737	0.206		0.309		0.000		0.309	0.585	8.837	

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	144.114	6.277		10.383		0.000		10.383	19.557	180.331	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 2465: *DC/Survivability*

CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: July 2009

APPROPRIATION/BUDGET ACTIVITY: RDT&E, N / BA-5

PROGRAM ELEMENT NUMBER AND NAME: 0604567N Ship Contract Design / LFT&E

PROJECT NUMBER AND NAME: 2465 LHA(R)

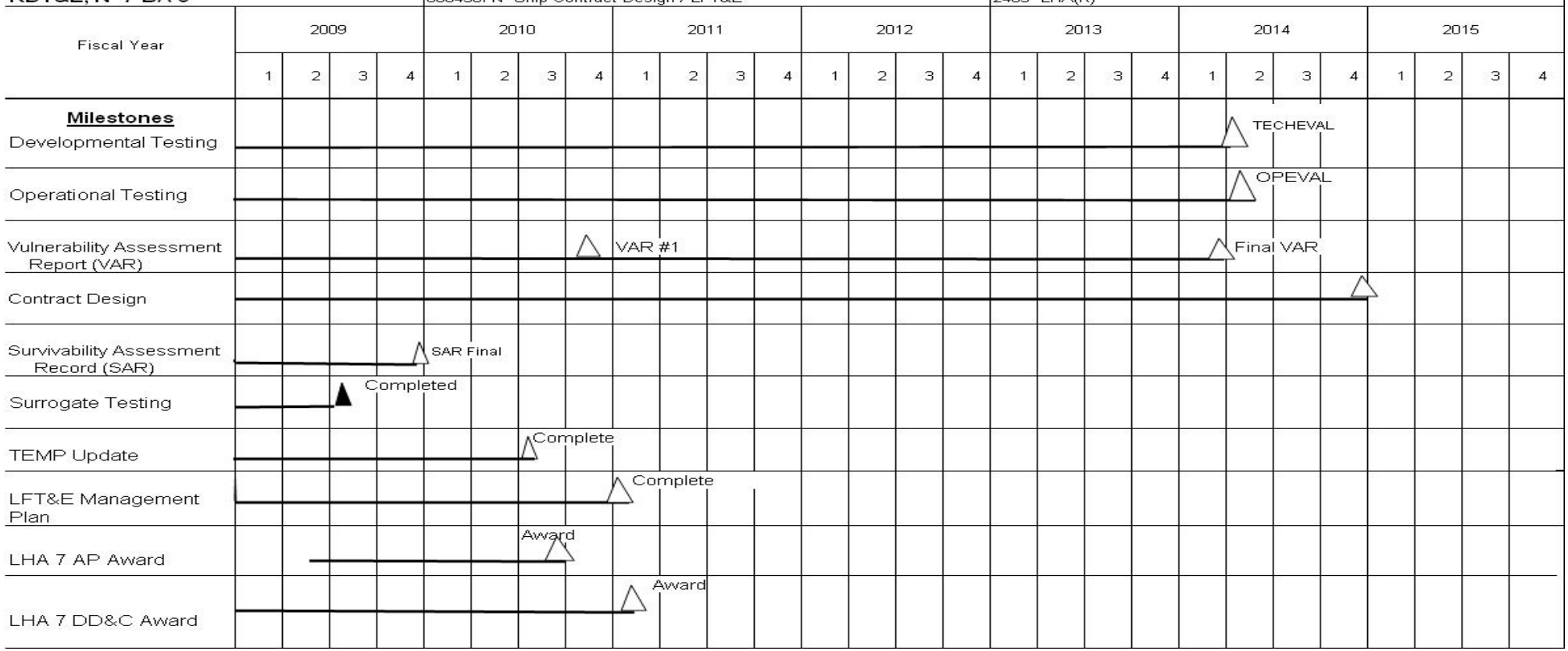


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 2465: *DC/Survivability*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Developmental Testing	1	2009	2	2014
Contract Design	1	2009	4	2014
Operational Testing	1	2009	2	2014
Vulunerability Assessment Report (VAR)	1	2009	1	2014
Survivability Assessment Report (SAR)	1	2009	4	2009
Surrogate Testing	1	2009	3	2009
TEMP Update	1	2009	3	2010
LFT&E Update to Management Plan	1	2009	1	2011
LHA 7 Advanced Procurement Award	1	2009	3	2010
LHA 7 DD&C Award	1	2009	1	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3108: *CVN 80 Total Ship 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
3108: *CVN 80 Total Ship Integration*	0.000	0.000	0.000	0.000	0.000	0.000	43.109	49.078	48.977	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Development and related testing of CVN78 Class aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project also funds the Contract Design efforts for the CVN 80. This project transitions the minimum sustaining technologies required to address obsolescence, critical survivability shortfalls as identified in CVN 78 Class testing, future requirements, and technologies which did not mature in time to support the CVN 78 or CVN 79. All systems developed in this project have the potential to support emerging requirements and other promising system technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to maintain aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to support CVN 80 procurement, including, but not limited to engineering support, programmatic and program support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment.

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
• 200100: *Carrier Replacement Program*	3,915.642	1,219.927	2,639.569	0.000	2,639.569	494.823	2,418.293	3,386.556	2,284.498	0.000	22,913.773
• 0603512N: *2208, 4004, 9B58A 9D24A, 10C098*	174.914	154.394	83.619	0.000	83.619	61.382	45.447	45.038	45.435	0.000	1,693.374
• 0603570N: *CVN 21 (PU 2692)*	102.855	82.232	66.643	0.000	66.643	65.142	61.778	57.037	55.990	0.000	1,525.140

D. Acquisition Strategy

The CVN 78 will be the first ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class. The CVN 78 Class will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3108: *CVN 80 Total Ship Integration*

electrical auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership cost as compared to the NIMITZ Class. Additionally, the following war-fighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

E. Performance Metrics

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 3108: *CVN 80 Total Ship Integration*

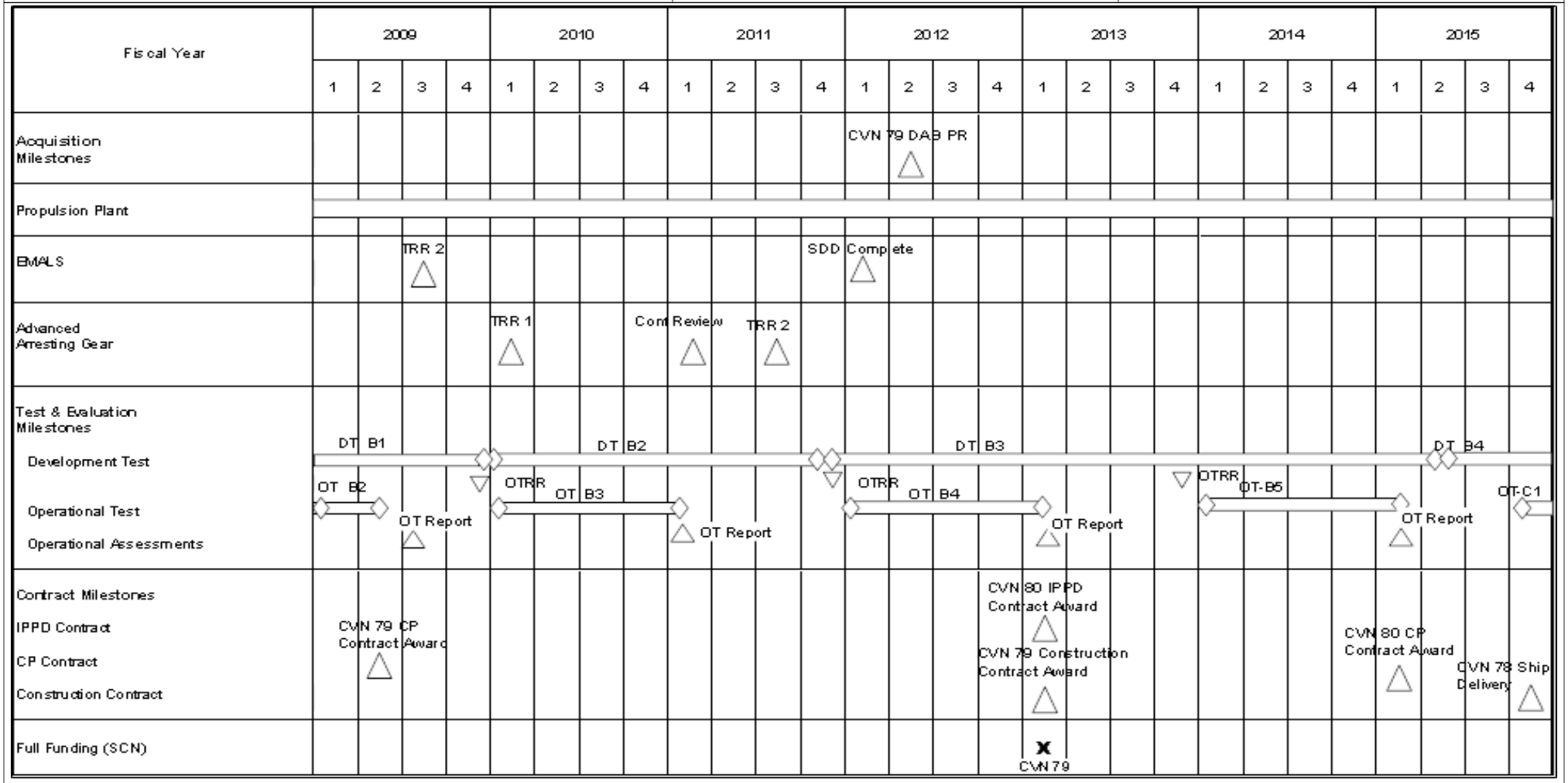


Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3133: *Sea Base to Shore Connectors (Contract Des)*	

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
3133: *Sea Base to Shore Connectors (Contract Des)*	25.017	35.328	20.349	0.000	20.349	5.590	1.805	1.897	4.360	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Ship to Shore Connector (SSC) - This project provides the preliminary and contract design and Class test efforts for the SSC Program. This program provides the surface assualt portion of the Joint Expeditionary Maneuver Warfare tactical solution set requirement to project, sustain, retrograde and re-employ joint combat power from the sea and Sea Base, independent of tides, water depth, underwater obstacles or beach gradient. This project provides for the Systems Development and Demonstration package required for the solicitation for detail design/construction and test of the initial article. Class Test and evaluation of components and systems will also be completed under this project. SSC provides the functional replacement for the LCAC Class of ships, which begin reaching extended service life in 2014. This project also encompasses those tasks required to develop the contract data package necessary to support the procurement of the lead SSC craft, including, but not limited to engineering support, programmatic and program support, logistics support, manpower and program related studies. The lead craft is funded in RDT&E under this PE, Project 3137.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Sea Base to Shore Connectors (Contract Des)	24.891	35.328	20.349	0.000	20.349
FY 2009 Accomplishments: Completed Preliminary Design efforts with Milestone A DAB Review conducted on 7 May 2009. Initiation of Contract Design. Continuation of Class Test and Evaluation program. Conducted set-based design and follow-on integrated design studies. Develop prototyping plans with attention to weight in 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3133: *Sea Base to Shore Connectors (Contract Des)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Complete development and implementation of initiatives in preparation for the award of the Detail Design and Construction Contract in FY11. Continuation of Class Test and Evaluation program. Develop contracts data package for the test and training craft award in FY11. *FY 2011 Base Plans:* Award Detail Design and Construction Contract for lead craft. Continuation of Class Test and Evaluation program.					
Defense Acquisition Workforce Defense Acquisition Workforce *FY 2009 Accomplishments:* N/A	0.126	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	25.017	35.328	20.349	0.000	20.349

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 0604567N: *SSC Detail Design/Construction*	0.000	0.000	80.463	0.000	80.463	95.672	77.233	9.575	4.358	0.000	267.301
• SCN 5112: *SSC Construction*	0.000	0.000	0.000	0.000	0.000	0.000	71.783	127.676	230.021	0.000	429.480

D. Acquisition Strategy

The lead craft will be procured and constructed with RDT&E funds. The lead craft Detail Design contract will include an option for construction.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 3133: *Sea Base to Shore Connectors (Contract Des)*

E. Performance Metrics

Successfully completed Test and Evaluation Master Plan (TEMP) and Live Fire Test and Evaluation (LFT&E) Management Plan. Successfully award detail and design construction contract for Test and Training Craft with options for follow SCN crafts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3133: *Sea Base to Shore Connectors (Contract Des)*

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 Design	C/FP	Various Not Specified	5.089	3.886	Oct 2009	3.935	Oct 2009	0.000		3.935	1.800	14.710	Continuing
Preliminary/Contract Design	C/FP	Various Not Specified	15.034	17.781	Oct 2009	3.804	Oct 2010	0.000		3.804	0.000	36.619	Continuing
System Engineering	Various/ Various	Various Not Specified	3.016	3.225	Nov 2009	2.500	Oct 2009	0.000		2.500	1.800	10.541	Continuing
		Subtotal	23.139	24.892		10.239		0.000		10.239	3.600	61.870	

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
Developmental Support	WR	Various Not Specified	2.750	1.494	Oct 2009	1.538	Oct 2010	0.000		1.538	0.000	5.782	Continuing
Software Development	C/FP	Various Not Specified	1.219	1.000	Nov 2009	1.061	Nov 2010	0.000		1.061	0.000	3.280	Continuing
Integrated Logistics Support	C/FP	Various Not Specified	0.853	0.839	Nov 2009	0.000		0.000		0.000	0.000	1.692	Continuing
Studies & Analyses	C/FFP	Various Not Specified	3.119	0.500	Nov 2009	0.849	Nov 2010	0.000		0.849	0.605	5.073	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3133: *Sea Base to Shore Connectors (Contract Des)*

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	7.941	3.833		3.448		0.000		3.448	0.605	15.827	

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/CPFF	Various Not Specified	0.000	0.033	Oct 2009	0.392	Oct 2010	0.000		0.392	Continuing	Continuing	Continuing
Operational Test & Evaluation	C/CPFF	Various Not Specified	0.618	0.500	Oct 2009	0.402	Oct 2010	0.000		0.402	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	C/CPFF	Various Not Specified	0.632	1.521	Oct 2009	5.757	Oct 2010	0.000		5.757	Continuing	Continuing	Continuing
		Subtotal	1.250	2.054		6.551		0.000		6.551			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3133: *Sea Base to Shore Connectors (Contract Des)*

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 Support	C/CPFF	Various Not Specified	2.521	0.000	Nov 2009	0.000		0.000		0.000	0.000	2.521	Continuing
Government Engineering Support	WR	NSWC Various	2.252	0.000	Oct 2009	0.000		0.000		0.000	0.000	2.252	Continuing
Program Management Support	Various/ Various	Various Not Specified	2.031	4.449	Oct 2009	0.000		0.000		0.000	0.000	6.480	Continuing
Travel	Various/ Various	NAVSEA Travel Various	0.030	0.100	Oct 2009	0.111	Oct 2010	0.000		0.111	0.000	0.241	Continuing
Defense Acquisition Workforce	Various/ Various	Various Not Specified	0.126	0.000		0.000		0.000		0.000	0.000	0.126	Continuing
		Subtotal	6.960	4.549		0.111		0.000		0.111	0.000	11.620	

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	39.290	35.328		20.349		0.000		20.349			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 3133: *Sea Base to Shore Connectors (Contract Des)*

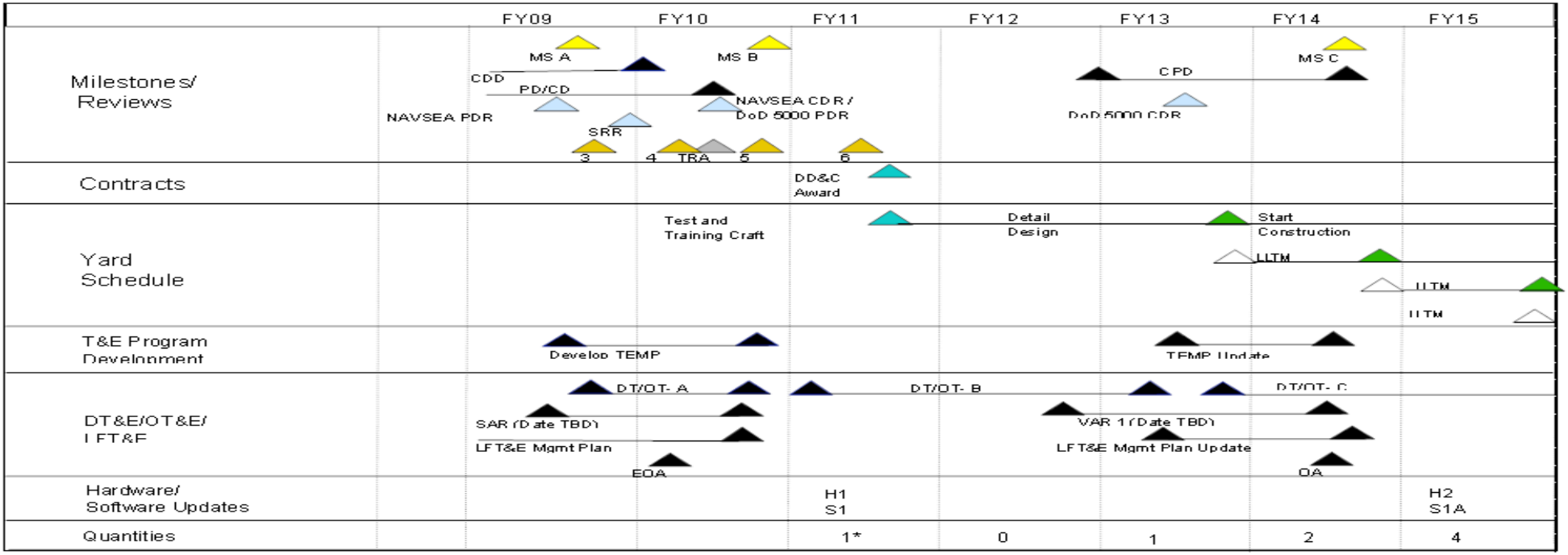


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 3133: *Sea Base to Shore Connectors (Contract Des)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
T&E Program Development	1	2009	2	2014
Live Fire Test & Evaluation (LFT&E) Mgmt Plan	1	2009	3	2014
Capability Development Document (CDD)	1	2009	1	2010
Preliminary Design/Contract Design (PD/CD)	1	2009	3	2010
Preliminary/Contract Design Reviews (PDR/CDR)	2	2009	3	2013
Survivability/Vulnerability Assessment Report (SAR/VAR)	2	2009	3	2014
Development Test/Operational Test (DT/OT) (A,B, & C)	3	2009	4	2015
Acquisition Milestones (DAB, Milestone A &B&C)	3	2009	3	2014
System Readiness Review (SRR)	4	2009	4	2009
Detail Design & Construction (DD&C) Award	3	2011	3	2011
Capabilities Production Document (CPD)	1	2013	3	2014
Early Operational Assessment/Operational Assessment (EOA/OA)	2	2010	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3137: *SSC Construction*	

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
3137: *SSC Construction*	0.000	0.000	80.463	0.000	80.463	95.672	77.233	9.575	4.358	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 funds the Ship to Shore Connector (SSC) construction phase which includes the construction of the test and training craft, and includes Detail Design, procurement of one Full Motion Trainer, Integrated Logistics Support (ILS), Government Furnished Equipment (GFE), Program support, and Outfitting and Post Delivery. The SSC program provides the surface assualt portion of the Joint Expeditionary Maneuver Warfare tactical solution set requirement to project, sustain, retrograde and re-employ joint combat power from the sea and Sea Base, independent of tides, water depth, underwater obstacles or beach gradient. The lead craft will be maintained as a test platform throughout its life cycle to allow analysis and test of fixes to problems as they arise during fleet introduction of SSC. The SSC program provides the functional replacement for the LCAC Class of ships, which begin reaching extended service life in 2014.

Budget breakout for Test and Training Craft being procured under this PE/Project:

Plans:
TOTAL 48.7 (FY11 26.6)
Basic Construction
TOTAL 161.6 (FY11 41.8)
Change Orders
TOTAL 8.3 (FY11 1.6)
Electronics
TOTAL 0.3 (FY11 0.3)
HME/Other Support
TOTAL 52.4 (FY11 14.1)
Ship Total
TOTAL 267.3 (FY11 80.4)

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3137: *SSC Construction*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SSC Construction	0.000	0.000	80.463	0.000	80.463
FY 2011 Base Plans: Detail and Design and Construction of test and training craft, including but not limited to procurement of Full Motion Trainer (FMT), Change Orders, Logistics support and Program support.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	80.463	0.000	80.463

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 0604567N: *RDT&E*	25.017	35.328	20.349	0.000	20.349	20.349	5.590	1.805	4.360	0.000	112.798
• SCN 5112: *SSC Construction*	0.000	0.000	0.000	0.000	0.000	0.000	71.783	127.676	230.021	0.000	429.480

D. Acquisition Strategy

The test and training craft will be procured and constructed with RDT&E funds. The test and training craft Detail and Design contract will include an option for construction of follow crafts to be procured in SCN.

E. Performance Metrics

Successfully award detail and design construction contract for Test and Training Craft with options for follow SCN crafts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3137: *SSC Construction*	

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
Test & Trng Craft Detail Design	C/TBD	TBD TBD	0.000	0.000		26.600	Apr 2011	0.000		26.600	Continuing	Continuing	Continuing
Test & Trng Craft Construction	C/TBD	TBD TBD	0.000	0.000		37.317	Apr 2011	0.000		37.317	Continuing	Continuing	Continuing
Full Motion Trainer/GFM	C/TBD	TBD TBD	0.000	0.000		0.463	Apr 2011	0.000		0.463	Continuing	Continuing	Continuing
Change Orders	C/TBD	TBD TBD	0.000	0.000		1.600	Jul 2011	0.000		1.600	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		65.980		0.000		65.980			

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 WR	0.000	0.000		1.800	Oct 2010	0.000		1.800	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		1.800		0.000		1.800			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3137: *SSC Construction*

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
Craft Construction Test Program	WR	Various Various	0.000	0.000		0.342	Oct 2010	0.000		0.342	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.342		0.000		0.342			

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/TBD	Not Specified Not Specified	0.000	0.000		7.200	Nov 2010	0.000		7.200	0.000	7.200	Continuing
Contractor ILS Support	C/TBD	Not Specified Not Specified	0.000	0.000		2.800	Nov 2010	0.000		2.800	0.000	2.800	Continuing
Program Managment Support	C/TBD	Not Specified Not Specified	0.000	0.000		2.341	Nov 2010	0.000		2.341	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		12.341		0.000		12.341			

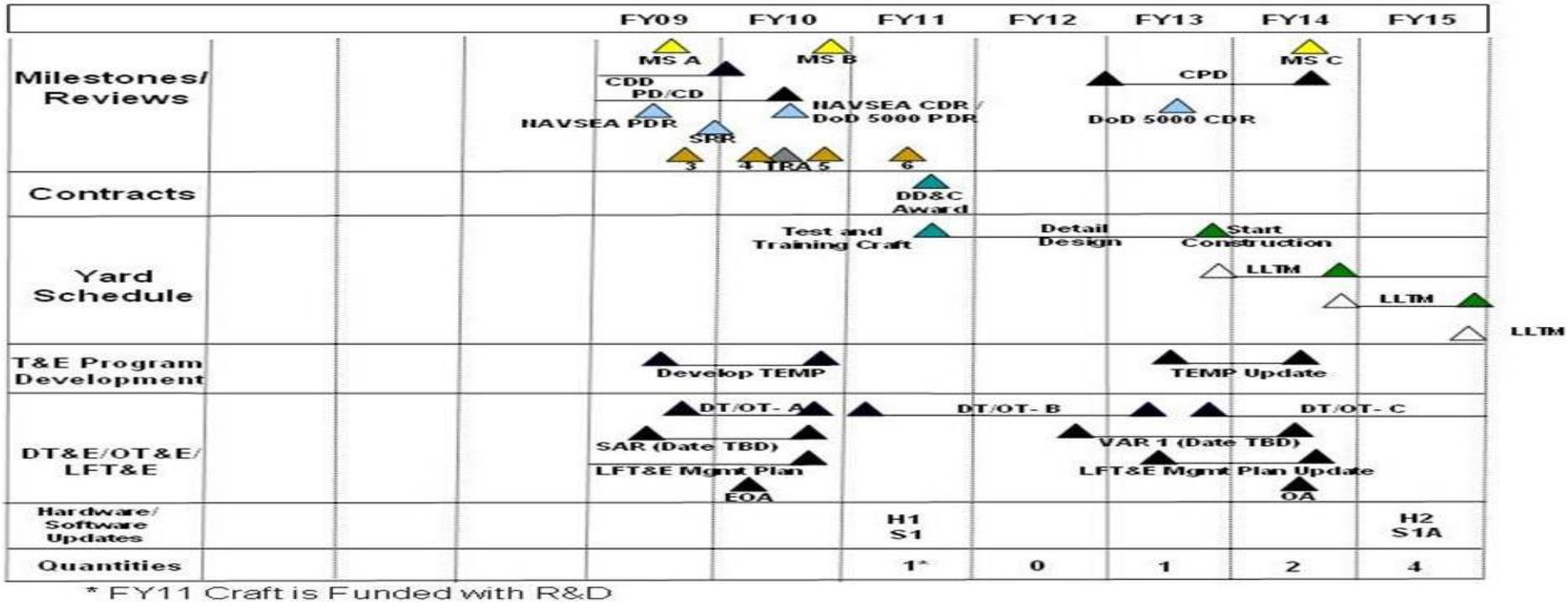
Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3137: *SSC Construction*	

	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		80.463		0.000		80.463			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3137: *SSC Construction*



* FY11 Craft is Funded with 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 3137: *SSC Construction*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Test and Training Craft Detail Design	2	2011	4	2013
Test and Training Craft Construction	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3179: *CVN-79 Total Ship 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
3179: *CVN-79 Total Ship Integration*	32.460	37.261	21.324	0.000	21.324	19.548	14.922	15.035	15.349	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Development and related testing of CVN 78 Class aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project also funds the Contract Design efforts for the CVN 79. This project transitions the minimum sustaining technologies required to address obsolescence, critical survivability shortfalls as identified in CVN 78 Class testing, future requirements, and technologies which did not mature in time to support the CVN 78. All systems developed in this project have the potential to support emerging requirements and other promising systems technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to maintain aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to develop the contract data package necessary to support CVN 79 procurement, including, but not limited to engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
CVN-79 Total Ship Integration	32.279	37.261	21.324	0.000	21.324
FY 2009 Accomplishments: (U) CVN 78 Class Follow Ship Total Ship Integration: The CVN 79 will support efforts to address obsolescence, technology refresh, critical survival improvements, as well as continued improvements in manpower reduction, cost and weight savings. Efforts also encompass those tasks required to support CVN 79 procurement, including, but not					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3179: *CVN-79 Total Ship Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
limited to engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment (IDE). CVN 79 Total Ship Integration (TSI) will be continued through the Construction Preparation (CP) Contract with Northrop Grumman Shipbuilding-Newport News (NGSB-NN) to incorporate technology advancements into the CVN 78 Class baseline design. TSI efforts are focused on continued activities that integrate and optimize systems arrangements and design to maintain the Key Performance Parameters (KPPs) for weight and kg / service life allowance to the ORD threshold values. CVN 79 design efforts will provide required program management and logistics support. The CVN 79 efforts include NGSB-NN development and submission of the Business Case Analysis (BCA) items for Shock Machine, Standard Electrical Enclosures, Spare Circuit Breaker Reduction, and a Propulsion Plant related design efficiency to reduce CVN 79 acquisition cost. Further development and implementation of these and new items (such as Aircraft Elevator Hoist redesign and Reactor Compartment Drilling Machine improvement) have occurred during the fiscal year. CVN 78 Class shock, vibration and electromagnetic interference (EMI) analysis, obsolescence analysis behind Digital Radiography, and TSI efforts have begun. *FY 2010 Plans:* Plans include further NGSB-NN developmentand submission of BCA items for Jet Engine Test Stand deletion, Tandem Gas Metal Arc Welding, SPN-46 deletion, Thin Plate Distortion requirements, Deletion of Liquid Oxygen Plant, and Aircraft Elevator Hoist redesign in order to reduce CVN 78 Class shock, vibration and EMI analysis, obsolescence analysis, and TSI efforts, are planned. *FY 2011 Base Plans:* Plans include further NGSB-NN development and submission of the BCA items to recuce CVN 79 acquisition cost. Further development and implementation of previous and new items to be determined					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3179: *CVN-79 Total Ship Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
will occur during the fiscal year. Continuation of on-going efforts, including CVN 78 Class shock, vibration and EMI analysis and TSI efforts, are planned.					
Defense Acquisition Workforce	0.181	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Defense Acquisition Workforce Development Fund					
Accomplishments/Planned Programs Subtotals	32.460	37.261	21.324	0.000	21.324

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
• 0605312N: *2208, 4004, 9B57A, 9B58A, 9D24A, 10C098*	174.914	154.394	83.619	0.000	83.619	61.382	45.447	45.038	45.435	Continuing	Continuing
• 0603570N: *CVN 21 (PU 2692)*	102.855	82.232	66.643	0.000	66.643	65.142	61.778	57.037	55.990	Continuing	Continuing
• 200100: *Carrier Replacement Program*	3,915.642	1,219.927	2,639.569	0.000	2,639.569	494.823	2,418.293	3,386.556	2,284.498	Continuing	Continuing

D. Acquisition Strategy

The CVN 79 is the second ship of the CVN 78 Class of aircraft carriers which are the numerical replacements for the NIMITZ Class Carriers. CVN 79 is a modified repeat of the CVN 78, which features the new nuclear propulsion and electrical generation / distribution system, electromagnetic aircraft launch system, advanced arresting gear system,
electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war fighting benefits will be realized: increased sortie generation
rate, improved ship self defense capability, increased launch and recovery capability / flexibility, increased operational availability, and increased flexibility to support future upgrades. CVN 79 will use late integration of Government-Furnished Equipment to provide the latest combat system and C4I suite applications within the planned system

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3179: *CVN-79 Total Ship Integration*

baseline. CVN 79 will improve upon processes used on CVN 78 to gain efficiencies during the CVN 79 Construction Preparation and Construction periods.

E. Performance Metrics

Successfully complete system development efforts for designated new and modified shipboard system, including developmental test and evaluation documents. Successfully complete design related activities associated with integration of new and modified shipboard systems into the ship, including developmental test and evaluation documentation. Successfully perform system design and analysis studies. Successfully support design integration and analysis. Successfully complete or support feasibility and tradeoff studies on new and modified shipboard systems, technologies, and proposed modifications. Studies shall include requirements and engineering analysis; identification of subsystem, integration, and logistics impacts; cost estimates; analysis of construction schedule impacts; and conduct/ support of shipchecks. Successfully provide Manpower Workload Analysis associated with design and policy activities, and with integration of new and modified system/equipment. Successfully complete the development of multiple business case analyses (BCAs) that demonstrate technology, process, requirements and/or infrastructure improvements that will reduce the manhours (or equivalent material costs) for CVN 79 Construction.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3179: *CVN-79 Total Ship 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
Total Ship Integration	C/CPAF	NGSB-NN VA	28.152	16.200	Jan 2010	11.196	Dec 2010	0.000		11.196	Continuing	Continuing	Continuing
Total Ship Integration	WR	NSWC Carderock MD	7.254	2.301	Oct 2009	1.046	Oct 2010	0.000		1.046	Continuing	Continuing	Continuing
Total Ship Integration	WR	NSWC Dahlgren VA	3.477	2.941	Oct 2009	0.606	Oct 2010	0.000		0.606	Continuing	Continuing	Continuing
Total Ship Integration	WR	NAWCAD Pax River MD	1.552	0.362	Oct 2009	0.243	Oct 2010	0.000		0.243	Continuing	Continuing	Continuing
Total Ship Integration	WR	SPAWAR SD	2.105	0.218	Oct 2009	0.509	Oct 2010	0.000		0.509	Continuing	Continuing	Continuing
Total Ship Integration	C/CPFF	NAVSEA SEAPORT Not Specified	8.523	5.739	Dec 2009	1.608	Oct 2010	0.000		1.608	Continuing	Continuing	Continuing
Total Ship Integration	C/CPAF	Raytheon Not Specified	0.000	2.257	Dec 2009	1.186	Dec 2010	0.000		1.186	Continuing	Continuing	Continuing
Total Ship Integration	WR	SSC Charleston SC	0.233	0.000		0.000		0.000		0.000	0.000	0.233	Continuing
Total Ship Integration	C/CPFF	SAIC VA	0.551	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Total Ship Integration	Various/ Various	Miscellaneous Various	6.352	7.243	Dec 2009	4.294	Dec 2010	0.000		4.294	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC Carderock MD	0.351	0.000	Oct 2009	0.636	Oct 2010	0.000		0.636	Continuing	Continuing	Continuing
		Subtotal	58.550	37.261		21.324		0.000		21.324			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 3179: *CVN-79 Total Ship 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

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
Defense Acquisition Workforce	C/TBD	Various Mis	0.181	0.000		0.000		0.000		0.000	0.000	0.181	Continuing
		Subtotal	0.181	0.000		0.000		0.000		0.000	0.000	0.181	

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	58.731	37.261		21.324		0.000		21.324			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 3179: *CVN-79 Total Ship Integration*

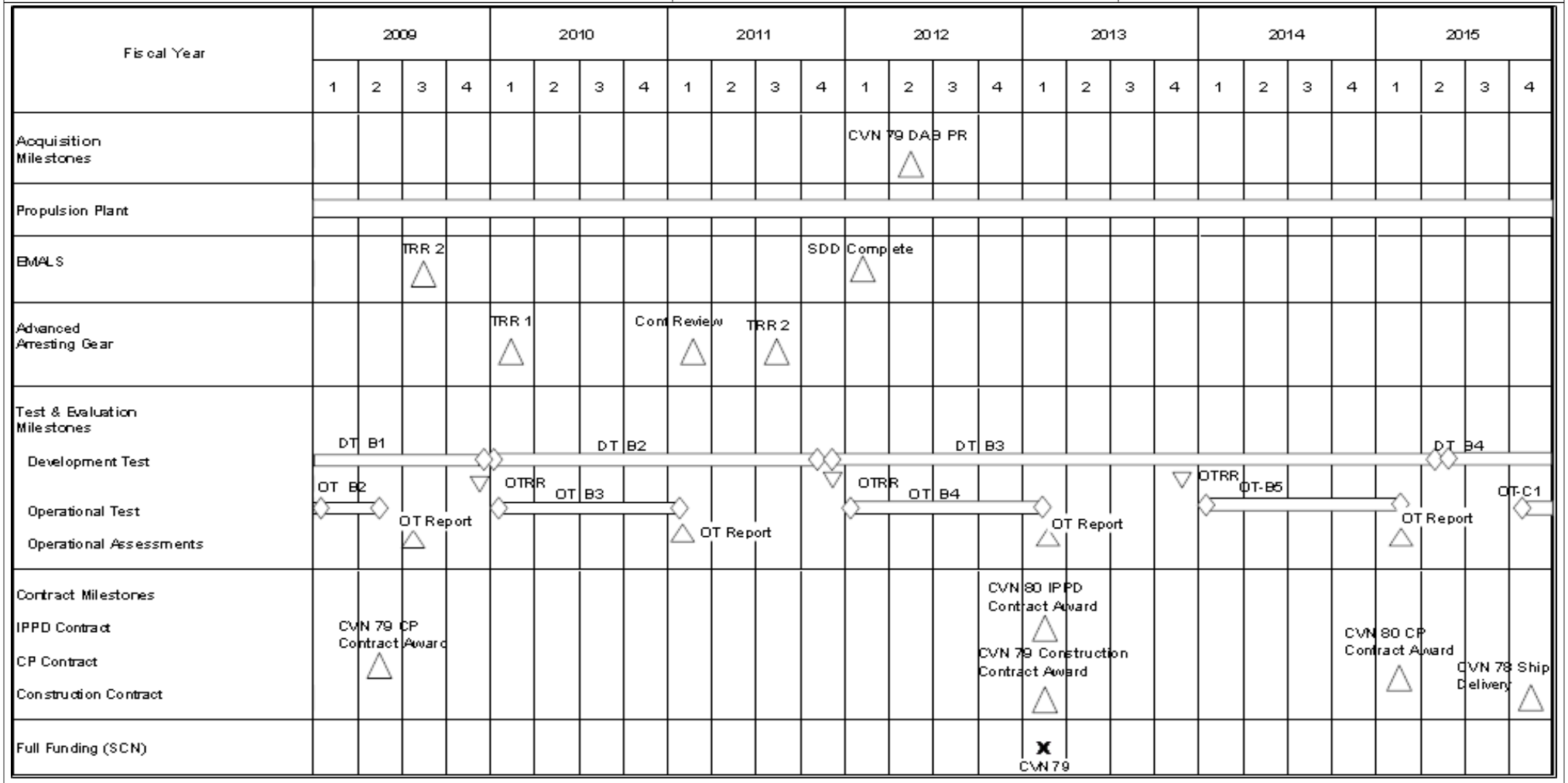


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 3179: *CVN-79 Total Ship Integration*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
CVN 79 DAB PR	2	2012	2	2012
Propulsion Plant	1	2009	4	2015
EMALS TRR 2 (DT/OA)	3	2009	3	2009
EMALS SDD Complete	1	2012	1	2012
Advanced Arresting Gear (AAG) TRR 1 (IT)	1	2010	1	2010
AAG Config Review	1	2011	1	2011
AAG TRR 2 (IT)	3	2011	3	2011
Developmental Tests DT-B1	1	2009	4	2009
Developmental Tests DT-B2	1	2010	4	2011
Developmental Tests DT-B3	4	2011	2	2015
Developmental Test DT-B4	2	2015	4	2015
Operational Tests Readiness Review 1	4	2009	4	2009
Operational Tests Readiness Review 2	4	2011	4	2011
Operational Tests Readiness Review 3	4	2013	4	2013
Operational Tests OT-B2	1	2009	2	2009
Operational Tests OT-B3	1	2010	1	2011
Operational Tests OT-B4	1	2012	1	2013
Operational Tests OT-B5	1	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 3179: *CVN-79 Total Ship Integration*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Operational Test OT-C1	4	2015	4	2015
Operational Tests Report 1	3	2009	3	2009
Operational Tests Report 2	1	2011	1	2011
Operational Tests Report 3	1	2013	1	2013
Operational Tests Report 4	1	2015	1	2015
CVN 79 CP Contract Award	2	2009	2	2009
CVN 80 IPPD Contract Award	1	2013	1	2013
CVN 79 Construction Contract Award	1	2013	1	2013
CVN 80 CP Contract Award	1	2015	1	2015
CVN 78 Ship Delivery	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 4007: *CVN 21 LFT&E*	

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
4007: *CVN 21 LFT&E*	2.024	2.366	2.703	0.000	2.703	1.669	1.186	1.184	1.209	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 Live Fire Test and Evaluation (LFT&E) efforts for the CVN78 Class. Title 10, US Code, Section 2366, CVN 21 Operational Requirements Document (ORD) and the CVN 21 Test and Evaluation Master Plan (TEMP), prescribe requirements for LFT&E. The purpose of LFT&E is to evaluate weapons and weapons systems in a realistic combat environment and to identify any mission threatening vulnerabilities early in the development process when there is time to take corrective action. The CVN 21 LFT&E Management Plan details the efforts, through testing and engineering analyses, to address potential design vulnerabilities.

The unit cost of the CVN 78 Class and its shipboard systems preclude consideration of destructive testing of a full-up CVN 78 Class hull with threats of the type that might be expected in combat. Consequently, the Navy must rely on other means to determine that CVN 78 Class ships will be able to survive and carry out its missions in the face of the threats identified in the CVN 21 System Threat Assessment Report. The Vulnerability Assessment Report (VAR) is the key document that addresses these issues for the CVN 78 LFT&E Program.

The LFT&E strategy for the CVN78 Class accounts for the uncertainty in its design features. The strategy assumes that as the program progresses through the stages of ship design, prior to the award of the construction contract, descriptive detail of CVN78 will increase and so will the ability to evaluate its survivability. The VAR 3 was officially completed in the summer of 2007. The VAR 3 Update is scheduled to be completed in FY 12 and will incorporate the CVN 78 design drawings.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
CVN 21 LFT&E	2.014	2.366	2.703	0.000	2.703
FY 2009 Accomplishments: Update the CVN 21 Management Plan to include Full Ship Shock Trial (FSST) Alternative development. Total Ship Survivability Trials (TSST) and emergent threats identified in updates to the Capstone Ship Threat Assessment (CSTA) by the Office of Naval Intelligence (ONI). Continue					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 4007: *CVN 21 LFT&E*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Vulnerability Assessment Report (VAR) 3 Update to include building the Ship Vulnerability Model (SVM) and Deactivation Diagrams and preparing susceptibility models. Finalize Dynamic System Mechanics Advanced Simulation (DYSMAS) Verification, Validation and Accreditation (VV&A). Begin development of susceptibility models of new and emerging threats identified in the CSTA. Plan and conduct tasks necessary to fulfill the FSST Alternative Memorandum of Agreement (MOA) requirements. Compose FSST Alternative Development Plan. Begin Large Model development. Continue enhanced shock qualification testing on selected CVN 78 equipment. Continue modeling of LPD 19 and CVN 71 Shock Trials to support the FSST Alternative Process. *FY 2010 Plans:* Complete CVN 21 Management Plan update and signature cycle. Continue VAR 3 Update efforts with Modeling and Simulation (M&S) of selected shotlines and the Fire and Smoke Simulator (FSSIM), SVM, and DYSMAS. Begin the Damage Based Engineering Analyses (DSBEA). Continue susceptibility modeling of any new and emerging threats. Plan / conduct VV&A of select susceptibility codes for VAR 3 Update. Conduct Live, Fire, Test, and Evaluation (LFT&E) surrogate tests to support developmental testing of CVN 78 survivability features. Conduct tasks necessary to fulfill the FSST Alternative development, including analysis of CVN 71, LPD 19 and CG 48 shock trials. Continue Large Model development. Continue enhanced shock qualification testing on selected CVN 78 equipment. *FY 2011 Base Plans:* Continue VAR 3 Update efforts on DSBEAs. Continue to conduct tasks necessary to fulfill the FSST Alternative development, including analysis of CVN 71, LPD 19 and CG 48 shock trials. Continue Large Model development. Continue enhanced shock qualification testing on selected CVN 78 equipment. Conduct LFT&E surrogate tests to support developmental testing of CVN 78 survivability features. Commence update of LFT&E Management Plan by specifically addressing any changes to strategy for CVN 79 / CVN 80.					
Defense Acquisition Workforce	0.010	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 4007: *CVN 21 LFT&E*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Defense Acquisition Workforce Development Fund					
Accomplishments/Planned Programs Subtotals	2.024	2.366	2.703	0.000	2.703

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
• 200100: *Carrier Replacement Program*	3,915.642	1,219.927	2,639.569	0.000	2,639.569	494.823	2,418.293	3,386.556	2,284.498	Continuing	Continuing
• 0603570N: *CVN 21 (PU 2692)*	102.855	82.232	66.643	0.000	66.643	65.142	61.778	57.037	55.990	Continuing	Continuing
• 0603512N: *2208, 4004, 9B58A, 9D24A, 10C098*	174.914	154.394	83.619	0.000	83.619	61.382	45.447	45.038	45.435	Continuing	Continuing

D. Acquisition Strategy

The CVN 78 will be the first ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries,
warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war fighting benefits will be realized: increased sortie generation rate, improved ship
self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

E. Performance Metrics

Successfully complete CVN 78 fire test effort in support of magazine fire protection system, AFFF system and EMALS trough fire protection. Complete update of the LFT&E Managment Plan from Rev A to Rev B. Successfully complete LFT&E surrogate test to any new and emerging threats identified by ONI.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 4007: *CVN 21 LFT&E*

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
Live Fire Test & Evaluation	WR	NSWC Carderock MD	38.529	2.045	Oct 2009	2.065	Oct 2010	0.000		2.065	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	C/CPAF	NGSB-NN VA	7.221	0.175	Nov 2009	0.458	Nov 2010	0.000		0.458	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	WR	Miscellaneous Various	0.134	0.146	Dec 2009	0.180	Dec 2010	0.000		0.180	Continuing	Continuing	Continuing
		Subtotal	45.884	2.366		2.703		0.000		2.703			

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
Defense Acquisition Workforce	Various/ TBD	Various Various	0.010	0.000		0.000		0.000		0.000	0.000	0.010	Continuing
		Subtotal	0.010	0.000		0.000		0.000		0.000	0.000	0.010	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 4007: *CVN 21 LFT&E*	

	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	45.894	2.366		2.703		0.000		2.703			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 4007: *CVN 21 LFT&E*

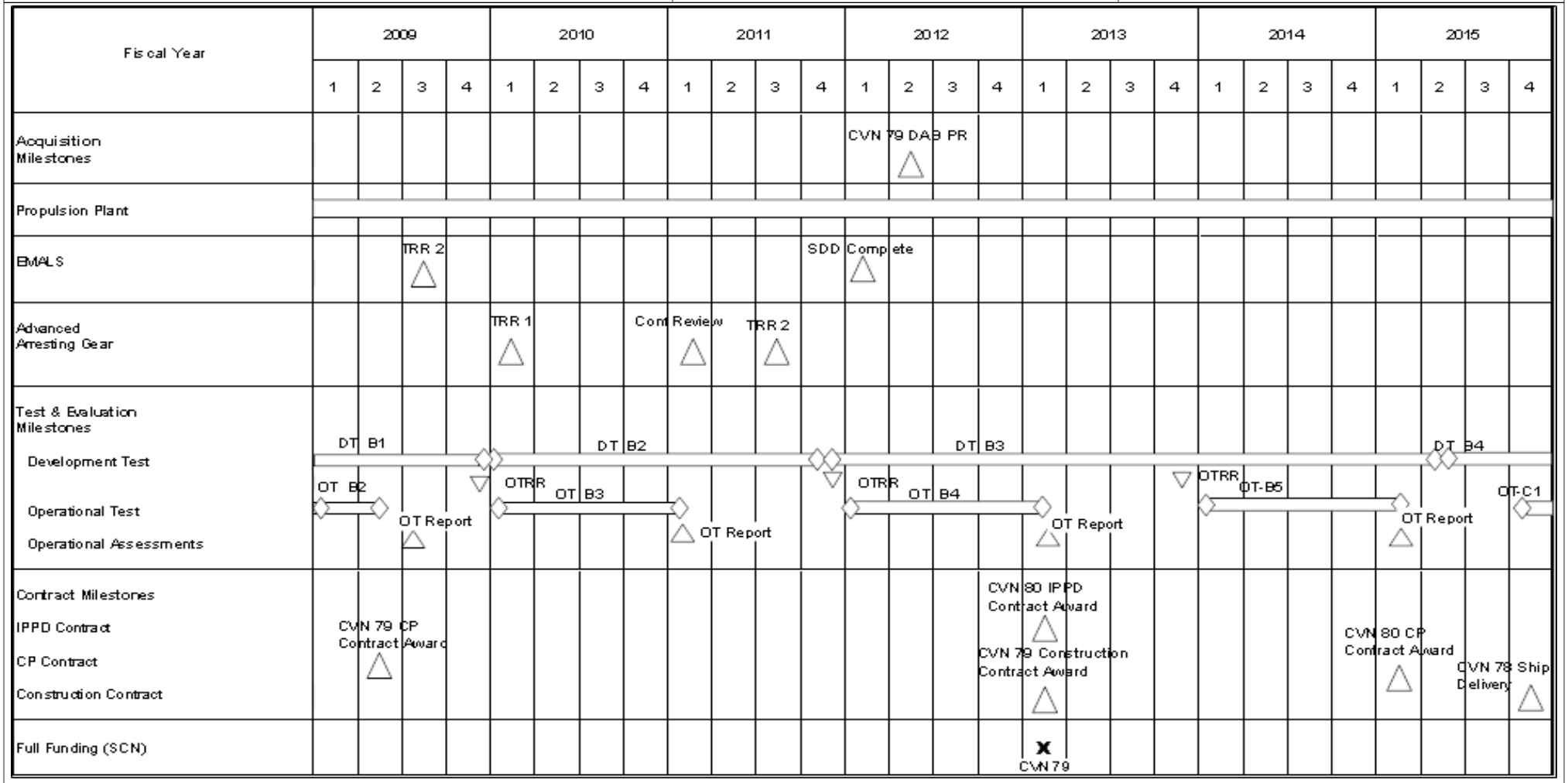


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 4007: *CVN 21 LFT&E*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
CVN 79 DAB PR	2	2012	2	2012
Propulsion Plant	1	2009	4	2015
EMALS TRR 2 (DT/OA)	3	2009	3	2009
EMALS SDD Complete	1	2012	1	2012
Advanced Arresting Gear (AAG) TRR 1 (IT)	1	2010	1	2010
AAG Config Review	1	2011	1	2011
AAG TRR 2 (IT)	3	2011	3	2011
Developmental Tests DT-B1	1	2009	4	2009
Developmental Tests DT-B2	1	2010	4	2011
Developmental Tests DT-B3	4	2011	2	2015
Developmental Test DT-B4	2	2015	4	2015
Operational Tests Readiness Review 1	4	2009	4	2009
Operational Tests Readiness Review 2	4	2011	4	2011
Operational Tests Readiness Review 3	4	2013	4	2013
Operational Tests OT-B2	1	2009	2	2009
Operational Tests OT-B3	1	2010	1	2011
Operational Tests OT-B4	1	2012	1	2013
Operational Tests OT-B5	1	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 4007: *CVN 21 LFT&E*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Operational Tests OT-C1	4	2015	4	2015
Operational Tests Report 1	3	2009	3	2009
Operational Tests Report 2	1	2011	1	2011
Operational Tests Report 3	1	2013	1	2013
Operational Tests Report 4	1	2015	1	2015
CVN 79 CP Contract Award	2	2009	2	2009
CVN 80 IPPD Contract Award	1	2013	1	2013
CVN 79 Construction Contract Award	1	2013	1	2013
CVN 80 CP Contract Award	1	2015	1	2015
CVN 78 Ship Delivery	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	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*	3.790	1.992	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.642
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
	2.793	1.992
Congressional Add: AUTOMATED FIBER OPTIC MANUFACTURING INITIATIVE		
FY 2009 Accomplishments: Production of a fully automated factory work cell that will function as an assembly center of excellence in support of the aircraft carrier construction/overhaul and Virginia Class Submarine programs. The resulting capabilities will allow the shipbuilding industry to produce factory terminated fiber optic cable assemblies/systems utilizing an efficient cost structure generating millions of dollars in shipbuilding program cost savings. The program will address the issue of field installation, field repair, and maintenance by extracting the technologies of the automated manufacturing line and inserting these technologies and process in small, portable, maintenance equipment that can be used by ship construction and ship's force personnel.		
FY 2010 Plans: Continue to address the issue of field installation, field repair, and maintenance by extracting the technologies of the automated manufacturing line and inserting these technologies and process in small, portable, maintenance equipment that can be used by ship construction and ship's force personnel.		

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604567N: *Ship Contract Design/ Live Fire T&E*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Landing Craft Composite Lift Fan *FY 2009 Accomplishments:* Design, development and manufacture of two sets of prototype composite material lift fans for application on current and next generation Navy landing craft vessels. The initiative will address an ongoing problem the Navy has been experiencing with current generation metal lift fan blades that have to be replaced every few months. This technology will extend the life of landing craft lift fans, reducing failures, maintenance and life cycle costs.	0.997	0.000
Congressional Adds Subtotals	3.790	1.992

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604567N: *Ship Contract Design/ Live Fire T&E*	PROJECT 9999: *Congressional Adds*

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
Congressional Plus Up	WR	NSWC Dahlgren VA	2.793	1.992	Jan 2010	0.000		0.000		0.000	0.000	4.785	Continuing
Composite Lift Fan Congressional Plus Up	C/FP	Curtiss-Wright PA	0.797	0.000		0.000		0.000		0.000	0.000	0.797	Continuing
Composite Lift Fan Congressional Plus Up	WR	NSWC Carderock MA	0.200	0.000		0.000		0.000		0.000	0.000	0.200	Continuing
		Subtotal	3.790	1.992		0.000		0.000		0.000	0.000	5.782	

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	3.790	1.992		0.000		0.000		0.000	0.000	5.782	

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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604574N: *Navy Tactical Computer Resources*							
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	4.601	4.443	0.000	4.443	4.533	4.622	4.712	4.801	Continuing	Continuing
1353: *Standard Hardware*	0.000	4.601	4.443	0.000	4.443	4.533	4.622	4.712	4.801	Continuing	Continuing

A. Mission Description and Budget Item Justification

The AN/UYQ-70(V) program initially incorporated state-of-the-art Commercial-off-the-Shelf/Open System Architecture (COTS/OSA) technological improvements continuously and rapidly, in order to meet rapidly evolving future customer requirements. The product baseline was designed to increase capability in order to satisfy the needs of future FORCEnet
network-centric Open Architecture combat system designs. The Common Processing System (CPS) and Common Display System (CDS) programs are being executed to bring Open Architecture hardware and technology utilization into a common configuration in a competitive sourcing environment. CPS provides the computer processing and memory, data storage and extraction, and Input/Output (I/O) interface to support hosting Navy combat system software applications and management of computing resources in support of the AEGIS Modernization program, the CVN program, PEO SUB platforms, and other platforms. CDS provides common human machine interface (Combat Information Center (CIC) consoles and remote displays) to the AEGIS Open Architecture (OA) computing environment and provide war fighter team situational awareness in support of the AEGIS Modernization program, then provide the same capabilities to the CVN program, DDG-1000, PEO SUB platforms, and other platforms. Both CDS and CPS provide technical replacements of obsolete display and processing equipment (such as AN/UYQ-70) supporting multiple platforms including AEGIS Destroyers, Cruisers undergoing modernization, the CVN program, DDG-1000, PEO SUB programs, and other platforms.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604574N: *Navy Tactical Computer Resources*

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	4.620	0.000	0.000	0.000
Current President's Budget	0.000	4.601	4.443	0.000	4.443
Total Adjustments	0.000	-0.019	4.443	0.000	4.443
• Congressional General Reductions		-0.019			
• 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	4.443	0.000	4.443

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604574N: *Navy Tactical Computer Resources*	PROJECT 1353: *Standard Hardware*	

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
1353: *Standard Hardware*	0.000	4.601	4.443	0.000	4.443	4.533	4.622	4.712	4.801	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Common Processing System (CPS) provides the computer processing and memory, data storage and extraction, and Input/Output (I/O) interface to support hosting Navy combat system software applications and management of computing resources in support of the AEGIS Modernization program, the CVN program, PEO SUB platforms, and other platforms. The Common Display System (CDS) provides common human machine interface (Combat Information Center (CIC) consoles and remote displays) to the AEGIS Open Architecture (OA) computing environment and provide war fighter team situational awareness in support of the AEGIS Modernization program, then provide the same capabilities to the CVN program, DDG-1000, PEO SUB platforms, and other platforms. Both CDS and CPS provide technical replacements of obsolete display and processing equipment (such as AN/UYQ-70) supporting multiple platforms including AEGIS Destroyers, Cruisers undergoing modernization, the CVN program, DDG-1000, PEO SUB programs, and other platforms.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Systems Engineering	0.000	4.601	4.443	0.000	4.443
FY 2010 Plans: Provide Common Display System (CDS) and Common Processing System (CPS) technical replacements of obsolete AN/UYQ-70 display and processing equipment supporting multiple platforms including AEGIS Destroyers and Cruisers undergoing modernization. Perform technology refresh of CDS and CPS equipment.					
FY 2011 Base Plans: Continue development of CDS and CPS to support multiple platforms including AEGIS Destroyers and Cruisers undergoing modernization, CVN, PEO SUBs, and other platforms. Perform technology refresh of CDS and CPS equipment.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604574N: *Navy Tactical Computer Resources*	PROJECT 1353: *Standard Hardware*

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	4.601	4.443	0.000	4.443

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

No major acquisitions in FY11.

Contracts:
CDSIDIQ Production continues FY10-FY15.
CPS IDIQ Production commences FY10-FY14.

E. Performance Metrics

CDS Performance Metrics

2010 Funding:
-Successfully complete CDS Tech. Refresh/Tech Insertion Systems Requirements Review (SRR)
-Successfully complete CDS Tech. Refresh/Tech Insertion Preliminary Design Review (PDR)
-Successfully complete CDS Tech. Refresh/Tech Insertion Critical Design Review (CDR)
-Conduct Quarterly CDS/CPS Tech. Refresh/Tech. Insertion Working Group Mtgs with prime contractors and the customers to identify technology refresh priorities, customer requirements, future technology trends, obsolescence problems.
-Conduct several CDS Technical Interchange Meetings on an as-needed basis to explore and resolve emergent technical design issues.

2011 Funding:
-Successfully complete CDS Tech. Refresh/Tech. Insertion Production Readiness Review (PRR)
Conduct Quarterly CDS/CPS Tech. Refresh/Tech. Insertion Working Group Mtgs with prime contractors and the customers to identify technology refresh priorities, customer requirements, future technology trends, obsolescence problems.
-Conduct CDS Technical Interchange Meetings on an as-needed basis to explore and resolve emergent technical design issues.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604574N: *Navy Tactical Computer Resources*	PROJECT 1353: *Standard Hardware*

-Successfully complete CDS Technology Refresh Environmental Qualification testing.

CPS Performance Metrics

2010 Funding:
-Conduct Quarterly CDS/CPS Tech. Refresh/Tech. Insertion Working Group Mtgs with prime contractors and the customers to identify technology refresh priorities, customer requirements, future technology trends, obsolescence problems.
-Conduct CPS Technical Interchange Meetings to explore and resolve emergent technical design issues.

2011 Funding:
-Conduct Quarterly CDS/CPS Tech. Refresh/Tech. Insertion Working Group Mtgs with prime contractors and the customers to identify technology refresh priorities, customer requirements, future technology trends, obsolescence problems.
-Conduct CPS Technical Interchange Meetings to explore and resolve emergent technical design issues.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604574N: *Navy Tactical Computer Resources*	PROJECT 1353: *Standard Hardware*	

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	NSWC PHD	0.130	0.000		0.000		0.000		0.000	0.000	0.130	Continuing
Systems Engineering	WR	NSWC Dahlgren	1.021	2.120	Jan 2010	0.000		0.000		0.000	0.000	3.141	Continuing
Systems Engineering	WR	NSWC Crane	0.799	0.000		0.000		0.000		0.000	0.000	0.799	Continuing
Systems Engineering	C/CPFF	General Dynamics Fairfax, VA	0.000	1.602	Jan 2010	2.222	Jan 2011	0.000		2.222	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	DRS Technologies Gaithersburg, MD	0.000	0.478	Jan 2010	0.666	Jan 2011	0.000		0.666	Continuing	Continuing	Continuing
Systems Engineering	C/CPIF	Global Technical Systems Virginia Beach, VA	0.000	0.401	Jan 2010	1.555	Jan 2011	0.000		1.555	Continuing	Continuing	Continuing
Systems Enginering	Various/ Various	Various Various	0.097	0.000		0.000		0.000		0.000	0.000	0.097	Continuing
		Subtotal	2.047	4.601		4.443		0.000		4.443			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604574N: *Navy Tactical Computer Resources*	PROJECT 1353: *Standard Hardware*

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 Services	Various/ Various	Various Various	0.100	0.000		0.000		0.000		0.000	0.100	0.200	Continuing
		Subtotal	0.100	0.000		0.000		0.000		0.000	0.100	0.200	

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	2.147	4.601		4.443		0.000		4.443			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604574N: *Navy Tactical Computer Resources*	PROJECT 1353: *Standard Hardware*

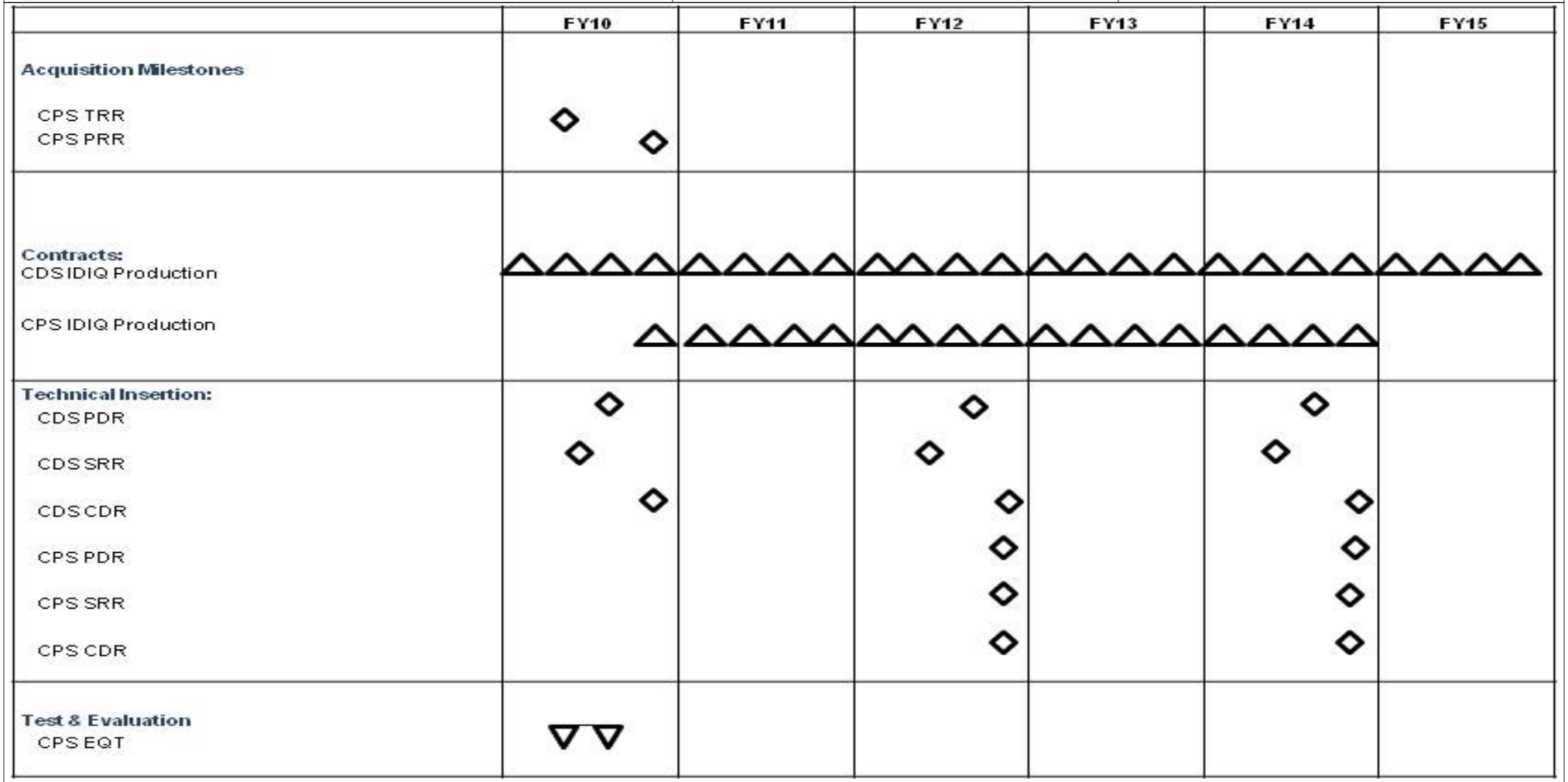


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604574N: *Navy Tactical Computer Resources*	PROJECT 1353: *Standard Hardware*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
CDS IDIQ Production	1	2010	4	2015
Technical Insertion CDS PDR	3	2010	3	2014
Technical Insertion CDS SRR	2	2010	2	2014
Technical Insertion CDS CDR	4	2010	4	2014
CPS TRR	2	2010	2	2010
CPS EQT	2	2010	3	2010
CPS PRR	4	2010	4	2010
CPS IDIQ Production	4	2010	4	2014
Technical Insertion CPS PDR	4	2012	4	2014
Technical Insertion CPS SRR	4	2012	4	2014
Technical Insertion CPS CDR	4	2012	4	2014

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604601N: *Mine 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	1.987	2.240	5.455	0.000	5.455	5.604	6.184	3.795	3.851	Continuing	Continuing
0267: *Mine Improvements*	1.987	2.240	5.455	0.000	5.455	5.604	6.184	3.795	3.851	Continuing	Continuing

A. Mission Description and Budget Item Justification

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

This project is the only R&D program for mine systems, and is the sole support for the capability to maintain the effectiveness of mines facing new threat targets and increasing emphasis on major regional conflicts and littoral warfare in shallow water. Project tasks are grouped into several areas: (1) Threat Modeling/Analysis, which collects, analyzes, and develops digital models of data on current priority threat target characteristics to support computer simulations; (2) Target Detection and Response, which uses target models to develop optimal mine designs, settings, and firing algorithms; and (3) Developing and upgrading Tactical Decision Aids (TDAs) to assist the warfighter in planning and placing more effective minefields.

Data Recorders: Mine data recorders record mine target detection and mine fire data during in-water reliability testing. Current recorders are no longer supportable and cannot be used with the Quickstrike Mod 3. New recorders will work with the programmable Target Detecting Device MK 71 used in the Mod 3. They will support in-water testing of all in-service Quickstrike Mods (0, 1, and 3).

Remote Control (RECO): Provide on-way Remote Control of Quickstrike Mine MK 65. Commands will be Arm, Sterilize and Self Destruct. RECO mines can be planted before a conflict begins and armed if required. Sterilize or self destruct commands will neutralize the minefield as soon as hostilities are over. Work includes development of transmitters to
communicate with the mines.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604601N: *Mine Development*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	1.999	2.249	0.000	0.000	0.000
Current President's Budget	1.987	2.240	5.455	0.000	5.455
Total Adjustments	-0.012	-0.009	5.455	0.000	5.455
• Congressional General Reductions		-0.009			
• 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	-0.012	0.000			
• Program Adjustments	0.000	0.000	5.455	0.000	5.455

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604601N: *Mine Development*	PROJECT 0267: *Mine 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
0267: *Mine Improvements*	1.987	2.240	5.455	0.000	5.455	5.604	6.184	3.795	3.851	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 the only R&D program for mine systems, and is the sole support for the capability to maintain the effectiveness of mines facing new threat targets and increasing emphasis on major regional conflicts and littoral warfare in shallow water. Project tasks are grouped into several areas: (1) Threat Modeling/Analysis, which collects, analyzes, and develops digital models of data on current priority threat target characteristics to support computer simulations; (2) Target Detection and Response, which uses target models to develop optimal mine designs, settings, and firing algorithms; and (3) Developing and upgrading Tactical Decision Aids (TDAs) to assist the warfighter in planning and placing more effective minefields.

Data Recorders: Mine data recorders record mine target detection and mine fire data during in-water reliability testing. Current recorders are no longer supportable and cannot be used with the Quickstrike Mod 3. New recorders will work with the programmable Target Detecting Device MK 71 used in the Mod 3. They will support in-water testing of all in-service Quickstrike Mods (0, 1, and 3).

Remote Control (RECO): Provide one-way Remote Control of Quickstrike Mine MK 65. Commands will be Arm, Sterilize and Self Destruct. RECO mines can be planted before a conflict begins and armed if required. Sterilize or self destruct commands will neutralize the minefield as soon as hostilities are over. Work includes development of transmitters to communicate with the mines.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition Workforce: *FY 2009 Accomplishments:* Acquisition Workforce	0.010	0.000	0.000	0.000	0.000
Development Support:	1.426	1.670	2.833	0.000	2.833

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604601N: *Mine Development*	PROJECT 0267: *Mine Improvements*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Software Development: Continue initial development of the High Speed Vessels/Shallow Water Twin Hull (HSV/SWATH) algorithm for the Quickstrike Mod 3 (Target Detecting Device Mk 71 Mod 1). Conduct in-water testing of the Air Cushioned Vehicle algorithm and HSV/SWATH algorithm. Complete generating operational data (OPDATA) for the Fast Patrol Boat and large ship algorithms for minefield planning, and begin generating OPDATA for the Air Cushioned Vehicle algorithm. Generate OPDATA for the Air Cushioned Vehicle algorithm for minefield planning. Continue the second phase of development for the ForceNet-compliant Tactical Decision Aid for minefield planning in MEDAL/ GCCS-M, to pass minefield plans directly to ForceNet target and aircraft-mission planning software. Integrated Logistic Support (ILS). *FY 2010 Plans:* Software Development: Continue initial development of the High Speed Vessels/Shallow Water Twin Hull (HSV/SWATH) algorithm for the Quickstrike Mod 3 (Target Detecting Device Mk 71 Mod 1). Conduct in-water testing of the Air Cushioned Vehicle algorithm and HSV/SWATH algorithm. Complete generating operational data (OPDATA) for the Fast Patrol Boat and large ship algorithms for minefield planning, and begin generating OPDATA for the Air Cushioned Vehicle algorithm. Generate OPDATA for the Air Cushioned Vehicle algorithm for minefield planning. Continue the second phase of development for the ForceNet-compliant Tactical Decision Aid for minefield planning in MEDAL/ GCCS-M, to pass minefield plans directly to ForceNet target and aircraft-mission planning software. Integrated Logistic Support (ILS). *FY 2011 Base Plans:* Software Development: Continue initial development of the High Speed Vessels/Shallow Water Twin Hull (HSV/SWATH) algorithm for the Quickstrike Mod 3 (Target Detecting Device Mk 71 Mod 1). Conduct in-water testing of the Air Cushioned Vehicle algorithm and HSV/SWATH algorithm. Complete generating operational data (OPDATA) for the Fast Patrol Boat and large ship algorithms for minefield planning, and begin generating OPDATA for the Air Cushioned Vehicle algorithm. Generate					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604601N: *Mine Development*	PROJECT 0267: *Mine Improvements*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
OPDATA for the Air Cushioned Vehicle algorithm for minefield planning. Continue the second phase of development for the ForceNet-compliant Tactical Decision Aid for minefield planning in MEDAL/ GCCS-M, to pass minefield plans directly to ForceNet target and aircraft-mission planning software. Integrated Logistic Support (ILS).					
Product Development: *FY 2009 Accomplishments:* System Engineering: Continue to perform flight testing leading to aircraft certification for Quickstrike Mod 3. *FY 2010 Plans:* System Engineering: Continue to perform flight testing leading to aircraft certification for Quickstrike Mod 3. *FY 2011 Base Plans:* System Engineering: Continue to perform flight testing leading to aircraft certification for Quickstrike Mod 3. Begin system engineering analysis and requirements for Mine data recorder and Quickstrike Remote Control.	0.484	0.500	2.459	0.000	2.459
Management: *FY 2009 Accomplishments:* Program Management Support and Travel *FY 2010 Plans:* Program Management Support and Travel *FY 2011 Base Plans:* Program Management Support and Travel	0.067	0.070	0.163	0.000	0.163

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604601N: *Mine Development*	PROJECT 0267: *Mine Improvements*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	1.987	2.240	5.455	0.000	5.455

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 3231: *Quickstrike Mine*	3.479	4.666	6.090	0.000	6.090	5.955	7.121	10.681	10.763	0.000	48.755

D. Acquisition Strategy

The Target Detecting Device (TDD) Mk 71 Mod 1 was modified by the TDD Adapter Mk 157 - used in Quickstrike Mk 65 Mod 3 kits, the Safe and Arming Device Mk 75, TDD Adapter Mk 163, and Lithium Battery Mk 176 - used in the Quickstrike Mk 62/63 Mod 3 kits.

E. Performance Metrics

Successfully develop new mine data recorders to work with the programmable Target Detecting Device MK 71 used in the Mod 3. Successfully design and develop the Navy Remote Control (RECO) mine capability, which will deliver a one-way Remote Control of Quickstrike Mine MK 65. RECO will be able to Arm, Sterilize and Self Destruct.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604601N: *Mine Development*	PROJECT 0267: *Mine 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 Development	WR	NSWC PC WX	111.113	0.500	Oct 2009	2.459	Oct 2010	0.000		2.459	Continuing	Continuing	Continuing
Ancillary Hardware Development	C/TBD	Not Specified Not Specified	2.158	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Ship Suitability	WR	NSWC PC WX	2.467	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
GFE	C/TBD	Not Specified Not Specified	4.790	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	120.528	0.500		2.459		0.000		2.459			

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	Various WX	12.785	1.649	Oct 2009	2.779	Oct 2010	0.000		2.779	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NSWC PC WX	0.539	0.021	Oct 2009	0.054	Oct 2010	0.000		0.054	Continuing	Continuing	Continuing
		Subtotal	13.324	1.670		2.833		0.000		2.833			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604601N: *Mine Development*	PROJECT 0267: *Mine 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
Development Test & Evaluation	WR	NSWC PC WX	17.916	0.000		0.000		0.000		0.000	0.000	17.916	Continuing
		Subtotal	17.916	0.000		0.000		0.000		0.000	0.000	17.916	

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	C/TBD	Not Specified Not Specified	35.599	0.000		0.000		0.000		0.000	0.000	35.599	Continuing
Program Management Support	C/Various	Various Various	1.663	0.065	Oct 2009	0.148	Oct 2010	0.000		0.148	Continuing	Continuing	Continuing
Travel	C/TBD	NAVSEA PD	0.038	0.005	Oct 2009	0.015	Oct 2010	0.000		0.015	Continuing	Continuing	Continuing
DAWDF	C/TBD	Not Specified Not Specified	0.010	0.000		0.000		0.000		0.000	0.000	0.010	Continuing
		Subtotal	37.310	0.070		0.163		0.000		0.163			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604601N: *Mine Development*	PROJECT 0267: *Mine Improvements*	

	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	189.078	2.240		5.455		0.000		5.455			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604601N: *Mine Development*	PROJECT 0267: *Mine Improvements*

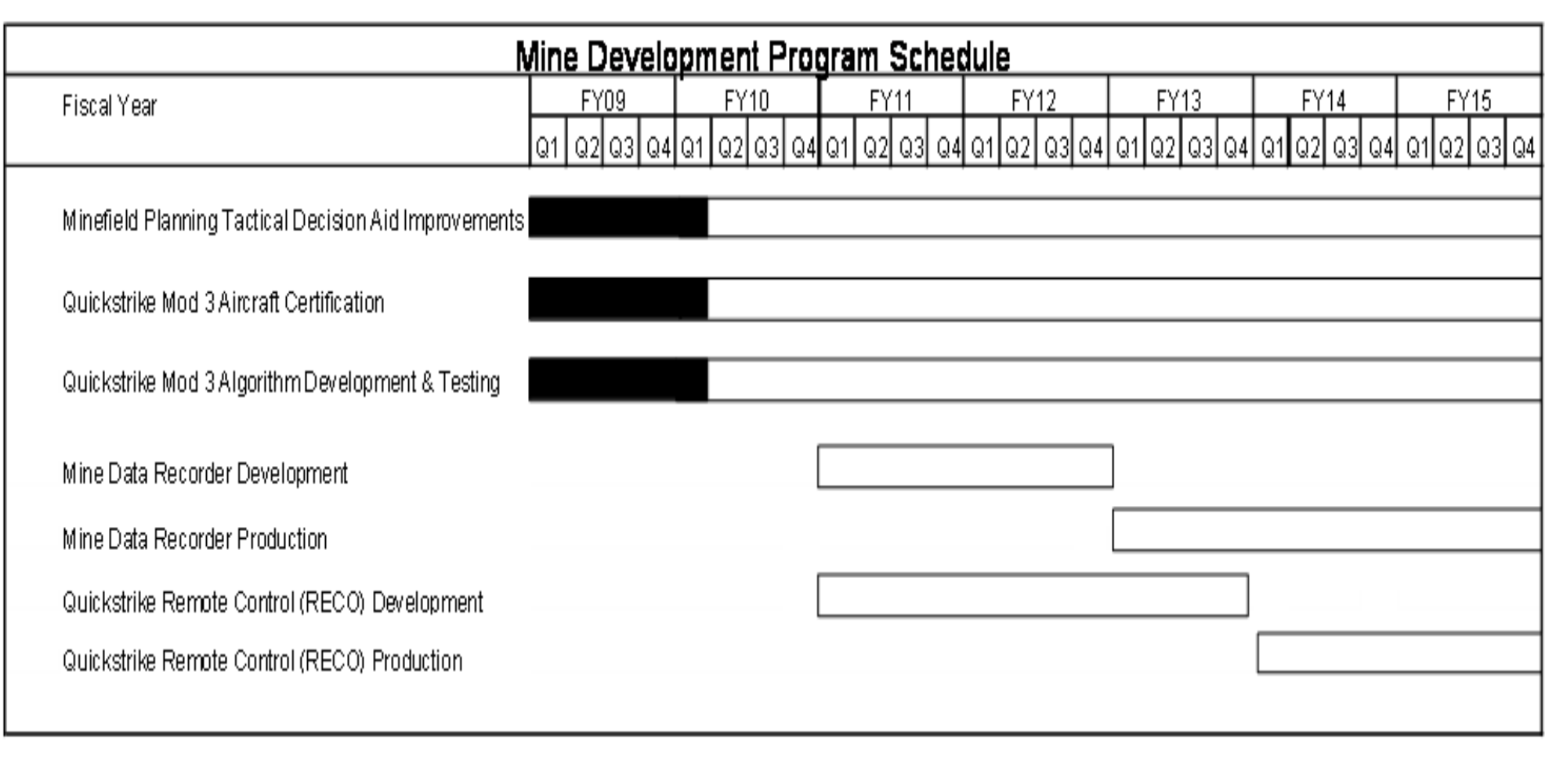


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604601N: *Mine Development*	**PROJECT** 0267: *Mine Improvements*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Minefield Planning Tactical Decision Aid Improvements	1	2009	4	2015
Quickstrike Mod 3 Aircraft Certification	1	2009	4	2015
Quickstrike Mod 3 Algorithm Development and Testing	1	2009	4	2015
Mine Data Recorder Development	1	2011	4	2012
Mine Data Recorder Production	1	2013	4	2015
Quickstrike Remote Control (RECO) Development	1	2011	4	2013
Quickstrike Remote Control (RECO) Production	1	2014	4	2015

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604610N: *Lightweight Torpedo 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	44.848	23.407	25.282	0.000	25.282	33.700	33.583	21.311	21.753	Continuing	Continuing
2234: *Lightweight Hybrid Torpedo*	43.252	21.017	25.282	0.000	25.282	33.700	33.583	21.311	21.753	Continuing	Continuing
9999: *Congressional Adds*	1.596	2.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.986

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION:
Lightweight Torpedo program designs, integrates and tests the Lightweight Torpedo (LWT, MK54). The Lightweight Torpedo provides performance improvements in shallow water, counter-measure environments. The Engineering Development Model (EDM) contract was awarded to Raytheon Systems Company in June 1996. The EDM contract has delivered twenty-one EDM units to support the in-water test program. Initial Operating Capability (IOC) achieved in 2004.

FY09: Continue development of hardware/software improvements for MK54 Pre-Planned Product Improvement (P3I) program. Continue development of MK54 high altitude launch capability from Maritime Patrol Aircraft (MPA).

FY10: Continue development of hardware/software improvements for P3I program. Continue development of MK54 high altitude launch capability from MPA.

FY11: Continue development of hardware/software improvements for P3I program. Continue development of MK54 high altitude launch capability from MPA.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604610N: *Lightweight Torpedo Development*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	52.103	21.105	0.000	0.000	0.000
Current President's Budget	44.848	23.407	25.282	0.000	25.282
Total Adjustments	-7.255	2.302	25.282	0.000	25.282
• Congressional General Reductions		-0.098			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		2.400			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-6.499	0.000			
• SBIR/STTR Transfer	-0.756	0.000			
• Program Adjustments	0.000	0.000	25.282	0.000	25.282

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Weapon Acquisition and Firing System*	0.000	2.390
Congressional Add: *Torpedo Composite Homing Array*	1.596	0.000
Congressional Add Subtotals for Project: 9999	1.596	2.390
Congressional Add Totals for all Projects	1.596	2.390

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604610N: *Lightweight Torpedo Development*	PROJECT 2234: *Lightweight Hybrid Torpedo*	

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
2234: *Lightweight Hybrid Torpedo*	43.252	21.017	25.282	0.000	25.282	33.700	33.583	21.311	21.753	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Lightweight Torpedo / 2234: The program designs, integrates and tests the Lightweight Torpedo (LWT, MK54). The Lightweight Torpedo provides performance improvements in shallow water, counter-measure environments. The Engineering Development Model (EDM) contract was awarded to Raytheon Systems Company in June 1996. The EDM contract has delivered twenty-one EDM units to support the in-water test program. Initial Operating Capability (IOC) achieved in 2004. FY10 delivery includes four Proof of Design/Proof of Manufacturing (POD/POM) and four EDM units of the new array.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MK54 Pre-Planned Product Improvement (incl.MK54 VLA Integr & HAAWC prog)	43.026	21.017	25.282	0.000	25.282
FY 2009 Accomplishments: Continued development of hardware/software improvements for P3I program Block Upgrade (BUG)/ Classifier and Track (CAT) and Advanced Processor Build (APB) ($16.344M). Continued development of P3I Program hardware/software for the new array ($16.205M). Continued development of MK54 high altitude launch capability from MPA ($10.127M). Conducted Operational Testing (OT) of VLA54 ($0.350M). *FY 2010 Plans:* Continue development of hardware/software improvements for P3I program BUG/CAT and APB ($5.206M). Continue development of P3I Program hardware/software for the new array ($3.811M). Continue development of MK54 high altitude launch capability from MPA ($12.000M).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604610N: *Lightweight Torpedo Development*	PROJECT 2234: *Lightweight Hybrid Torpedo*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue development of hardware/software improvements for P3I program BUG/CAT and APB ($4.533M). Continue development of hardware/software for the new array ($2.549M). Continue development of MK54 high altitude launch capability from MPA ($18.200M).					
Acquisition Workforce Fund	0.226	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Funded DoD Acquisition Workforce Fund					
Accomplishments/Planned Programs Subtotals	43.252	21.017	25.282	0.000	25.282

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/3215: *MK54 Torpedo Mods*	27.008	89.985	42.144	0.000	42.144	91.508	100.979	153.699	203.089	Continuing	Continuing

D. Acquisition Strategy

The EDM contract is held by Raytheon Systems Company. The contract was awarded as a Cost-Plus-Award Fee in June 1996 and was converted to Cost-Plus-Incentive Fee in December 1998. Sole Source Production Contract awarded in FY 2004 for MK48 ADCAP MODS/CBASS and MK54 Lightweight Torpedoes. P3I spiral acquisition strategy is to award EDM contracts among qualified producers.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604610N: *Lightweight Torpedo Development*	PROJECT 2234: *Lightweight Hybrid Torpedo*	

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	NUWC Newport/Keyport	27.861	2.925	Oct 2009	3.017	Oct 2010	0.000		3.017	Continuing	Continuing	Continuing
Hardware Development	C/CPAF	Raytheon Not Specified	3.530	0.000		0.000		0.000		0.000	0.000	3.530	Continuing
Hardware Development	WR	NSWC Indian Head, MD	0.482	0.200	Oct 2009	0.211	Oct 2010	0.000		0.211	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC Newport/Keyport	16.954	1.535	Oct 2009	0.231	Oct 2010	0.000		0.231	Continuing	Continuing	Continuing
Systems Engineering	SS/FP	Lockheed Martin - VLA Akron, OH	2.501	0.000		0.000		0.000		0.000	0.000	2.501	Continuing
Systems Engineering	WR	PEO-IWS 3, Dahlgren, VA	2.882	0.000		0.000		0.000		0.000	0.000	2.882	Continuing
Systems Engineering	WR	PEO-IWS 5, Dahlgren, VA	2.223	0.000		0.000		0.000		0.000	0.000	2.223	Continuing
Systems Engineering	WR	NSWC PMA 290 Not Specified	3.865	0.555	Oct 2009	1.769	Oct 2010	0.000		1.769	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCWD China Lake	0.379	0.000		0.000		0.000		0.000	0.000	0.379	Continuing
Systems Engineering	SS/FP	SPA Inc. Not Specified	0.640	0.000		0.000		0.000		0.000	0.000	0.640	Continuing
Hardware Development	SS/FP	Progeny Systems Not Specified	24.394	0.000		1.275	Oct 2010	0.000		1.275	Continuing	Continuing	Continuing
Hardware Development	SS/FP	Mikel Inc. Middleton, RI	0.000	2.390	Mar 2010	0.000		0.000		0.000	0.000	2.390	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604610N: *Lightweight Torpedo Development*	PROJECT 2234: *Lightweight Hybrid Torpedo*	

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	TBD for HAAWC Not Specified	4.692	6.900	Oct 2009	13.269	Dec 2010	0.000		13.269	Continuing	Continuing	Continuing
Software Development	WR	NUWC Newport/Keyport	13.543	3.579	Oct 2009	4.239	Oct 2010	0.000		4.239	Continuing	Continuing	Continuing
Systems Engineering	WR	Naval Operational Logistics Support Center (NOLSC) Not Specified	0.025	0.000		0.000		0.000		0.000	0.000	0.025	Continuing
		Subtotal	103.971	18.084		24.011		0.000		24.011			

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 Test and Evaluation	WR	NUWC Newport/Keyport	15.143	2.324	Oct 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	15.143	2.324		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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604610N: *Lightweight Torpedo Development*	PROJECT 2234: *Lightweight Hybrid Torpedo*

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 Test and Evaluation	WR	OPTEVFOR Not Specified	1.122	0.150	Oct 2009	0.287	Oct 2010	0.000		0.287	Continuing	Continuing	Continuing
System Test and Evaluation	WR	NUWC Newport/Keyport	13.231	0.000		0.600	Oct 2010	0.000		0.600	Continuing	Continuing	Continuing
		Subtotal	14.353	0.150		0.887		0.000		0.887			

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/Various	Alion Science Not Specified	1.184	0.401	Oct 2009	0.326	Oct 2010	0.000		0.326	0.000	1.911	Continuing
Travel	WR	NAVSEA Not Specified	0.192	0.058	Oct 2009	0.058	Oct 2010	0.000		0.058	0.000	0.308	Continuing
Acquisition Workforce Fund	Various/ Various	Various Various	0.226	0.000		0.000		0.000		0.000	0.000	0.226	Continuing
		Subtotal	1.602	0.459		0.384		0.000		0.384	0.000	2.445	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604610N: *Lightweight Torpedo Development*	PROJECT 2234: *Lightweight Hybrid Torpedo*	

	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	135.069	21.017		25.282		0.000		25.282			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604610N: *Lightweight Torpedo Development*	**PROJECT** 2234: *Lightweight Hybrid Torpedo*

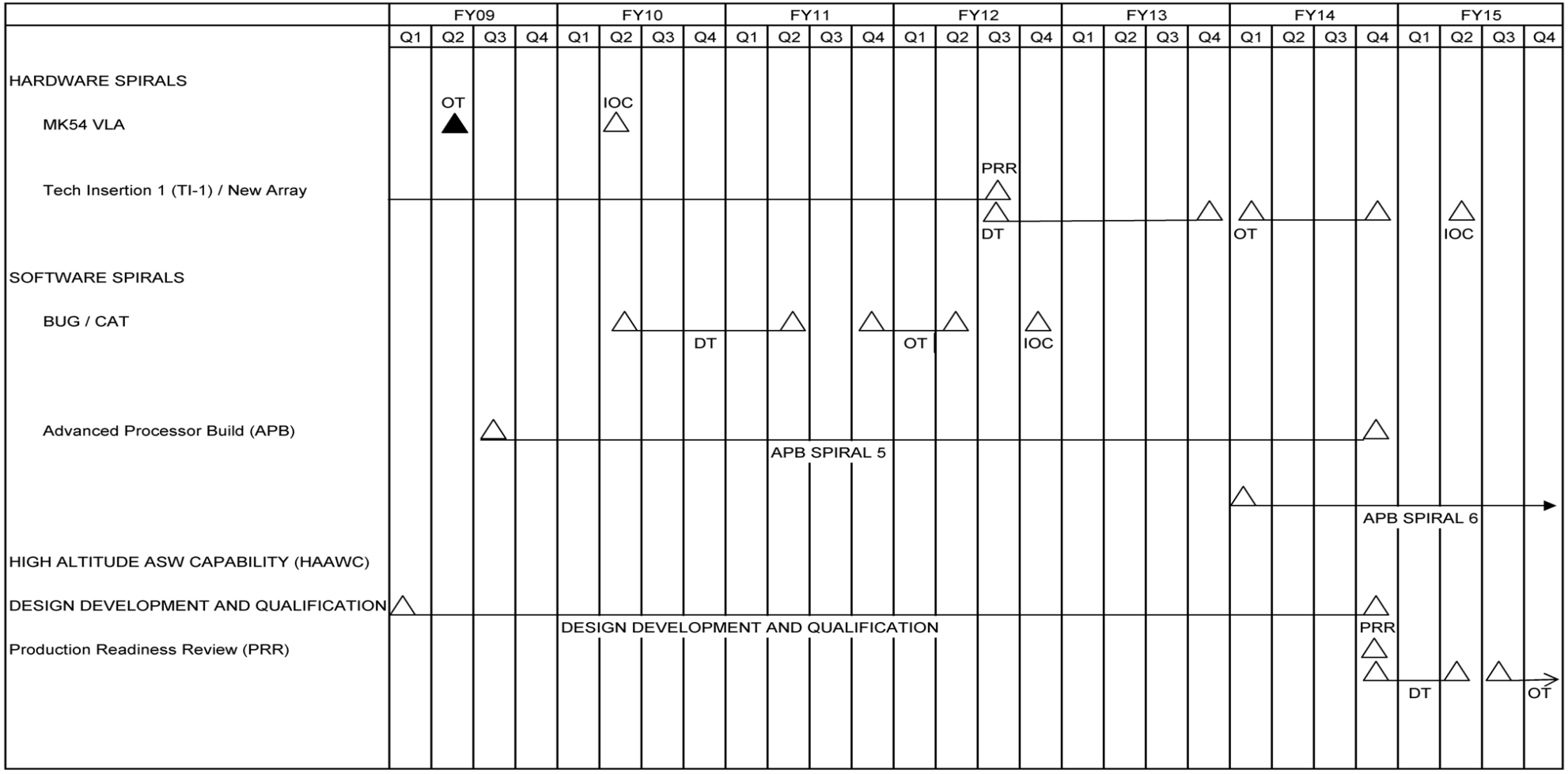


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604610N: *Lightweight Torpedo Development*	**PROJECT** 2234: *Lightweight Hybrid Torpedo*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Hardware Spirals MK54 OT	2	2009	2	2009
Hardware Spirals MK54 IOC	2	2010	2	2010
Tech Insertion 1 (TI-1) /New Array Production Readiness Review (PRR)	3	2012	3	2012
Tech Insertion 1 (TI-1) /New Array Developmental Testing (DT)	3	2012	4	2013
Tech Insertion 1 (TI-1) /New Array OT	1	2014	4	2014
Tech Insertion 1 (TI-1) /New Array IOC	2	2015	2	2015
Software Spirals BUG/CAT DT	2	2010	2	2011
Software Spirals BUG/CAT OT	4	2011	2	2012
Software Spirals BUG/CAT IOC	4	2012	4	2012
APB Spiral 5	3	2009	4	2014
APB Spiral 6	1	2014	4	2015
HAAWC Design/Development/Qualification	1	2009	4	2014
HAAWC Production Readiness Review (PRR)	4	2014	4	2014
HAAWC DT	4	2014	2	2015
HAAWC OT	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604610N: *Lightweight Torpedo Development*	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*	1.596	2.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.986
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The composite array effort will develop and test a 112 element array for the Tech Insertion-1 (TI-1) project. This array will be evaluated for its performance in providing higher fidelity for detecting targets in harsh environments. The increase in channels will provide for more flexibility in beam formation and signal processing that will ultimately lead to a more capable weapon.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Weapon Acquisition and Firing System *FY 2010 Plans:* Weapons Acquisition and Firing System (WAFS) will be developed to create automated weapon setting tools by fusing available platform and target information. Improved operator performance through automated tools will improve torpedo placement and overall weapon effectiveness.	0.000	2.390
Congressional Add: Torpedo Composite Homing Array *FY 2009 Accomplishments:* Funding on contract with Progeny Systems Corporation (PSC) to continue efforts at Material Systems Incorporated (MSI) for new array development. Tasking includes fabrication of array elements, array frame procurement, and delivery of new arrays for qualification testing.	1.596	0.000
Congressional Adds Subtotals	1.596	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604610N: *Lightweight Torpedo Development*	**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-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604654N: *JT Service EOD*							
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	10.806	10.284	10.489	0.000	10.489	10.702	10.819	11.066	11.297	Continuing	Continuing
1829: *Expl Ord Disp Proc*	10.806	10.284	10.489	0.000	10.489	10.702	10.819	11.066	11.297	Continuing	Continuing

A. Mission Description and Budget Item Justification

DOD Directive 5160.62 assigned to the Secretary of the Navy (SECNAV) the responsibility of Single Manager for Explosive Ordnance Disposal (EOD) Technology and Training (T&T). It also assigns to the Executive Manager for EODT&T (N85X) the responsibility to provide for technical development, validation, preparation, Joint Service approval, and distribution of all EOD procedures texts, graphic aids, manuals, and bulletins. This program provides for the development of validated EOD render-safe procedures (RSPs), key identification features, and safety information used by EOD personnel in all four military services when performing their mission of rendering safe and disposing of both domestic and foreign explosive ordnance and Improvised Explosive Devices (IEDs) that pose a threat to military operations, installations, personnel, and materials. In addition, EOD render-safe procedures for foreign ordnance must be developed as soon as possible after gaining knowledge of its existence. This effort requires exploitation and analysis of the foreign ordnance prior to development of the procedures. The program also provides specialized tools and procedures, for primary EOD response elements that respond to Improvised Nuclear Device (IND) and Weapons of Mass Destruction (WMD) incidents. This effort also provides resources necessary for the Foreign Threat Mine Acquisition/Exploitation (FTMA/E) program. This effort includes acquisition, inert certification, intelligence and operational exploitation, analysis, procedure development, and disposition of the highest priority foreign threat naval mines.

This program is a non-acquisition program (without traditional acquisition milestones) with on-going, continuous delivery of urgent and periodic documented procedures and identification guides.

This PE includes $.052M for the Acquistion Workforce in FY2009.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604654N: *JT Service EOD*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	10.806	10.327	0.000	0.000	0.000
Current President's Budget	10.806	10.284	10.489	0.000	10.489
Total Adjustments	0.000	-0.043	10.489	0.000	10.489
• Congressional General Reductions		-0.043			
• 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	10.489	0.000	10.489

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604654N: *JT Service EOD*	PROJECT 1829: *Expl Ord Disp Proc*	

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
1829: *Expl Ord Disp Proc*	10.806	10.284	10.489	0.000	10.489	10.702	10.819	11.066	11.297	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

DOD Directive 5160.62 assigned to the Secretary of the Navy (SECNAV) the responsibility of Single Manager for Explosive Ordnance Disposal (EOD) Technology and Training (T&T). It also assigns to the Executive Manager for EODT&T (N85X) the responsibility to provide for technical development, validation, preparation, Joint Service approval, and distribution of all EOD procedures texts, graphic aids, manuals, and bulletins. This program provides for the development of validated EOD render-safe procedures (RSPs), key identification features, and safety information used by EOD personnel in all four military services when performing their mission of rendering safe and disposing of both domestic and foreign explosive ordnance and Improvised Explosive Devices (IEDs) that pose a threat to military operations, installations, personnel, and materials. In addition, EOD render-safe procedures for foreign ordnance must be developed as soon as possible after gaining knowledge of its existence. This effort requires exploitation and analysis of the foreign ordnance prior to development of the procedures. The program also provides specialized tools and procedures, for primary EOD response elements that respond to Improvised Nuclear Device (IND) and Weapons of Mass Destruction (WMD) incidents. This effort also provides resources necessary for the Foreign Threat Mine Acquisition/Exploitation (FTMA/E) program. This effort includes acquisition, inert certification, intelligence and operational exploitation, analysis, procedure development, and disposition of the highest priority foreign threat naval mines.

This program is a non-acquisition program (without traditional acquisition milestones) with on-going, continuous delivery of urgent and periodic documented procedures and identification guides.

This PE includes $.052M for the Acquistion Workforce in FY2009.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ACQUISITION WORKFORCE FUND	0.052	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604654N: *JT Service EOD*	PROJECT 1829: *Expl Ord Disp Proc*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Funded DoD Acquisition Workforce Fund.					
Render-Safe Procedures (RSP) Development *FY 2009 Accomplishments:* Continued to analyze, exploited, and developed render-safe procedures for foreign ordnance items, and continue to develop render-safe procedures for new domestic ordnance items. *FY 2010 Plans:* Analyze and exploit foreign ordnance items, and develop render-safe procedures for new domestic and foreign ordnance. *FY 2011 Base Plans:* Exploit and analyze high priority foreign threat ordnance items, and develop render-safe procedures for new domestic and foreign ordnance for the EOD community.	4.007	3.556	3.980	0.000	3.980
Improvised Nuclear Device (IND) Countermeasures *FY 2009 Accomplishments:* Continued to develop IND and WMD information, countermeasures and procedures for the EOD community. *FY 2010 Plans:* Develop specialized procedures and prototypical tools for EOD response elements in preparations for response to IND and WMD incidents accounting for evolving threat. *FY 2011 Base Plans:* Develop information, procedures, and prototypical tools for specialized EOD response elements in advance of the evolving IND and WMD threat.	3.367	3.348	3.403	0.000	3.403

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604654N: *JT Service EOD*	PROJECT 1829: *Expl Ord Disp Proc*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Foreign Mine Acquisition	3.380	3.380	3.106	0.000	3.106
FY 2009 Accomplishments: Continued to acquire highest priority foreign sea mines for analysis and exploitation, and development of countermeasures procedures.					
FY 2010 Plans: Acquire foreign sea mines of the highest priority, for exploitation and development of countermeasures procedures.					
FY 2011 Base Plans: Acquire additional high priority foreign threat naval mines for the purpose of the exploitation and the development of procedures to counter these foreign mines.					
Accomplishments/Planned Programs Subtotals	10.806	10.284	10.489	0.000	10.489

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

This is a non-acquisition program.

E. Performance Metrics

Analyzed and exploited foreign and domestic ordnance resulting in the development of 97 validated render-safe procedures and the development of 2,164 procedures providing ordnance key identification features, safety information and other technical details for the Joint Service EOD community. Also developed and validated 125 IED / WMD countermeasures procedures.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604654N: *JT Service EOD*	PROJECT 1829: *Expl Ord Disp Proc*

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
RSP Development	WR	EODTD Indian Head, MD	165.522	3.168	Oct 2009	3.489	Oct 2010	0.000		3.489	0.000	172.179	Continuing
IND Countermeasures	WR	EODTD Indian Head, MD	34.505	2.713	Oct 2009	2.874	Oct 2010	0.000		2.874	0.000	40.092	Continuing
Foreign Mine Acquisition	WR	ONI Suitland, MD	17.892	2.790	Oct 2009	2.673	Oct 2010	0.000		2.673	0.000	23.355	Continuing
Program Management Personnel	WR	EODTD Indian Head, MD	2.945	0.250	Oct 2009	0.260	Oct 2010	0.000		0.260	0.000	3.455	Continuing
Miscellaneous	Various/ Various	Various Various	13.046	1.363	Oct 2009	1.193	Oct 2010	0.000		1.193	0.000	15.602	Continuing
Acquisition Workforce Fund	Various/ Various	Various Various	0.052	0.000		0.000		0.000		0.000	0.000	0.052	Continuing
		Subtotal	233.962	10.284		10.489		0.000		10.489	0.000	254.735	

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	233.962	10.284		10.489		0.000		10.489	0.000	254.735	

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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604703N: *Personnel, Trng, Sim, & Human Factors*							
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	5.097	6.646	10.759	0.000	10.759	13.252	8.715	8.913	9.096	Continuing	Continuing
1767: *Naval War Col Strategic Studies Supt*	0.000	0.000	0.234	0.000	0.234	0.238	0.242	0.247	0.252	Continuing	Continuing
1822: *Manpower Pers & Human Fact System*	5.097	5.849	10.525	0.000	10.525	13.014	8.473	8.666	8.844	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	9.743

A. Mission Description and Budget Item Justification

This non-acquisition category program provides funds for continued (but less risky) R&D for broader application of advanced technologies to transition successful research proof-of-concept demonstrations into operational use. Development of prototype systems to support and/or improve operational requirements of manpower and personnel sponsors is the primary goal of this Engineering Development Program. The R&D Program features the use of a broad range of technologies from cognitive science, human systems integration, learning management, content management & delivery, learning and ability testing techniques, mathematical modeling and optimization, statistical and econometric forecasting, intelligent systems, data visualization, data mining, simulation, decision support systems, and new services oriented architectures to include applications, databases and communications configuration. This non-acquisition category program provides funds for continued R&D for broader application of advanced training technologies and the science of learning to transition successful research proof of concept demonstrations and rapid prototyping of Commercial off the Shelf/Government off the Shelf (COTS/GOTS) technologies into operational use.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604703N: *Personnel, Trng, Sim, & Human Factors*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	5.249	5.898	0.000	0.000	0.000
Current President's Budget	5.097	6.646	10.759	0.000	10.759
Total Adjustments	-0.152	0.748	10.759	0.000	10.759
• Congressional General Reductions		-0.027			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.025			
• Congressional Adds		0.800			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.152	0.000			
• Program Adjustments	0.000	0.000	10.759	0.000	10.759

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Workforce Requirements Planning - Team Enhancement*	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	PROJECT 1767: *Naval War Col Strategic Studies 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
1767: *Naval War Col Strategic Studies Supt*	0.000	0.000	0.234	0.000	0.234	0.238	0.242	0.247	0.252	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Naval War College (NWC) conducts strategic and operational war gaming and research for Office of the Chief of Naval Operations (OPNAV), the numbered Fleets, Fleet Commanders, and the Combatant Commanders. Each year, 50-60 major war games and associated events provide support to efforts that explore and analyze military, political, informational and economic aspects of differing strategic and operational scenarios and tactical imperatives.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Naval War College/Center for Naval Warfare Studies *FY 2011 Base Plans:* N/A	0.000	0.000	0.234	0.000	0.234
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.234	0.000	0.234

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

War Gaming Metrics: Results of research products and war games are evaluated through customer feedback and the extent to which findings are incorporated into follow-on research and practical applications such as Navy doctrine, operational tactics, and programming decisions made during the Planning, Programming,

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	**PROJECT** 1767: *Naval War Col Strategic Studies Supt*

Budgeting & Execution (PPBE), Quadrennial Defense Review (QDR), and Navy Strategic Planning Process (NSPP) processes. Each year Naval War College (NWC) develops and executes 50-60 major war games and associated events to explore and analyze military, political, informational and economic aspects of differing strategic and operational scenarios and tactical imperatives. Naval War College (NWC) conducts strategic and operational war gaming and research in direct support or Office of the Chief of Naval Operations (OPNAV), the numbered Fleets, Fleet Commanders, and the Combatant Commanders. The intent of the research is to provide Navy and DoD leadership with researched and analytical information to make decisions on current and future operational and strategy plans, concepts and force structure.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	PROJECT 1822: *Manpower Pers & Human Fact 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
1822: *Manpower Pers & Human Fact System*	5.097	5.849	10.525	0.000	10.525	13.014	8.473	8.666	8.844	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This non-acquisition category program provides funds for continued (but less risky) R&D for broader application of advanced technologies to transition successful research proof-of-concept demonstrations into operational use. Development of prototype systems to support and/or improve operational requirements of manpower and personnel sponsors is the primary goal of this Engineering Development Program. The R&D Program features the use of a broad range of technologies from cognitive science, human systems integration, learning management, content management & delivery, learning and ability testing techniques, mathematical modeling and optimization, statistical and econometric forecasting, intelligent systems, data visualization, data mining, simulation, decision support systems, and new services oriented architectures to include applications, databases and communications configuration. This non-acquisition category program provides funds for continued R&D for broader application of advanced training technologies and the science of learning to transition successful research proof of concept demonstrations and rapid prototyping of Commercial off the Shelf/Government of the Shelf (COTS/GOTS) technologies into operation use.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Manpower Pers & Human Fact System	5.097	5.849	10.525	0.000	10.525
FY 2009 Accomplishments: Continued prototype development of Career Case Manager Technologies. Continued prototype development of Distribution Incentives System (DIS). Continued prototype development of Cultures and Values Selection. Continued Transition of Web-based Marketplace for Sailor / Marine Jobs Continued Transition of Integrated Whole Person Assessment System Continued Transition of Integrated Career Management System					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	PROJECT 1822: *Manpower Pers & Human Fact System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continued Transition of Integrated Comprehensive Optimal Manpower Personnel Analysis Simulation System (COMPASS) Continued updates, upgrades and enhancements to Force Structure and Strength Planning Models Continued Training and Supply Chain Management Decision Support Systems integration and transition Continued Improved Manpower and Personnel Integration Tool Continued development of Integrated Human Factors and Flight Deck Sortie Rate Model Continued development and integration of Integrated Operating Picture Decision Support System and Tool Set Began Transition of Future Naval Warfighter Capabilities (FNWC) Capable Manpower (CM) Refresh early prototypes Small Business Innovative Research (SBIR) *FY 2010 Plans:* Begin transitioning of Future Naval Warfighter Capabilities (FNWC) Capable Manpower products from Force Utilization Through Unit Readiness and Efficiency (FUTURE) and Personnel Integration of Selection,Classification, Evaluations, and Surveys (PISCES) programs. Begin transition of MAX FIT (FUTURE product) Begin transition of INCENTIVES (FUTURE product) Begin transition of Career Assessment Data Collection Alternatives (DCA) (PISCES product) Begin transition of Taxonomy for Self-Reports (TAXSE) (PISCES product) Begin transition of Career Assessment and Retention Tool (CARAT) (PISCES product) Begin transition of Integrated System for Language Education and Training (ISLET) Begin transition of Virtual Environment for Ship and Shore Experiential Learning (VESSEL) Continue Training and Supply Chain Management Decision Support Systems integration and transition Continue Improved Manpower and Personnel Integration Tool Continue development of Integrated Human Factors and Flight Deck Sortie Rate Model					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	PROJECT 1822: *Manpower Pers & Human Fact System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continue transition of Future Naval Warfighter Capabilities (FNWC) Capable Manpower (CM) Refresh of early prototypes Continue development of Training Capacity Tradeoff Model Continue enhancement of products delivered via World Class Modeling Begin transition of DARPA Digital Tutor to Center for Information Dominance for IT Training Small Business Innovative Research (SBIR) *FY 2011 Base Plans:* Continue transition of FNWC FUTURE and PISCES products from previous year Begin transition of additional FNWC FUTURE and PISCES product deliverables Continue Training and Supply Chain Management Decision Support Systems integration and transition Continue Improved Manpower and Personnel Integration Tool Continue the transitioning of Future Naval Warfighter Capabilities (FNWC) Capable Manpower (CM) Refresh early prototypes Continue the development and enhancement of Training Capacity Tradeoff Model Continue enhancement of products delivered via World Class Modeling Continue transition of DARPA Digital Tutor to Center for Information Dominance for IT Training Small Business Innovative Research (SBIR)					
Accomplishments/Planned Programs Subtotals	5.097	5.849	10.525	0.000	10.525

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	**PROJECT** 1822: *Manpower Pers & Human Fact System*

E. Performance Metrics

This PE provides funding to support the transition of models and decision support tools from RDT&E funded research, Science and Technology (6.2-6.3), to production and into the hands of analysts and program managers throughout the Manpower, Personnel, Training and Education enterprise. The PE also supports the application of proven industry models, tools and methodologies to Navy MPTE problems where GOTS solutions are non-existent. One goal of this PE is to transition 90% of successful S&T products to production and eventual use within the Navy. An acceptable metric will be to successfully transition 80% of the products. The second goal of the PE is to successfully implement 90% of the industry-standard tools that are attempted to be used in Navy applications.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	PROJECT 1822: *Manpower Pers & Human Fact System*

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	Allot	NPRST Millington, TN	2.430	2.251		4.173		0.000		4.173	Continuing	Continuing	Continuing
Development Support	Allot	CNP Washington DC	2.609	3.598		6.352		0.000		6.352	0.000	12.559	Continuing
		Subtotal	5.039	5.849		10.525		0.000		10.525			

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	5.039	5.849		10.525		0.000		10.525			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	**PROJECT** 1822: *Manpower Pers & Human Fact System*

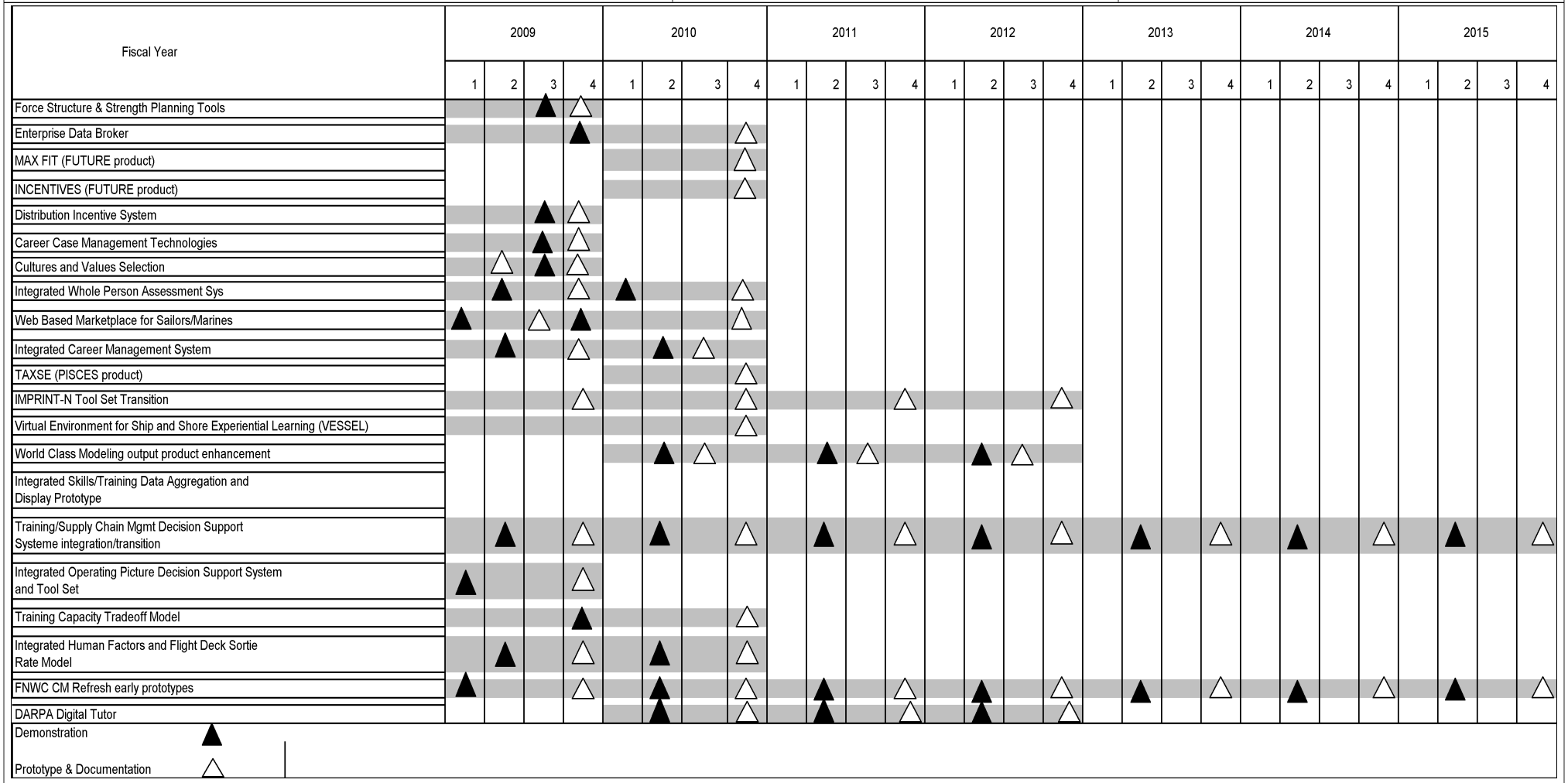


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	PROJECT 1822: *Manpower Pers & Human Fact System*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Force Structure & Strength Planning Tools	1	2009	4	2009
Enterprise Data Broker	1	2010	4	2010
MAX FIT	1	2010	4	2010
INCENTIVES	1	2010	4	2010
Distribution Incentive System	1	2009	4	2009
Career Case Management Technologies	1	2009	4	2009
Cultures and Values Selection	1	2009	4	2009
Integrated Whole Person Assessment Sys	1	2009	4	2010
Web Based Marketplace for Sailors/Marines	1	2009	4	2010
Integrated Career Management System	1	2009	3	2010
Integrated Comp. Opt M&P Analytic Sup Sys	1	2009	4	2010
TAXSE	1	2010	4	2010
IMPRINT-N Tool Set Transition	1	2009	4	2012
VESSEL	1	2010	4	2011
WCM Enhancements	1	2010	4	2012
Training/Supply Chain Mgmt Decision Support System Integration/Transition	1	2009	4	2015
Integrated Operating Picture Decision Support System and Tool Set	1	2009	4	2009
Training Capacity Tradeoff Model	1	2009	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	PROJECT 1822: *Manpower Pers & Human Fact System*

	Start		End	
Event	Quarter	Year	Quarter	Year
Integrated Human Factors and Flight Deck Sortie Rate Model	1	2009	4	2010
FNWC CM Refresh early prototypes	1	2009	4	2015
DARPA Digital Tutor	1	2010	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	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	9.743
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This Advanced Skills Management (ASM) system tracks individual skills, certifications, and training plans in the workforce, enabling the automation of the repetitive and labor intensive job of building and managing functional teams of personnel across commands and defining teams made up of logical groupings of skills which align mission requirements with staffing capabilities.

ASM is currently used by 56,000 Navy Sailors and Marines. Funding allows the Workforce Readiness Planning-Team enhancement to be completed.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Workforce Requirements Planning - Team Enhancement *FY 2010 Plans:* N/A	0.000	0.797
Congressional Adds Subtotals	0.000	0.797

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604703N: *Personnel, Trng, Sim, & Human Factors*	**PROJECT** 9999: *Congressional Adds*

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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604727N: *Joint Standoff Weapon 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	21.821	9.980	12.567	0.000	12.567	0.524	0.551	0.564	0.576	Continuing	Continuing
2068: *Joint Standoff Weapon (JSOW)*	21.821	9.980	12.567	0.000	12.567	0.524	0.551	0.564	0.576	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Standoff Weapon (JSOW) is an air-to-ground weapon designed to attack a variety of targets during day, night and adverse weather conditions. JSOW will enhance aircraft survivability as compared to current interdiction weapon systems by providing the capability for launch aircraft to standoff outside the range of most target area surface-to-air threat systems. The JSOW launch-and-leave capability will allow several target kills per aircraft sortie. The JSOW program first developed a baseline weapon for use against fixed area targets. JSOW is a Navy-led joint Navy/Air Force program.

The JSOW Baseline (AGM-154A) variant includes a kinematically efficient airframe, an integrated Inertial/Global Positioning System (INS/GPS) navigation capability, and a BLU-97/B or BLU-111 payload. This weapon was designed up front for pre-planned product improvements. Procurement of JSOW-A in the FYDP is deferred pending a fix to the Unexploded Ordnance (UXO) issue or a change in the inventory levels. The JSOW BLU-108 (AGM-154B) variant incorporates the Sensor Fuze Weapon submunition (BLU-108) into the baseline vehicle. Planned production of the JSOW/BLU-108 is deferred pending a change in the threat. The JSOW Unitary (AGM-154C) variant has a terminal seeker, Autonomous Target Acquisition (ATA) capability, and a Broach lethal package to enable the attack of blast/fragmentation and penetration type targets. The JSOW Unitary provides increased accuracy and lethality and the capability for aimpoint selection. Operational Testing of the JSOW-C was successfully completed in December 2004. Approval for Milestone-III/Full Rate Production was granted on 20 December 2004. JSOW-C Initial Operational Capability (IOC) was achieved in February 2005.

FY 2009-2011 Includes funding to integrate new functionality into the Joint Mission Planning Systems (JMPS) and Common Unique Planning Component (CUPC). FY 2009-2011 also includes funding for development, integration, qualification and follow-on developmental/operational test and evaluation of a Network Enabled Weapon moving target capability into the JSOW Unitary weapon (AGM-154C-1). The moving target capability will be integrated as an Engineering Change Proposal beginning with FY 2009 procured JSOW-C weapons. The new AGM-154C-1 capability will enable the weapon to attack sea moving targets via real-time pre-and post-launch targeting updates.

JSOW utilizes a "common truck" for both AGM-154A and AGM-154C variants. Through adherence to international standards for weapons interfaces, weight, and dimension considerations, JSOW is compatible with Air Force and NATO aircraft.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604727N: *Joint Standoff Weapon Systems*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	22.435	10.022	0.000	0.000	0.000
Current President's Budget	21.821	9.980	12.567	0.000	12.567
Total Adjustments	-0.614	-0.042	12.567	0.000	12.567
• Congressional General Reductions		-0.042			
• 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	-0.614	0.000			
• Program Adjustments	0.000	0.000	12.567	0.000	12.567

Change Summary Explanation

Technical: Not applicable.

Schedule:

1) JSOW C-1 Block III/AGM-154C-1Design/Integ/Qual was changed from ending 4Q FY2009 to 4Q FY2010 due to delayed receipt of necessary hardware.
2) JSOW IT&E was changed from 2Q-3Q FY2010 to 1Q-2Q FY2011 due to delayed receipt of necessary hardware and airframe Operational Flight Program (OFP) delays.
3) JSOW FRP-6 was changed from 1Q to 2Q FY2010 due to delay in receipt of contractor pricing.
4) JSOW OT-111B was changed from 4Q FY2010 to 3Q-4Q FY2011 due to delayed receipt of necessary hardware and airframe Operational Flight Program (OFP) delays..
5) DT-IIID is changed from ending 2Q 2010 to 4Q 2010 due to delayed receipt of necessary hardware and airframe Operational Flight Program (OFP) delays.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604727N: *Joint Standoff Weapon Systems*	PROJECT 2068: *Joint Standoff Weapon (JSOW)*	

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
2068: *Joint Standoff Weapon (JSOW)*	21.821	9.980	12.567	0.000	12.567	0.524	0.551	0.564	0.576	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Includes RDT&E funds for the development of a weapon to be employed by aircraft to attack targets during day, night, and adverse weather conditions. The Advanced Interdiction Weapon Systems (AIWS) design will capitalize on aircraft sensor capabilities and minimize individual weapon sophistication, reducing unit cost and provides a significant increase in strike warfare capability. Excludes civilian and military manpower and thier related costs and military construction costs which are included in appropriate management and support elements in this program.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Network Enabled Weapon	21.200	3.305	10.314	0.000	10.314
Develop and integrate the Network Enabled Weapon moving target capability into JSOW-C, termed AGM-154C-1. *FY 2009 Accomplishments:* Provided seeker software updates to enable receipt of revised target coordinates after missile launch, the integration of a weapon datalink, and the update of the F/A-18 Operational Flight Program (OFP) to incorporate the AGM-154C-1 changes. *FY 2010 Plans:* Includes funding to commence weapon qualification and follow-on developmental test/operational test efforts.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604727N: *Joint Standoff Weapon Systems*	PROJECT 2068: *Joint Standoff Weapon (JSOW)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Includes funding to complete weapon qualification and follow-on developmental test/operational test efforts.					
JSOW Common Unique Planning Component Plan new functions into the JSOW Common Unique Planning Component (CUPC) and develop new software releases of CUPC. Address new mission planning functionality related to the incorporation of the Network Enabled Weapon moving target capability into the JSOW-C-1 weapons. *FY 2009 Accomplishments:* Core JSOW C-1 mission planning functionality incorporated in CUPC. *FY 2010 Plans:* Continue integration of JSOW C-1 functionality. *FY 2011 Base Plans:* Begin interoperability efforts for JSOW C-1	0.621	0.061	0.070	0.000	0.070
JSOW TIK Crypto Component Integrate and qualify a replacement crypto component into the JSOW Telemetry Instrumentation Kit (TIK). Efforts will involve the development, integration and range safety certification of a new National Security Agency developed crypto component to replace the KGV-68B. *FY 2010 Plans:* Define requirements and develop implementation strategy *FY 2011 Base Plans:* Implement TIK Crypto component strategy	0.000	6.614	2.183	0.000	2.183

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604727N: *Joint Standoff Weapon Systems*	PROJECT 2068: *Joint Standoff Weapon (JSOW)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	21.821	9.980	12.567	0.000	12.567

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
• USN WP,N BLI 223000: *JSOW*	142.622	141.997	131.141	0.000	131.141	147.120	149.902	167.703	170.367	1,163.245	2,779.094

D. Acquisition Strategy

The contracting strategy for JSOW is planned to be sole source for the life of the program. Cost type contracts are utilized for the Engineering and Manufacturing Development and follow-on modification program (i.e., Block II (AGM-154C), AGM-154C-1 efforts. Component breakout is used, when possible, to promote full and open competition.

Fixed price type contracts are utilized for production.

E. Performance Metrics

The JSOW C-1 program is meeting the cost schedule, performance, funding and life cycle sustainment in accordance with the Acquisition Program Baseline. Production delivery currently 94 months of on-time deliveries.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604727N: *Joint Standoff Weapon Systems*	PROJECT 2068: *Joint Standoff Weapon (JSOW)*

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-NEW	SS/CPFF	Raytheon Systems Tucson, AZ	59.133	3.005	Dec 2009	5.514	Dec 2010	0.000		5.514	0.000	67.652	83.730
Primary Hardware Development - TIK Crypto	SS/CPFF	Raytheon Systems Tucson, AZ	0.000	5.986	Dec 2009	1.734	Dec 2010	0.000		1.734	0.000	7.720	7.720
System Engineering	MIPR	National Security Agency Maryland	0.207	0.108	Feb 2010	0.000		0.000		0.000	0.000	0.315	Continuing
System Engineering	WR	Naval Research Lab Maryland	0.630	0.175	Feb 2010	0.000		0.000		0.000	0.000	0.805	Continuing
System Engineering	WR	NAWCWD China Lake, CA	108.698	0.000		0.000		0.000		0.000	0.000	108.698	Continuing
All Management costs from program implementation through FY10 not reflected above	Various/ Various	Various Various	601.040	0.000		0.000		0.000		0.000	0.000	601.040	Continuing
		Subtotal	769.708	9.274		7.248		0.000		7.248	0.000	786.230	91.450

Remarks

The target value of the contract exceeds the JSOW funding because the Harpoon Block III (PE0604227N PU1843) program shares a portion of the Strike Common Weapons Data Link (SCWDL) development costs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604727N: *Joint Standoff Weapon Systems*	PROJECT 2068: *Joint Standoff Weapon (JSOW)*

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 - JMPS	SS/CPFF	Raytheon Systems Tucson, AZ	5.565	0.062	Dec 2009	0.073	Dec 2010	0.000		0.073	2.348	8.048	8.048
Software Development-NEW	SS/CPFF	Boeing St. Louis, MO	8.007	0.000		0.000		0.000		0.000	0.000	8.007	8.007
		Subtotal	13.572	0.062		0.073		0.000		0.073	2.348	16.055	16.055

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 and Evaluation	WR	NAWCWD China Lake, CA	27.837	0.247	Dec 2009	0.296	Dec 2010	0.000		0.296	0.000	28.380	Continuing
Oper Test and Evaluation	WR	COMOPTEVFOR Norfolk, VA	10.725	0.397	Apr 2010	4.950	Apr 2011	0.000		4.950	0.000	16.072	Continuing
		Subtotal	38.562	0.644		5.246		0.000		5.246	0.000	44.452	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604727N: *Joint Standoff Weapon Systems*	PROJECT 2068: *Joint Standoff Weapon (JSOW)*

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	Various/ Various	NAVAIR Patuxent River, MD	7.243	0.000		0.000		0.000		0.000	0.000	7.243	Continuing
All Management costs from program implementation through FY10 not reflected above	Various/ Various	Various Various	18.261	0.000		0.000		0.000		0.000	0.000	18.261	Continuing
		Subtotal	25.504	0.000		0.000		0.000		0.000	0.000	25.504	

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	847.346	9.980		12.567		0.000		12.567	2.348	872.241	107.505

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604727N: *Joint Standoff Weapon Systems*	**PROJECT** 2068: *Joint Standoff Weapon (JSOW)*

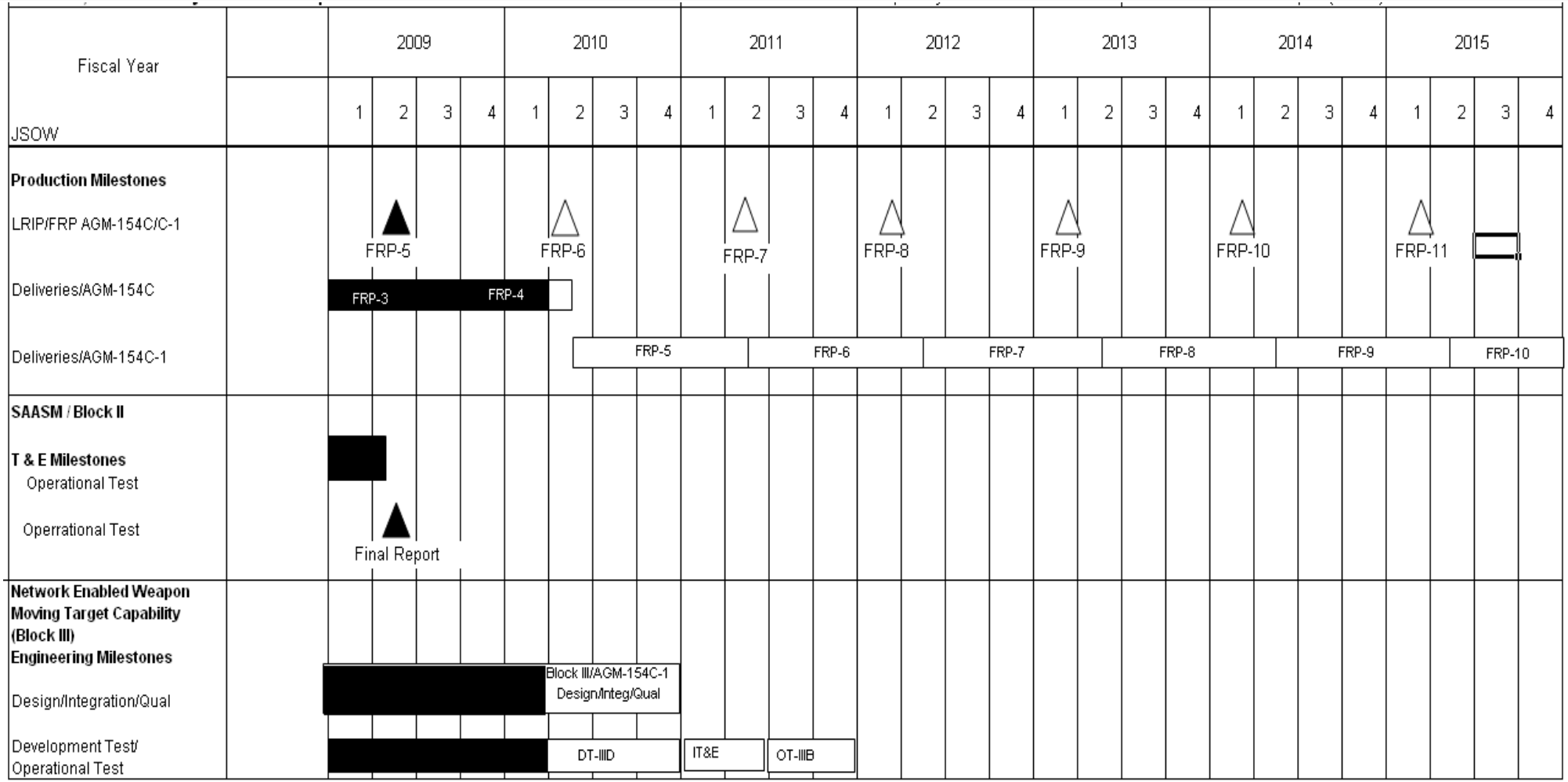


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604727N: *Joint Standoff Weapon Systems*	**PROJECT** 2068: *Joint Standoff Weapon (JSOW)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
FRP-3 Deliveries AGM-154C	1	2009	3	2009
FRP Award AGM-154C FRP-5	2	2009	2	2009
FRP-4 Deliveries AGM-154C	4	2009	2	2010
FRP Award AGM-154C FRP-6	2	2010	2	2010
FRP-5 Deliveries- AGM-154C-1	2	2010	2	2011
FRP Award AGM-154C FRP-7	2	2011	2	2011
FRP-6 Deliveries- AGM-154C-1	2	2011	2	2012
FRP Award AGM-154C FRP-8	1	2012	1	2012
FRP-7 Deliveries- AGM-154C-1	2	2012	2	2013
FRP Award AGM-154C FRP-9	1	2013	1	2013
FRP-8 Deliveries- AGM-154C-1	2	2013	2	2014
FRP Award AGM-154C FRP-10	1	2014	1	2014
FRP-9 Deliveries- AGM-154C-1	2	2014	2	2015
FRP Award AGM-154C FRP-11	1	2015	1	2015
FRP-10 Deliveries- AGM-154C-1	2	2015	4	2015
SAASM - Operational Test (OT-IIIA)	1	2009	2	2009
SAASM - Final OT Report	2	2009	2	2009
Network Enables Weapon/Moving Target/AGM-154C-1 Design/Integration/Qual	1	2009	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604727N: *Joint Standoff Weapon Systems*	PROJECT 2068: *Joint Standoff Weapon (JSOW)*

	Start		End	
Event	Quarter	Year	Quarter	Year
Network Enables Weapon/Moving Target/AGM-154C-1 Development Test (DT-IIID)	1	2009	4	2010
Network Enables Weapon/Moving Target/AGM-154C-1 Integrated Test (IT&E)	1	2011	2	2011
Network Enables Weapon/Moving Target/AGM-154C-1 Operational Test (OT-IIIB)	3	2011	4	2011

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*							
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	43.772	44.374	45.930	0.000	45.930	41.409	36.070	34.809	35.527	Continuing	Continuing
0166: *SPS Improvement Program*	1.654	5.474	4.739	0.000	4.739	4.744	1.431	0.000	0.000	0.000	55.215
2178: *QRCC*	29.533	25.557	36.594	0.000	36.594	33.300	32.226	32.329	32.995	Continuing	Continuing
3172: *Joint Non-Lethal Weapons*	3.609	4.280	4.597	0.000	4.597	3.365	2.413	2.480	2.532	Continuing	Continuing
9999: *Congressional Adds*	8.976	9.063	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	48.787

A. Mission Description and Budget Item Justification

This program element consolidates currently ongoing and planned programmatic efforts related to Detect & Control aspects of Ship Self Defense (SSD) to facilitate effective planning and management of these efforts and to exploit the synergistic relationship inherent in each. Analysis and demonstration have established that surface SSD based on single-sensor detection point-to-point control architecture performs marginally against current and projected Anti-Ship Cruise Missile (ASCM) threats. The supersonic seaskimming ASCM reduces the effective battle space to the horizon and the available reaction time-line to less than 30 seconds from first opportunity to detect until the ASCM impacts its target ship. Against such a threat, multi-sensor integration is required for effective detection, and parallel processing is essential to reduce reaction time to acceptable levels and to provide vital coordination/integration of hardkill and softkill assets. These SSD projects address and coordinate the detect and control functions necessary to meet the rigorous SSD requirements within a development structure dedicated to systems engineering.

DETECTION: Improvements in coordinated sensor performance to increase the probability of detecting low altitude, low observable targets is to be achieved through the synergism gained from the integration of dissimilar sensor sources. Multi-sensor integration is being addressed through the efforts of Quick Reaction Combat Capability (QRCC) (2178), while sensor improvements are addressed through the SPS Improvements (0166). These provide improvements to both active and passive detection.

CONTROL: Multi-sensor integration, parallel processing and the coordination of hardkill/softkill capabilities in an automated response to the ASCM threat are the cornerstones of Ship Self Defense System (SSDS) being developed through QRCC (2178) efforts. In addition, that project provides for the central system engineering management of SSD developments, including efforts required to integrate SSDS with the Advanced Combat Direction System (CDS) for those ships having a CDS.

Shipboard Protection System (SPS) develops an integrated shipboard, suite of systems designed to detect, identify, and engage asymmetric surface threats.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604755N: *Ship Self Def (Detect & Cntrl)*

Integrated Swimmer Defense (ISD) scope is to provide the Navy Expeditionary security forces with capabilities of a portable marine integrated swimmer defense system (ISDS) to engage combat swimmers/divers or unknown individuals underwater once they have been detected.

FY09 Congressional Adds: 9C23A - Expeditionary Swimmer Defense, 9C22A - Autonomous Unmanned Surface Vessel, 9D91A - Cyber Security, and 9D90A - Persistent Surveillance Wave Power-Buoy System.
FY10 Congressional Adds: 9C23A - Expeditionary Swimmer Defense, 9C22A - Autonomous Unmanned Surface Vessel, and 9D90A - Persistent Surveillance Wave Power-Buoy System.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	44.854	35.459	0.000	0.000	0.000
Current President's Budget	43.772	44.374	45.930	0.000	45.930
Total Adjustments	-1.082	8.915	45.930	0.000	45.930
• Congressional General Reductions		-0.185			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		9.100			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.134	0.000			
• SBIR/STTR Transfer	-0.948	0.000			
• Program Adjustments	0.000	0.000	45.930	0.000	45.930
• Rate/Misc 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: *AUTONOMOUS UNMANNED SURFACE VESSEL (AUSV)(XFER FRO*	1.197	2.689
Congressional Add: *EXPEDITIONARY SWIMMER DEFENSE SYSTEM*	2.393	3.187
Congressional Add: *Persistent Surveillance Wave Power-Buoy System*	2.993	3.187
Congressional Add: *Cyber Security*	2.393	0.000
	8.976	9.063

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604755N: *Ship Self Def (Detect & Cntrl)*

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	8.976	9.063

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 0166: *SPS 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
0166: *SPS Improvement Program*	1.654	5.474	4.739	0.000	4.739	4.744	1.431	0.000	0.000	0.000	55.215
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Shipboard Protection System (SPS) develops an integrated shipboard, suite of systems designed to detect, identify, and engage asymmetric surface threats. Capabilities include: Surface Surveillance System, MK 49 stabilized gun mounts and Non-Lethal weapons/devices. The surface surveillance system integrates EO/IR sensors, and radar into a common tactical surveillance system. Stabilized guns: provide integrated lethal engagement capability against asymmetric threats. Non-lethal weapons: NLW assist in determining intent and target discrimination. SPS is to be fielded in blocks through evolutionary acquisition. The block approach facilitates the early delivery of enhanced situational awareness capability. Future blocks will introduce lethal and non-lethal effectors with total detect to engage capability integration. The SPS 'End State System' will provide Navy vessels with the ability, in foreign and domestic ports, to protect themselves from attacks by asymmetric surface threats. This ability requires that information necessary to seamlessly execute the detect-to-engage sequence be collected, processed, communicated, and acted upon before threats reach their objectives.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SPS Improvement Program	1.646	5.474	4.739	0.000	4.739
FY 2009 Accomplishments: Shipboard Protection System - System design, development, integrate, analyze and evaluate the SPS system.					
FY 2010 Plans: Shipboard Protection System - System design for other ship classes, integration with MK38 Mod 2 system.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 0166: *SPS Improvement Program*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Shipboard Protection System - System design for other ship classes, integration with MK38 Mod 2 system.					
Defense Acquisition Workforce Fund (DAWF) Defense Acquisition Workforce Fund (DAWF) *FY 2009 Accomplishments:* Funded DAWF	0.008	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	1.654	5.474	4.739	0.000	4.739

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/8128: *SPS Program*	17.531	19.198	32.472	0.000	32.472	52.593	53.195	53.639	54.304	0.000	282.932

D. Acquisition Strategy

Revised acquisition strategy is to provide capability to the fleet in blocks. (Block 1 - Enhanced Situational Awareness and Block 3 - Total System Integration including Lethal and Non-Lethal Engagement). All work is being led and performed by the Warfare Centers.

E. Performance Metrics

Successfully achieved Milestone C. Successfully conduct SPS Block 3 Critical Design Review (CDR).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 0166: *SPS Improvement 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
Hardware/Software Development (Crane)	WR	NSWC Crane Crane IN	1.377	1.000	Nov 2009	1.000	Nov 2010	0.000		1.000	Continuing	Continuing	Continuing
Hardware/Software Development (Dahlgren)	WR	NSWC Dahlgren Dahlgren VA	3.443	1.000	Nov 2009	1.000	Nov 2010	0.000		1.000	Continuing	Continuing	Continuing
Hardware/Software Development (NG)	Various/ FFP	NORTHROP GRUMMAN Not Specified	0.236	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Hardware/Software Development (NAVAIR)	WR	NAVAIR/KDH Pax River MD	0.200	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	5.256	2.000		2.000		0.000		2.000			

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
Engineering Services (CRANE)	WR	NSWC CRANE Crane IN	0.807	1.000	Nov 2009	0.519	Nov 2010	0.000		0.519	Continuing	Continuing	Continuing
Engineering Services (DAHLGREN)	WR	NSWC DAHLGREN Dahlgren VA	0.401	1.000	Nov 2009	0.720	Nov 2010	0.000		0.720	Continuing	Continuing	Continuing
	C/FPI		4.193	0.000		0.000		0.000		0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 0166: *SPS Improvement Program*

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
Engineering Services (IWS)		IWS PERISCOPE DETECT Not Specified											
ILS FUNCTIONS	WR	NSWC DAHLGREN Dahlgren VA	0.680	1.000	Nov 2009	1.000	Nov 2010	0.000		1.000	Continuing	Continuing	Continuing
		Subtotal	6.081	3.000		2.239		0.000		2.239			

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
T&E FUNCTIONS (COTF)	WR	COMOPTEVFOR Norfolk VA	0.618	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
T&E FUNCTIONS (Dahlgren)	WR	NSWC DAHLGREN Dahlgren VA	0.998	0.250	Nov 2009	0.250	Nov 2010	0.000		0.250	Continuing	Continuing	Continuing
T&E FUNCTIONS (Crane)	WR	NSWC CRANE Crane IN	0.440	0.224	Nov 2009	0.250	Nov 2010	0.000		0.250	Continuing	Continuing	Continuing
		Subtotal	2.056	0.474		0.500		0.000		0.500			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 0166: *SPS Improvement Program*

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
MANAGEMENT SUPPORT	Various/ Various	VARIOUS VARIOUS	0.299	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
TRAVEL	Various/ Various	Not Specified Not Specified	0.168	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
DAWDF	Various/ Various	Not Specified Not Specified	0.008	0.000		0.000		0.000		0.000	0.000	0.008	Continuing
		Subtotal	0.475	0.000		0.000		0.000		0.000			

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	13.868	5.474		4.739		0.000		4.739			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604755N: *Ship Self Def (Detect & Cntrl)*	**PROJECT** 0166: *SPS Improvement Program*

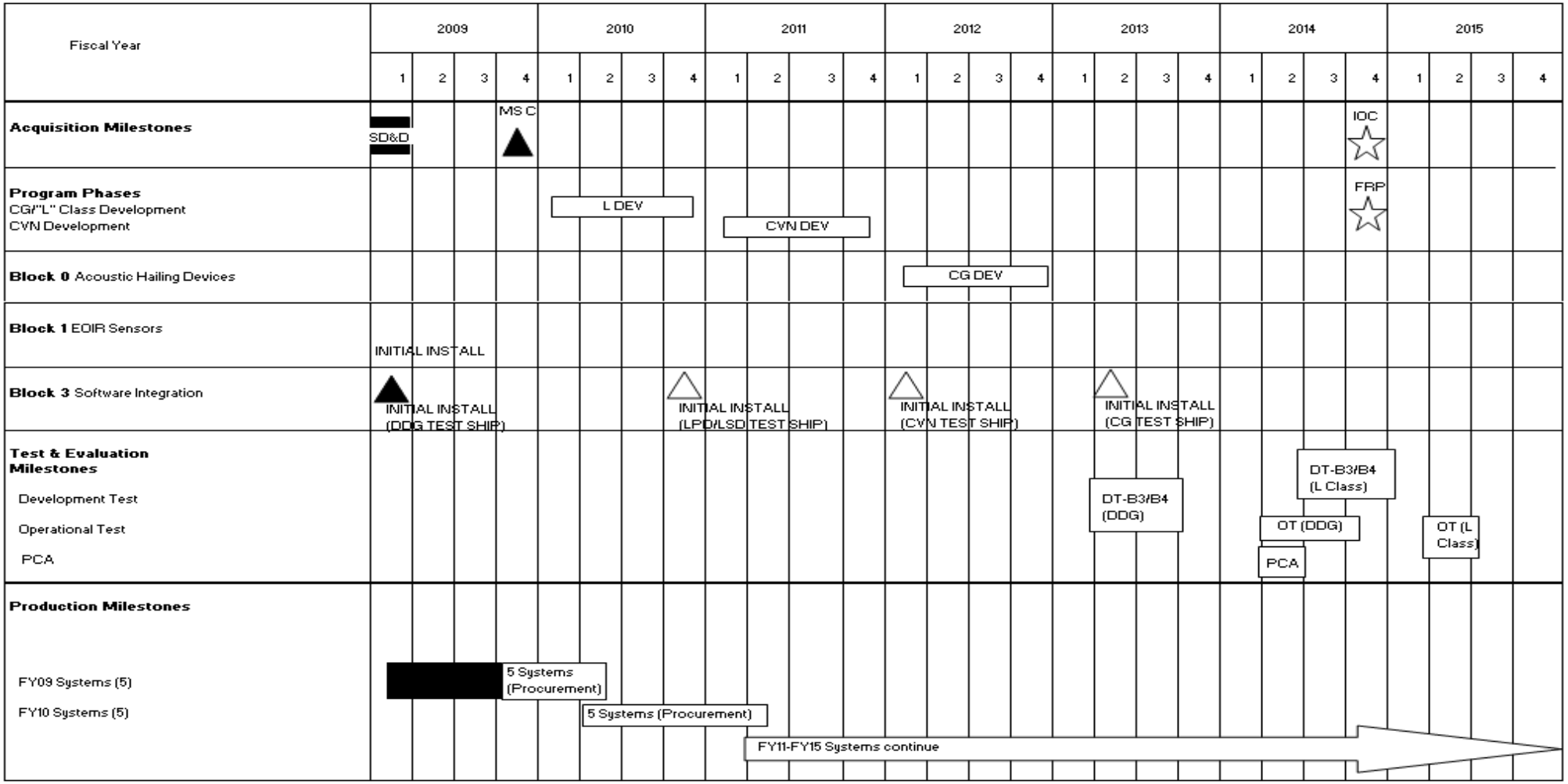


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604755N: *Ship Self Def (Detect & Cntrl)*	**PROJECT** 0166: *SPS Improvement Program*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
PCA	2	2014	2	2015
SD&D	1	2009	1	2009
MILESTONE C	4	2009	4	2009
L PLATFROM DEV	1	2010	4	2010
CG PLATFORM DEV	1	2012	4	2012
CVN PLATFORM DEV	1	2011	4	2011
FRP	4	2014	4	2014
IOC	4	2014	4	2014
DT-B3/B4 (DDG)	2	2013	3	2013
DT-B3/B4 (L)	3	2014	4	2014
OT (DDG)	2	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*	

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
2178: *QRCC*	29.533	25.557	36.594	0.000	36.594	33.300	32.226	32.329	32.995	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Quick Reaction Combat Capability (QRCC) project implements an evolutionary acquisition of improved ship self defense capabilities against Anti-Ship Cruise Missiles (ASCMs) for selected ships. The Ship Self Defense System (SSDS) is the integrating element of QRCC. The design integrates several existing stand-alone Anti-Air Warfare (AAW) systems that do not individually provide the complete detection, control, and engagement capabilities needed against low flying, high speed ASCMs with low radar cross sections. The SSDS integration concept fulfills the need for an automated detection, quick reaction and multi-target engagement capability emphasizing performance in the littoral environment. SSDS replaces manual control of several self-defense systems with a single integrated capability under the computer-aided control of ship operators. System design emphasizes use of non-developmental items, commercial standards, commercial processors, computer program reuse and open system architecture. SSDS is a physically distributed, open system architecture computer network consisting of commercially available or previously developed hardware. It includes the Navy's AN/UYQ-70 standard display and command table for human-system interface, commercially available local area network access units and circuit cards, and commercially available fiber optic cabling.

SSDS MK1 integrates the SPS-49A(V)1 radar, SPS-67(V)1 radar, AN/SLQ-32A/B electronic countermeasures system, Combat Identification, Friend or Foe-Self Defense (CIFF-SD), Rolling Airframe Missile and Phalanx Close-In Weapon System and is installed on LSD41/49 class ships. SSDS MK1 successfully completed Operational Evaluation in June 1997. SSDS received Milestone III Approval for Full Rate Production (Mar 98) and authority to integrate with ACDS and Cooperative Engagement Capability (CEC) on CV(N), LPD-17, LHD and LHA ship classes.

SSDS MK2 facilitates the incremental evolution and implementation of follow-on modifications. Development of SSDS MK2 leveraged critical experiments and re-use of technology and software from SSDS MK1. SSDS MK2 is in development and integrates other ship self defense elements, such as AN/SPQ-9B radar, NATO Sea-sparrow system, CEC and Tactical Data Links for joint interoperability. SSDS MK2 provides enhanced capabilities for Self Defense against air, and surface threats using both ownship and remote data to address AAW Capstone requirements. SSDS MK2 becomes the integrated, coherent real time Command and Control System for Aircraft Carriers and Amphibious ships. It will increase operational capabilities; improve combat readiness and Strike Group/Expeditionary Strike Group Interoperability; and promote standardization. It also introduces new shipboard tactical displays and support equipment, and integrates advanced systems such as Evolved NATO Sea-sparrow missile system and SLQ-32 SEWIP.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604755N: *Ship Self Def (Detect & Cntrl)*	**PROJECT** 2178: *QRCC*

In order to meet the Navy's warfighting capabilities and modernization concepts described in SEA POWER 21, Navy Open Architecture (NOA) is being introduced in conjunction with SSDS P3I COTS Tech Refresh. This is the first step in unifying a set of warfighting functions into a single architecture shared among many ship classes. This principle of commonality is a major mechanism for cost control and avoidances in the Navy's future warfighting systems. SSDS MK 2 would rehost existing tactical computer program applications to the Open Architecture Computing Environment (OACE) specifications/ equipment suite concurrent with P3I Commercial off the Shelf (COTS) Tech Refresh cycles, prior to full migration and integration with other OA applications for implementation on future classes of ships. Tech Refresh cycles are driven by COTS obsolescence.

Follow on Operational Test and Evaluation of SSDS Mk 2 has been conducted on the CVN Class on the LPD Class SSDS Combat Systems in FY07/08. Follow on Operational Test and Evaluation of the ESSM Integration with SSDS Mk 2 has been conducted on the CVN Class in FY08. Live Fire, Combat System end-to-end testing has been conducted on the Self Defense Test Ship in FY07/08. The SSDS MK 2 Self Defense Combat System is being tested on the Self Defense Test Ship against Anti Ship Cruise Missile threats in the LPD 17 and CVN/LHD Class configurations to support this effort. These tests will serve as a transition phase to the Ship Self Defense Capstone Air Warfare T&E Enterprise. Additional Self Defense Test Ship Live Fire tests against Anti Ship Cruise Missile threats are planned in FY10/11/12 in the CVN/ESSM and LHA 6 configurations, per the Ship Self Defense Capstone Air Warfare T&E Enterprise and DOT&E direction. Follow on Operational Test and Evaluation of SSDS Mk 2 will also be conducted on the CVN Class (P3I) COTS Tech Refresh in FY09, LHD 7/8 in FY10, and LHA 6 Class in 13. These tests will provide T&E data for the evaluation of the P3I COTS Tech Refresh Open Architecture Migration and Probability of Raid Annihilation (Pra) calculations.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SSDS MK2 Integration/Test & Evaluation	11.983	12.943	13.161	0.000	13.161
FY 2009 Accomplishments: Prepare and conducte comprehensive Land Based combat system tests on SSDS MK 2 and SSDS MK 1 & SSDS MK2 P3I COTs Tech Refresh OACE (Open Architecture Computing Environment) configurations at Wallops Island for CVN, LPD 17, LHD 7/8, LHA 6, and LSD ship classes, including test preparation, integration, engineering and development tests, data collection and analysis, correction and verification of deficiencies in FY09 through FY15 in support of SSDS Combat System Certification, SSDS TEMP and Ship Self Defense Air Warfare Capstone Enterprise TEMP at-sea test events. Prepare, conduct and analyze At-Sea combat system tests for SSDS MK2 in LPD 17 and live fire testing on the Self Defense Test Ship in FY09. Prepare, conduct and analyze At-Sea combat					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
system tests in support of the Ship Self Defense Air Warfare Capstone Enterprise for the ESSM integration in FY09 and SSDS MK 2 P3I COTs Tech Refresh OACE integration in FY09/10. *FY 2010 Plans:* Prepare and conduct comprehensive Land Based combat system tests on SSDS MK 2 and SSDS MK 1 & SSDS MK2 P3I COTs Tech Refresh OACE (Open Architecture Computing Environment) configurations at Wallops Island for CVN, LPD 17, LHD 7/8, LHA 6, and LSD ship classes, including test preparation, integration, engineering and development tests, data collection and analysis, correction and verification of deficiencies in FY09 through FY15 in support of SSDS Combat System Certification, SSDS TEMP and Ship Self Defense Air Warfare Capstone Enterprise TEMP at-sea test events.Prepare, conduct and analyze At-Sea combat system tests in support of the Ship Self Defense Air Warfare Capstone Enterprise for SSDS MK 2 P3I COTs Tech Refresh OACE integration in FY09/10 and SSDS MK2 LHD 7/8 configuration in FY10. *FY 2011 Base Plans:* Prepare and conducte comprehensive Land Based combat system tests on SSDS MK 2 and SSDS MK 1 & SSDS MK2 P3I COTs Tech Refresh OACE (Open Architecture Computing Environment) configurations at Wallops Island for CVN, LPD 17, LHD 7/8, LHA 6, and LSD ship classes, including test preparation, integration, engineering and development tests, data collection and analysis, correction and verification of deficiencies in FY09 through FY15 in support of SSDS Combat System Certification, SSDS TEMP and Ship Self Defense Air Warfare Capstone Enterprise TEMP at-sea test events. Prepare, conduct and analyze At-Sea combat system tests in support of the Ship Self Defense Air Warfare Capstone Enterprise for LHA 6 configuration in FY13 and LHA 6 live fire testing on the Self Defense Test Ship in FY12, CVN 78 life fire testing on Self Defense Test Ship FY15, Design Agent test, analyze, and fix for the computer software program in support of testing and Operation of the Ship Self Defense Facility Wallops Island will also be accomplish to support the test events.					
SSDS MK2 COTS Tech Insertion/OACE Migration	17.550	12.614	23.433	0.000	23.433

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Conduct System Engineering, Design, Development, Software Rehost, Hardware/Software integration and Factory and Environmental Qualification testing of P3I COTs Tech Refresh for SSDS MK 1 and SSDS MK2 Tech Refresh cycles. The FY09 through FY11 Tech Refresh cycle for SSDS MK 1 and SSDS MK 2 upgrades to MOD 1C/2C/3C/5C configurations includes the OACE and the first major refresh of SSDS MK 1 (designated as MOD 5C) migration to OACE. After FQT/EQT completion, system will be delivered for Test and Evaluation. *FY 2010 Plans:* Conduct System Engineering, Design, Development, Software Rehost, Hardware/Software integration and Factory and Environmental Qualification testing of P3I COTs Tech Refresh for SSDS MK 1 and SSDS MK2 Tech Refresh cycles. The FY09 through FY11 Tech Refresh cycle for SSDS MK 1 and SSDS MK 2 upgrades to MOD 1C/2C/3C/5C configurations includes the OACE and the first major refresh of SSDS MK 1 (designated as MOD 5C) migration to OACE. After FQT/EQT completion, system will be delivered for Test and Evaluation. FY10-FY13 includes systems engineering, software development and testing for the implementation of new interfaces with SSDS MK2 as part of Combat System Upgrades for CVN/Amphibious Class ships, including Anti-Submarine Tactical Air Control (ASTAC) capability for the MH-60R Helicopter interface. *FY 2011 Base Plans:* Conduct System Engineering, Design, Development, Software Rehost, Hardware/Software integration and Factory and Environmental Qualification testing of P3I COTs Tech Refresh for SSDS MK 1 and SSDS MK2 Tech Refresh cycles. The FY09 through FY11 Tech Refresh cycle for SSDS MK 1 and SSDS MK 2 upgrades to MOD 1C/2C/3C/5C configurations includes the OACE and the first major refresh of SSDS MK 1 (designated as MOD 5C) migration to OACE. After FQT/EQT completion, system will be delivered for Test and Evaluation. FY10-FY13 includes systems engineering, software development and testing for the implementation of new interfaces with SSDS MK2 as part of Combat					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
System Upgrades for CVN/Amphibious Class ships, including Anti-Submarine Tactical Air Control (ASTAC) capability for the MH-60R Helicopter interface.					
Accomplishments/Planned Programs Subtotals	29.533	25.557	36.594	0.000	36.594

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/5239: *SSDS*	46.173	33.975	54.290	0.000	54.290	54.646	54.111	54.649	55.638	0.000	353.482
• RDTEN/0603382N: *Advanced Combat System Technology*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• RDTEN/0603658N: *Cooperative Engagement*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• RDTEN/0604307N: *Surface Combatant Cmbt Sys Eng*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• RDTEN/0603582N: *Combat System Integration*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

The first SSDS MK 2 system procurements took place under a Cost Plus Award Fee contract in FY99 for the CVN 76, LPD 17, LPD 18 and CVN 69. Follow-on equipment procurements for additional ships of the CVN, LPD and LHD classes are awarded on FFP contracts with the exception of those ships that will be receiving P3I COTS tech Refresh hardware suites, where the initial system Tech Refresh Development will occur under a CPFF type contract with ship COTS conversion equipment/kits procured on FFP contracts.

A new platform system engineering agent and Life Cycle Maintenance CPFF (with incentives) contract was awarded in FY05 and a follow-on contract was awarded on 30 Sept 2008, to support future SSDS MK 2 system/software maintenance and system upgrades including the P3I COTS Tech Refresh cycles.

E. Performance Metrics

Requirement Documents

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*

- Ship Self Defense System (SSDS) Operational Requirement Document (ORD) approved April 1995 and validated in 1997.
- SSDS MK2 KPPs were promulgated in OPNAV N76 letter SER N766/1S649367 of 18 Dec 01.
* Subject: Ship Self Defense System (SSDS) Requirement Clarification of Key Performance Parameters (KPP) and Measures of Suitability.
* Included the Interoperability KPP for CVN/LPD/LHD
- SSDS MK2 KPPs were clarified in OPNAV N86 letter SER N86F/7U178266 of 13 Nov 07.
* Subject: Ship Self Defense System (SSDS) Requirement Clarification of Key Performance Parameters (KPPs) and Measures of Suitability and Effectiveness
* Included Force Protection and Survivability KPPs

Background
- SSDS MK1 OPEVAL was successfully completed June 1997 with a Milestone III approval in March 1998
- SSDS MK2 MOD 1 FOT&E was conducted on CVN 76 in 2005. All KPP thresholds were met. However, the system was assessed as not suitable and not effective by COMOPTEVFOR based on the identification of SSDS MK2 and Combat Systems deficiencies (24major, 37 minor deficiencies).

Status
- 12 of 24 major deficiencies and 21 of 37 minor deficiencies have been verified as corrected by COMOPTEVFOR during FOTE test events. The status of the remaining 12 major deficiencies are as follows:
1 is ready for OPTEVFOR verification during FY10 FOT&E test events
5 involve training and will be addressed with a pending Navy Training System Plan (NTSP) update and training course improvements
4 have been identified as future efforts
2 are radar design limitations that cannot be resolved.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*	

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 (Dahlgren)	WR	NSWC DD Dalhgren, VA	45.299	0.900	Oct 2009	1.727	Oct 2010	0.000		1.727	Continuing	Continuing	Continuing
Systems Engineering (JHU)	SS/FP	JHU/APL Laurel, MD	41.993	1.683	Oct 2009	2.954	Oct 2010	0.000		2.954	Continuing	Continuing	Continuing
Systems Engineering (PHD)	WR	NSWC PHD Pt Hueneme, CA	19.336	0.280	Oct 2009	0.300	Oct 2010	0.000		0.300	Continuing	Continuing	Continuing
Systems Engineering (CDSA)	WR	CDSA DN Dam Neck, VA	12.315	1.285	Oct 2009	1.625	Oct 2010	0.000		1.625	Continuing	Continuing	Continuing
Systems Engineering (IH)	WR	NSWC IH Indian Head, MD	3.056	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Display Development Kits	SS/FP	Lockheed Martin St Paul, MN	3.958	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Eng/Dev/ Integrate (5110)	SS/CPFF	RSC (5110) San Diego, CA	27.420	6.765	Oct 2009	14.915	Oct 2010	0.000		14.915	Continuing	Continuing	Continuing
Systems Eng/Dev/ Integrate (TBD)	SS/CPFF	RSC (TBD) San Diego, CA	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Eng/Dev/ Integrate (5132)	SS/CPAF	RSC (5132) San Diego, CA	20.576	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Award Fees (5132)	SS/CPAF	RSC (5132) San Diego, CA	3.603	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Eng/Dev/ Integrate (5108)	SS/CPAF	RSC (5108) San Diego, CA	98.130	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Eng/Dev/ Integrate (5466)	SS/CPAF	RSC (5466) San Diego, CA	20.353	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
	SS/CPFF	RSC (5104)	23.685	0.000		0.000		0.000		0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*	

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 Eng/Dev/ Integrate (5104)		San Diego, CA											
Award Fees (5108)	SS/CPAF	RSC (5108) San Diego, CA	11.208	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Award Fees (5466)	SS/CPAF	RSC (5466) San Diego, CA	2.163	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
RisK Reduction/EMD	Various/ Various	Various Various	76.366	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Misc.	Various/ Various	Various Various	3.756	0.757	Oct 2009	1.000	Oct 2010	0.000		1.000	Continuing	Continuing	Continuing
Systems Engineering (NWAS)	WR	NWAS Corona Corona, CA	0.269	0.175	Oct 2009	0.200	Oct 2010	0.000		0.200	Continuing	Continuing	Continuing
		Subtotal	413.486	11.845		22.721		0.000		22.721			

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
QA/RMA	WR	NWAS Corona Corona, CA	9.954	0.000		0.000		0.000		0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*	

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	9.954	0.000		0.000		0.000		0.000			

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 (PHD)	WR	NSWC PHD Port Hueneme, CA	64.516	4.903	Oct 2009	5.005	Oct 2010	0.000		5.005	Continuing	Continuing	Continuing
Development Test & Evaluation (DD)	WR	NSWC DD Dahlgren, VA	5.363	0.195	Oct 2009	0.202	Oct 2010	0.000		0.202	Continuing	Continuing	Continuing
Development Test & Evaluation (DD-WI)	WR	NSWC DD Wallops Is, VA	33.222	3.245	Oct 2009	3.305	Oct 2010	0.000		3.305	Continuing	Continuing	Continuing
Development Test & Evaluation (JHU)	SS/FP	JHU/APL Laurel, MD	12.052	1.568	Oct 2009	1.502	Oct 2010	0.000		1.502	Continuing	Continuing	Continuing
Development Test & Evaluation (Corona)	WR	NSWC Corona Corona, CA	2.528	0.620	Oct 2009	0.650	Oct 2010	0.000		0.650	Continuing	Continuing	Continuing
Development Test & Evaluation (COTF)	WR	OPTEVFOR Norfolk, VA	2.456	0.389	Oct 2009	0.405	Oct 2010	0.000		0.405	Continuing	Continuing	Continuing
Development Test & Evaluation (5110)	SS/CPFF	RSC(5110) San Diego, CA	8.593	1.059	Oct 2009	1.102	Oct 2010	0.000		1.102	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*	

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 (5466)	SS/CPFF	RSC(5466) Tucson, AZ	2.180	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Development Test & Evaluation (CDSA)	WR	CDSA DN Dam Neck, VA	1.064	0.195	Oct 2009	0.202	Oct 2010	0.000		0.202	Continuing	Continuing	Continuing
Miscellaneous	Various/ Various	Various Not Specified	5.546	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	137.520	12.174		12.373		0.000		12.373			

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	Not Specified Not Specified	16.818	1.538	Oct 2009	1.500	Oct 2010	0.000		1.500	Continuing	Continuing	Continuing
		Subtotal	16.818	1.538		1.500		0.000		1.500			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*	

	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	577.778	25.557		36.594		0.000		36.594			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*

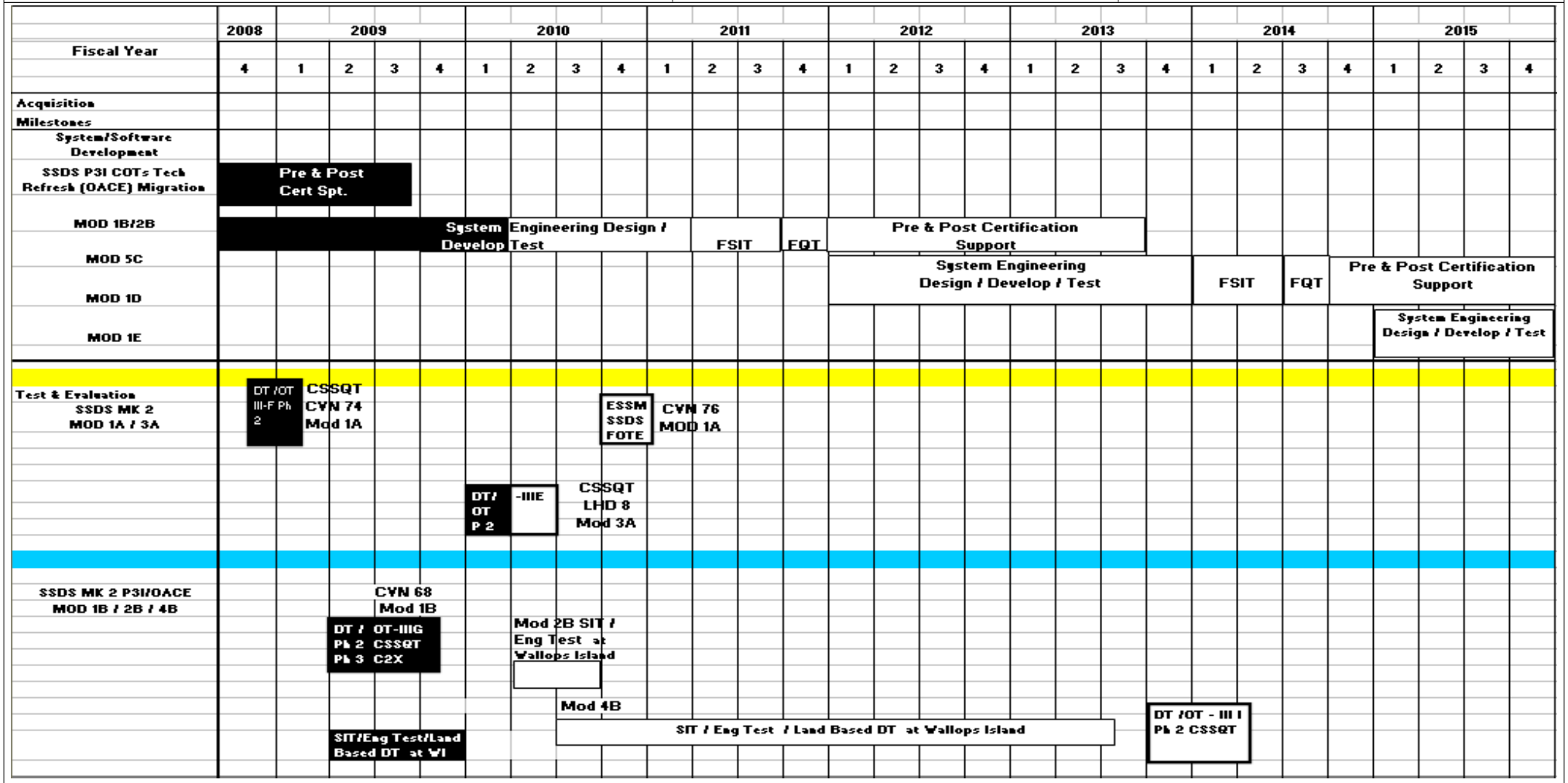


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*

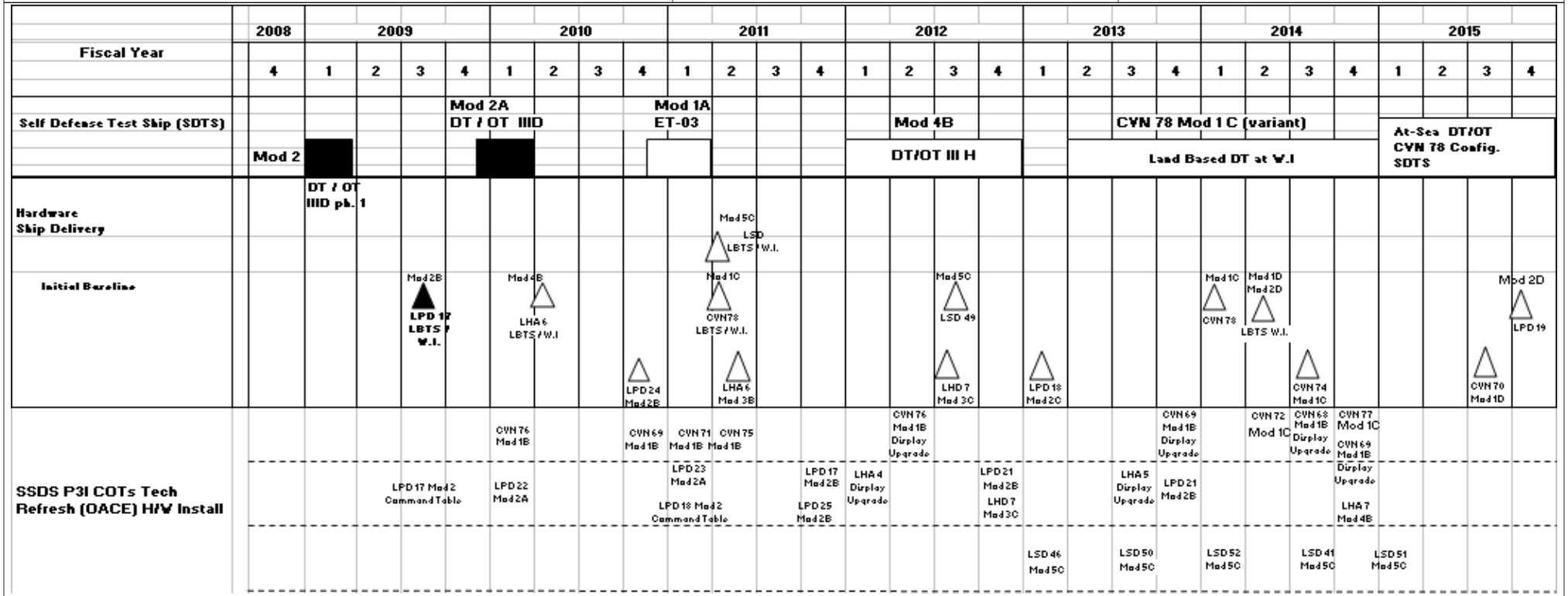


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
SSDS MK 2 MOD 1A/3A CVN74 - CSSQT / DT / OT	1	2009	1	2009
SSDS MK 2 MOD 1A / 3A - LHD8 CSSQT / DT / OT	1	2010	2	2010
SSDS MK 2 MOD 1A / 3A - CVN 76 DT / OT	4	2010	1	2011
SSDS MK 2 MOD 1B/2B/4B P3I OACE - CVN 68 PRE POST CERT SPT	1	2009	3	2009
SSDS MK 2 MOD 1B/2B/4B P3I OACE - CVN68 SIT/ ENG TESTING	2	2009	4	2009
SSDS MK 2 MOD 1B/2B/4B P3I OACE - LPD24 SIT/ ENG TESTING	2	2010	3	2010
SSDS MK 2 MOD 1B/2B/4B P3I OACE - LHA6 SIT/ ENG TEST/Land Based DT	3	2010	3	2013
SSDS MK 2 MOD 1B/2B/4B P3I OACE - CVN 68 CSSQT / DT / OT	2	2009	4	2009
SSDS MK 2 MOD 1B/2B/4B P3I OACE - LHA 6 CSSQT / DT / OT	4	2013	1	2014
SDTS - MOD 2 DT/OT IIID Phase 1	1	2009	1	2009
SDTS - MOD 1A - SEA BASED DT / OT	4	2010	1	2011
SDTS - MOD 2A - LAND BASED DT - Prep for SDTS	4	2009	1	2010
SDTS - CVN78 - LAND BASED DT - Prep for SDTS	2	2013	4	2014
SDTS - CVN78 - SEA BASED DT / OT	1	2015	4	2015
SDTS - LHA6 - SEA BASED DT / OT	1	2012	4	2012
SSDS MK 1 (MK2 MOD 5C) P3I OACE - Sys Engr / DESIGN / DEV / TEST	1	2009	1	2011
SSDS MK 1(MK2 MOD 5C) P3I OACE - SRR	4	2009	4	2009
SSDS MK 1(MK2 MOD 5C) P3I OACE - PDR	2	2010	2	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 2178: *QRCC*

	Start		End	
Event	Quarter	Year	Quarter	Year
SSDS MK 1(MK2 MOD 5C) P3I OACE - CRITICAL DESIGN REVIEW	4	2010	4	2010
SSDS MK 1(MK2 MOD 5C) P3I OACE - FACTORY SYSTEM INTEGRATION TEST	2	2011	3	2011
SSDS MK 1(MK2 MOD 5C) P3I OACE - FACTORY QUALIFICATION TEST	4	2011	4	2011
SSDS MK 1(MK2 MOD 5C) P3I OACE - PRE POST CERTIFICATION SUPPORT	1	2012	3	2013
SSDS MK 1(MK2 MOD 5C) P3I OACE 1 - SYSTEM INTEGRATION/ENG TESTING	4	2012	4	2012
SSDS MK 1(MK2 MOD 5C) P3I OACE 2 - SYS INTEGRATION/ENG TESTING	2	2013	4	2013
SSDS MK 1(MK2 MOD 5C) P3I OACE 3 - SYS INTEGRATION/ENG TESTING	3	2014	3	2014
SSDS MK 1(MK2 MOD 5C) P3I OACE 4 - SYS INTEGRATION/ENG TESTING	4	2015	4	2015
SSDS MK 1(MK2 MOD 5C) P3I OACE - CSSQT 1	3	2013	4	2013
SSDS MK 1(MK2 MOD 5C) P3I OACE - CSSQT 2	3	2014	4	2014
SSDS MK 1(MK2 MOD 5C) P3I OACE - CSSQT 3	2	2015	2	2015
SSDS MK2 MOD 1D P3I OACE - SYSTEM ENGINEERING DESIGN/DEV/TEST	1	2012	4	2013
SSDS MK2 MOD 1D P3I OACE - SRR	3	2012	3	2012
SSDS MK2 MOD 1D P3I OACE - PDR	1	2013	1	2013
SSDS MK2 MOD 1D P3I OACE - CRITICAL DESIGN REVIEW	4	2013	4	2013
SSDS MK2 MOD 1D P3I OACE - FACTORY SYSTEM INTEGRATION TEST	1	2014	2	2014
SSDS MK2 MOD 1D P3I OACE - FACTORY QUALIFICATION TEST	3	2014	3	2014
SSDS MK2 MOD 1D P3I OACE - PRE POST CERTIFICATION SUPPORT	4	2014	4	2015
SSDS MK1/MK2 MOD 1E/2E/3E/4E/5E P3I OACE - SYS ENGR DESIGN/DEV/TEST	1	2015	4	2015
SSDS MK1/MK2 MOD 1E/2E/3E/4E/5E P3I OACE - SRR	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 3172: *Joint Non-Lethal Weapons*	

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
3172: *Joint Non-Lethal Weapons*	3.609	4.280	4.597	0.000	4.597	3.365	2.413	2.480	2.532	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The scope of this project is to provide the fleet Expeditionary (specifically the Maritime Expeditionary Security Force) units with the capability of a portable maritime Integrated Swimmer Defense (ISD) system to engage combat swimmers/divers or unknown individuals underwater once they have been detected. The ISD program combines the detection and engagement operations in order to complete the swimmer defense picture for the fleet. The objective of the integrated swimmer defense system (ISD) is the development and deployment of an integrated system capable of being deployed by the expeditionary harbor security units (primarily the Maritime Expeditionary Security Force). ISD will be designed to detect, track, classify, warn, deter and neutralize divers and swimmers threats. ISD is important to protecting high value assets within harbors from the increasing threat of waterborne terrorist or combatants' attacks.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ISD Development	2.591	1.282	1.066	0.000	1.066
FY 2009 Accomplishments: Resources support the design, development, analysis, and evaluation of an expeditionary integrated swimmer defense capability. Utilizes an User Operational Evaluation System approach to refine requirements for transition to the ISD program of record.					
FY 2010 Plans: Supports incorporation of evaluation feedback into the supporting DODAF architecture of the ISD CPD. Supports preparation for the ISD Milestone C decision. These funds also initiate the transition development work from several Future Naval Capabilities (FNC) projects geared toward increment II of ISD.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 3172: *Joint Non-Lethal Weapons*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Support completion of Increment I CPD, Increment I MS C and FRP development.					
ISD Testing *FY 2009 Accomplishments:* Supports the testing of swimmer detection and engagement technologies. These resources integrate the detection and engagement systems into a comprehensive capability, and sustainment of the two UOES prototype systems. *FY 2010 Plans:* Resources facilitate the program management and acquisition support effort needed for the ISD capability to achieve Milestone C and its production decision. Start initial testing/certification of the full ISD system. *FY 2011 Base Plans:* Complete update of UOES2 system to the first Increment I, build test article and accomplish Development Testing (DT), facilities testing, and Operational Testing (OT) efforts. The OCO UONS support unambiguous warning devices for Mobile Expeditionary Security Forces (MESF).	1.000	2.998	3.531	0.000	3.531
Defense Acquisition Workforce Fund (DAWF) Defense Acquisition Workforce Fund (DAWF) *FY 2009 Accomplishments:* Funded DAWF	0.018	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	3.609	4.280	4.597	0.000	4.597

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 3172: *Joint Non-Lethal Weapons*

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/8128: *NCW Forces Active*	0.000	0.000	0.000	0.000	0.000	2.426	6.756	6.925	9.446	0.000	25.553

D. Acquisition Strategy

The acquisition strategy includes the integration of swimmer/diver detection sensors and using software to fuse the sensor track data thereby creating an end to end combat system capability for swimmer/diver defense. A Navy technical team will complete the concept refinement and technology development phase through the release of User Operational Evaluation Systems (UOES) and they will partner with industry for each UOES. In order to further refine the ISD requirements for a validated ISD Capability Production Document, two ISD UOES will be developed and evaluated. A mature near production ready UOES 2 will be delivered in September 2009. The ISD program of record system configuration will be produced through an Acquisition Category (ACAT) program commencing in FY10 to procure component systems needed to bring the performance of the UOES prototypes up to the full production requirements.

E. Performance Metrics

Successfully conduct Full Rate Production Design Review (FRP DR).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 3172: *Joint Non-Lethal Weapons*	

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/Software Development - ISD	WR	NUWC Newport Newport, RI	3.956	0.500	Feb 2010	0.500	Feb 2011	0.000		0.500	Continuing	Continuing	Continuing
Hardware/Software Development - FNC Low Cost Swimmer Detection	WR	NUWC Newport Newport, RI	0.000	0.100	Feb 2010	0.300	Feb 2011	0.000		0.300	Continuing	Continuing	Continuing
Hardware/Software Development - FNC Terminal Swimmer Detection and Targeting	WR	NUWC Newport Newport, RI	0.000	0.150	Feb 2010	0.250	Feb 2011	0.000		0.250	Continuing	Continuing	Continuing
		Subtotal	3.956	0.750		1.050		0.000		1.050			

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
Engineering Services (NUWC)	WR	NUWC Newport Newport, RI	1.635	0.580	Feb 2010	0.642	Feb 2011	0.000		0.642	Continuing	Continuing	Continuing
Engineering Services (NSWC)	WR	NSWC Panama City Panama City, FL	1.200	0.000		0.000		0.000		0.000	0.000	1.200	Continuing
		Subtotal	2.835	0.580		0.642		0.000		0.642			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 3172: *Joint Non-Lethal Weapons*

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 (NUWC)	WR	NUWC Newport Newport, RI	0.425	1.450	Feb 2010	1.450	Feb 2011	0.000		1.450	Continuing	Continuing	Continuing
		Subtotal	0.425	1.450		1.450		0.000		1.450			

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 (NUWC)	WR	NUWC Newport Newport, RI	0.400	1.500	Feb 2010	1.455	Feb 2011	0.000		1.455	Continuing	Continuing	Continuing
Program Management (CECOM)	WR	CECOM Not Specified	0.172	0.000		0.000		0.000		0.000	0.000	0.172	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 3172: *Joint Non-Lethal Weapons*

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
DAWDF	Various/ Various	Not Specified Not Specified	0.018	0.000		0.000		0.000		0.000	0.000	0.018	Continuing
		Subtotal	0.590	1.500		1.455		0.000		1.455			

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	7.806	4.280		4.597		0.000		4.597			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 3172: *Joint Non-Lethal Weapons*

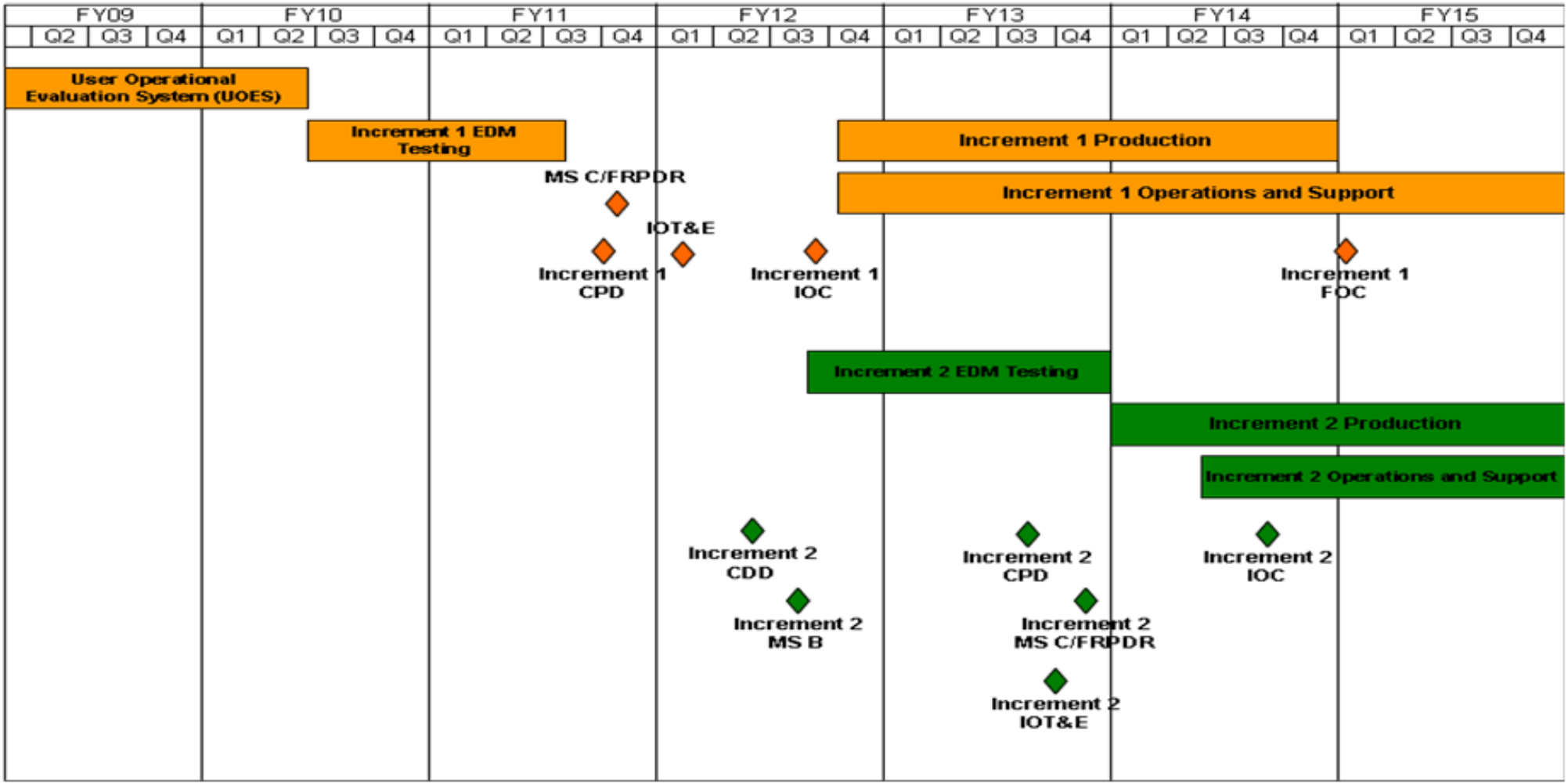


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604755N: *Ship Self Def (Detect & Cntrl)*	**PROJECT** 3172: *Joint Non-Lethal Weapons*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Increment I CR/TD Phase User Operational Eval Systems (UOES)	1	2009	2	2010
INCREMENT I EDM Testing	3	2010	3	2011
INCREMENT I - CPD	3	2011	3	2011
INCREMENT I - MS C/FRPDR	4	2011	4	2011
INCREMENT I IOT&E	1	2012	1	2012
INCREMENT I IOC	3	2012	3	2012
INCREMENT I FOC	1	2015	1	2015
INCREMENT II CDD	2	2012	2	2012
INCREMENT II MS B	3	2012	3	2012
INCREMENT II EDM TESTING	3	2012	4	2013
INCREMENT II CPD	3	2013	3	2013
INCREMENT II IOT&E	3	2013	3	2013
INCREMENT II MS C/FRPDR	4	2013	4	2013
INCREMENT II IOC	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	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*	8.976	9.063	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	48.787
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

9C22A: Autonomous Unmanned Surface Vessel (AUSV) supports the U.S. Navy's Anti-Terrorism Force Protection (ATFP) as well as Homeland Defense missions. The AUSV can protect commercial harbors, coastal facilities such as commercial and military airports and nuclear power plants, inland waterways and large lakes. The vessel will utilize a variety of advanced sensing and perimeter monitoring equipment for surveillance and detection of Targets of Interest (TI).

9C23A/0166: Expeditionary Swimmer Defense Systems consists of an instrumented physical barrier that deters swimmers and divers from attempting to prohibited areas, and detects and localizes attempted intrusions.

9D91A/2178: Cyber Security is for development, procurement, and certification of Information Assurance systems as part of ACDS/SSDS upgrade kits to replace and/or augment the obsolescent equipment in CVN and Amphib ACDS/SSDS ships.

9D90A/0166: Persistent Surveillance Wave Power-Buoy System is to create a buoy platform that generates sustainable power sufficient to energize a variety of sensors and communications elements to enhance the littoral security mission (Littoral Power Buoy - LPB).

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: AUTONOMOUS UNMANNED SURFACE VESSEL (AUSV)(XFER FRO	1.197	2.689
FY 2009 Accomplishments: N/A		
FY 2010 Plans: 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: EXPEDITIONARY SWIMMER DEFENSE SYSTEM *FY 2009 Accomplishments:* N/A *FY 2010 Plans:* N/A	2.393	3.187
Congressional Add: Persistent Surveillance Wave Power-Buoy System *FY 2009 Accomplishments:* N/A *FY 2010 Plans:* N/A	2.993	3.187
Congressional Add: Cyber Security *FY 2009 Accomplishments:* N/A	2.393	0.000
Congressional Adds Subtotals	8.976	9.063

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604755N: *Ship Self Def (Detect & Cntrl)*	PROJECT 9999: *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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*							
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	55.323	46.044	5.860	0.000	5.860	6.209	6.365	6.512	6.648	Continuing	Continuing
0167: *5in Rolling Airframe Missile*	35.288	26.953	1.547	0.000	1.547	1.530	1.567	1.605	1.636	Continuing	Continuing
0173: *NATO Sea Sparrow*	9.364	7.141	4.313	0.000	4.313	4.679	4.798	4.907	5.012	Continuing	Continuing
9999: *Congressional Adds*	10.671	11.950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.855

A. Mission Description and Budget Item Justification

This program element provides funding for the development of systems that fulfill a portion of the third phase of the Ship Self Defense: Engage Hard Kill. Development in this line will focus on hard kill capabilities in which missiles are used to intercept incoming Anti-Ship Cruise Missiles (ASCM). ENGAGEMENT: Missile and system improvements necessary to meet their requirements are being addressed via NATO SEASPARROW Missile System (NSSMS) (0173), 5" Rolling Airframe Missile (RAM) (0167), and Phalanx CIWS SeaRAM (9853A). Missile improvements include improved kinematic performance plus advanced seeker and low elevation fusing/ warhead capability improvements. System improvements include incorporation of Phalanx detection capability into RAM system (SeaRAM), future concepts studies and self-destructing ammunition, and Future Phalanx Next Generation Improvements. FY09 Congressional Add provides funding for Future Phalanx Next Generation improvements. FY10 Congressional Add provides funding for Next Generation Phalanx with Laser Demo

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	46.715	34.236	0.000	0.000	0.000
Current President's Budget	55.323	46.044	5.860	0.000	5.860
Total Adjustments	8.608	11.808	5.860	0.000	5.860
• Congressional General Reductions		-0.192			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		12.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	9.624	0.000			
• SBIR/STTR Transfer	-1.017	0.000			
• Program Adjustments	0.000	0.000	5.860	0.000	5.860
• 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
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604756N: *Ship Self Def (Engage: Hard Kill)*

Congressional Add Details ($ in Millions, and Includes General Reductions)

	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *PHALANX CIWS FUTURE CONCEPTS/NEXT GEN*	10.671	11.950
Congressional Add Subtotals for Project: 9999	10.671	11.950
Congressional Add Totals for all Projects	10.671	11.950

Change Summary Explanation

Added FY09 funding for Navy Directed RAM lethality study and system concept demonstration to counter emergent threats.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0167: *5in Rolling Airframe Missile*	

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
0167: *5in Rolling Airframe Missile*	35.288	26.953	1.547	0.000	1.547	1.530	1.567	1.605	1.636	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The purpose of this program is to develop a surface-to-air self-defense system utilizing a dual mode, passive Radio Frequency/Infrared 5" Rolling Airframe Missile. The baseline system (Block 0) provides a self-defense capability against active radar-guided anti-ship missiles and was developed on an equal cost share basis with the Government of the Federal Republic of Germany. The RAM Block 1 provides a capability against passive anti-ship missiles, very low altitude missiles, and maneuvering missiles through the incorporation of an infrared all-the-way mode seeker and improved fuse. The RAM Block 1 MOD 3 upgrade program, which provides an additional capability against helicopters, aircraft and surface craft, is a joint requirement of the U.S. and Federal Republic of Germany agreed to in a Memorandum of Agreement (MOA) signed by both parties. FY09-15 funding continues development and testing of a Block 2 upgrade to the RAM. This upgrade will allow RAM to regain battlespace lost to emerging, more maneuverable ASCM threats. This system is designed to counter anti-ship cruise missile raids and other threats to provide for ship survivability with accurate terminal guidance, proven lethality, and no shipboard post launch dependence.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
5in Rolling Airframe Missile Block 2 Development and Test	35.028	26.836	1.540	0.000	1.540
FY 2009 Accomplishments: FY09 funds development and testing of RAM Block 2 upgrade and RAM lethality study *FY 2010 Plans:* FY10 funds continued development and support of RAM Block 2 upgrade. *FY 2011 Base Plans:* FY11 funds continued development and support of RAM Block 2 upgrade.					
5in Rolling Airframe Missile Block 2 Travel	0.113	0.117	0.007	0.000	0.007

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0167: *5in Rolling Airframe Missile*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY09 funds travel. *FY 2010 Plans:* FY10 funds travel. *FY 2011 Base Plans:* FY11 funds travel.					
Defense Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded Defense Acquisition Workforce Fund	0.147	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	35.288	26.953	1.547	0.000	1.547

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 5238: *RAM*	16.949	8.735	11.805	0.000	11.805	5.065	1.164	0.033	0.036	0.000	673.395
• WPN 2242: *RAM*	70.778	69.728	74.976	0.000	74.976	68.740	71.460	80.567	83.214	647.226	1,714.036

D. Acquisition Strategy

The RAM Program uses directed sole source contracts with Raytheon Systems Company, Tucson, AZ.

E. Performance Metrics

Successfully achieve Milestone C. Successfully achieve Development/Operational Milestones

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0167: *5in Rolling Airframe Missile*

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/CPFF	Raytheon Tucson/Louisville	7.434	0.000		0.000		0.000		0.000	0.000	7.434	Continuing
Primary Hardware Dev Support	WR	China Lake CA	1.266	0.000		0.000		0.000		0.000	0.000	1.266	Continuing
Block 1 Eng/Interface Support	SS/CPFF	Raytheon Tucson/Louisville	0.400	0.000		0.000		0.000		0.000	0.000	0.400	Continuing
Block 1 MOD 3 Interface Support	C/CPFF	JHU/APL MD	0.981	0.000		0.000		0.000		0.000	0.000	0.981	Continuing
Block 2 Upgrade	SS/CPAF	Raytheon Tucson/Louisville	102.737	25.474	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Block 2 Upgrade	WR	China Lake/ NRL/ Dahlgren CA/VA	14.531	0.626	Jan 2010	0.726	Nov 2010	0.000		0.726	Continuing	Continuing	Continuing
Block 2 Upgrade	C/CPFF	JHU/APL md	1.300	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Block 2 Product Support	Various/ Various	various various	2.823	0.736	Jan 2010	0.814	Nov 2010	0.000		0.814	Continuing	Continuing	Continuing
		Subtotal	131.472	26.836		1.540		0.000		1.540			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0167: *5in Rolling Airframe Missile*

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 and Analyses	Various/ Various	various various	1.210	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	1.210	0.000		0.000		0.000		0.000			

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&E/OT&E/FOT&E/	SS/CPAF	Raytheon Tucson/Louisville	13.787	0.000		0.000		0.000		0.000	0.000	13.787	Continuing
FOT&E	WR	China Lake/PHD CA/CA	4.674	0.000		0.000		0.000		0.000	0.000	4.674	Continuing
Test Support	WR	China Lake/PHD CA/CA	11.061	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Miscellaneous	Various/ Various	various various	5.733	0.000		0.000		0.000		0.000	0.000	5.733	Continuing
		Subtotal	35.255	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0167: *5in Rolling Airframe Missile*

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
Travel	Various/ Various	various various	0.766	0.117	Nov 2009	0.007	Nov 2010	0.000		0.007	Continuing	Continuing	Continuing
Defense Acquisition Workforce Development Fund	Various/ Various	various various	0.147	0.000		0.000		0.000		0.000	0.000	0.147	Continuing
		Subtotal	0.913	0.117		0.007		0.000		0.007			

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	168.850	26.953		1.547		0.000		1.547			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	**PROJECT** 0167: *5in Rolling Airframe Missile*

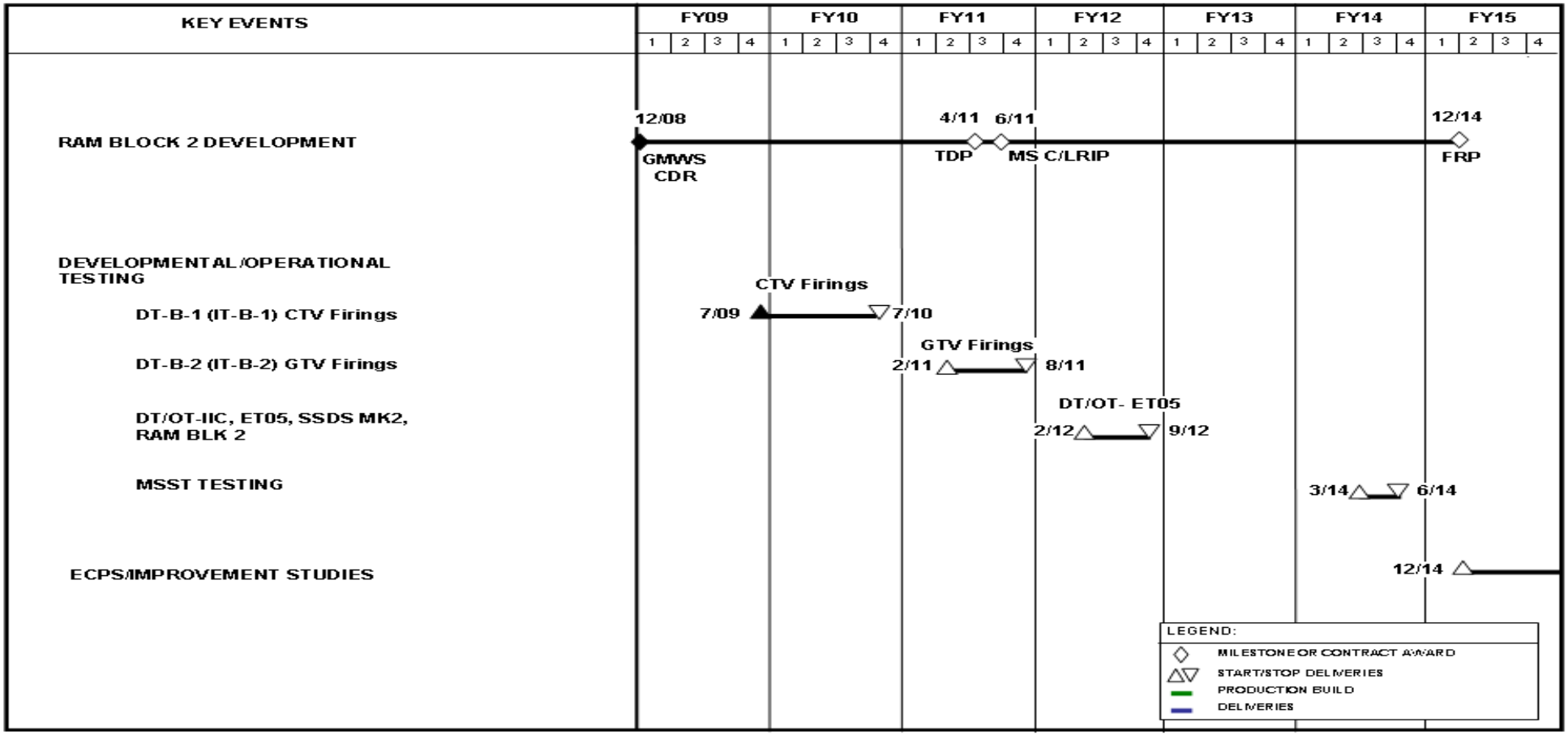


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	**PROJECT** 0167: *5in Rolling Airframe Missile*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
BLOCK 2 DEVELOPMENT	1	2009	1	2015
DT- B-1 CTV Firings	4	2009	4	2010
DT-B-2 GTV Firings	2	2011	4	2011
DT/OT-IIC	2	2012	4	2012
MSST Testing	2	2014	3	2014
ECPs/Improvement Studies	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0173: *NATO Sea Sparrow*	

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
0173: *NATO Sea Sparrow*	9.364	7.141	4.313	0.000	4.313	4.679	4.798	4.907	5.012	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
This project encompasses three (3) primary efforts to enhance ship self defense:

1. EVOLVED SEASPARROW MISSILE (ESSM): A cooperative effort among 10 NATO SEASPARROW Nations and the U.S., to improve the capability of the SEASPARROW Missile to counter the low altitude, highly maneuverable Anti-Ship Cruise Missile threat. The program consists of evolving the SEASPARROW Missile through the development of a new rocket motor with tail control; thrust vector control and ordnance (warhead) upgrade; modifications to the MK 41 VLS to fire from a single cell with 4 ESSM (QuadPack); and modifications to the NATO SEASPARROW Missile System (NSSMS) to provide ESSM capability.

2. NATO SEASPARROW - MK 91 Rearchitecture/SDSMS: The MK 91 Rearchitecture Program integrates NSSMS into the Ship Self Defense System (SSDS) Architecture to provide ship missile defense utilizing an open architected system. This effort consists of combining the Firing Officer Console and Radar Set Console functionality into a single Advanced Display System Console (AN/UYQ-70); modifying the Signal Data Processor and eliminating the MK 157 Computer Signal Data Converter and System Evaluation and Trainer, and redistributing this functionality within SSDS compatible microprocessors. This approach will eliminate the analog, point-to-point architecture, limited input-output channel and computer processing reserve deficiencies resident in the existing MK 57 NSSMS, and is required for ESSM. This modification also allows for full exploitation of the capabilities of the future ESSM and provides significant reductions (over 50%) in NSSMS cost of ownership and manning requirements.

3. Amphibious Self-Defense AAW Probability of Raid Annihilation (PRA) Improvement- The Amphibious Self-Defense AAW PRA Improvement program provides the L-Class Amphibious ships (LHA, LHD, LSD) with an improved PRA through full integration of the weapons and sensors of the combat system. This improvement introduces the Multi-Sensor Integration (MSI) unit that receives fire control and sensor data from ship radars, fuses them into an integrated radar picture and provides composite track reports to the combat system. MK 15 CIWS is upgraded to a Block 2 configuration with a much improved search and track radar. No longer stand-alone, CIWS will be integrated into the sensor suite and provide fire control quality search and track data to the combat system via the MSI unit. As a fallback measure, CIWS Blk 2 can also report directly to the MK 23 Target Acquisition Radar Threat Evaluation Weapons Assignment (TEWA) providing fire control quality track data at a very fast update rate for targets to the horizon. Target Acquisition System (TAS) itself will receive an upgrade of its OSM unit to accommodate direct inputs from both the MSI and CIWS units. This improvement program provides full integration of the combat system and will meet or exceed threat detection and designation

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0173: *NATO Sea Sparrow*

requirements through 2020. Use of the MSI will provide stable track data through a composite track picture reported to the combat system. Without this improvement, PRA of the L-Class ships would continue to degrade to an unsatisfactory point in the mid term.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NATO Sea Sparrow integration testing	7.300	6.452	4.000	0.000	4.000
FY 2009 Accomplishments: Continue ESSM SSDS integration testing on CVN platforms. Conduct US-unique DT/OT firings from SDTS and carriers (DT/OT-D2, DT/OT-D3). Conduct ESSM Aegis integration testing and DT/OT firings on Cruisers and Destroyers and SDTS (DT/OT-D4, DT/OT-D5, DT/OT-D6) in support of Aegis Modernization Program. Conduct ESSM DT/OT firings on SDTS (DT/OT-D7) in support of SSDS Open Architecture integration and uplink development. This provides for the U.S. share of cooperative efforts associated with ESSM engineering studies and other development initiatives.					
FY 2010 Plans: Continue ESSM SSDS integration testing on CVN platforms. Conduct US-unique DT/OT firings from SDTS and carriers (DT/OT-D2, DT/OT-D3). Conduct ESSM Aegis integration testing and DT/OT firings on Cruisers and Destroyers and SDTS (DT/OT-D4, DT/OT-D5, DT/OT-D6) in support of Aegis Modernization Program. Conduct ESSM DT/OT firings on SDTS (DT/OT-D7) in support of SSDS Open Architecture integration and uplink development. This provides for the U.S. share of cooperative efforts associated with ESSM engineering studies and other development initiatives.					
FY 2011 Base Plans: Continue ESSM SSDS integration testing on CVN platforms. Conduct US-unique DT/OT firings from SDTS and carriers (DT/OT-D2, DT/OT-D3). Conduct ESSM Aegis integration testing and DT/OT firings on Cruisers and Destroyers and SDTS (DT/OT-D4, DT/OT-D5, DT/OT-D6) in support of Aegis Modernization Program. Conduct ESSM DT/OT firings on SDTS (DT/OT-D7) in support of SSDS Open Architecture integration and uplink development. This provides for the U.S. share of cooperative efforts associated with ESSM engineering studies and other development initiatives.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	**PROJECT** 0173: *NATO Sea Sparrow*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NATO Sea Sparrow Amphibious Self-Defense AAW improvements	1.717	0.382	0.000	0.000	0.000
FY 2009 Accomplishments: Conduct Amphibious Self-Defense AAW improvement for LHD 1-6 and LHA class ships leveraging the MK 15 CIWS Blk 2 upgrade program, the MSIT unit developed for the Self-Defense Test Ship and the RAM MOD 3 Launcher upgrade program, L- lass PRA will be greatly enhanced. Improvements to the MK 23 TAS made to support and integrate the RAM Mod 3 Launcher will be leveraged to integrate the MSI unit and the CIWS Blk 2 GFCS. The MSI will have the greatest positive impact on PRA as composite track data will be developed and provided to the combat system. The short range air radar picture will be significantly improved through the use of the CIWS upgraded search and track radar providing track data at a very fast update rate. *FY 2010 Plans:* Conduct Amphibious Self-Defense AAW improvement for LHD 1-6 and LHA class ships leveraging the MK 15 CIWS Blk 2 upgrade program, the MSIT unit developed for the Self-Defense Test Ship and the RAM MOD 3 Launcher upgrade program, L- lass PRA will be greatly enhanced. Improvements to the MK 23 TAS made to support and integrate the RAM Mod 3 Launcher will be leveraged to integrate the MSI unit and the CIWS Blk 2 GFCS. The MSI will have the greatest positive impact on PRA as composite track data will be developed and provided to the combat system. The short range air radar picture will be significantly improved through the use of the CIWS upgraded search and track radar providing track data at a very fast update rate.					
NATO Sea Sparrow Combat System Integraton Technical Direction Agent (TDA)	0.300	0.307	0.313	0.000	0.313
FY 2009 Accomplishments: Provides funding for the Combat System Integration Technical Direction Agent (TDA) who will provide engineering support for combat system performance and risk mitigation. The TDA will leverage it's technical expertise & leadership to cover a broad range of activities such as defining near-term and future requirements for current systems and future upgrades, maintain system 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0173: *NATO Sea Sparrow*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
to evaluate system improvements, threat changes and operational environment conditions, verify models and simulations to promote program success through application of rigorous and disciplined systems engineering principles and practices in a consistent manner across system elements over the program life cycle, make prudent use of authoritative technical expertise for advice and independent review, identify a range of technically acceptable alternatives to resolve engineering issues, assist in development of T&E planning, and continue to maintain NSPO essential research and engineering capabilities and corporate memory.					
FY 2010 Plans: Provides funding for the Combat System Integration Technical Direction Agent (TDA) who will provide engineering support for combat system performance and risk mitigation. The TDA will leverage it's technical expertise & leadership to cover a broad range of activities such as defining near-term and future requirements for current systems and future upgrades, maintain system performance models to evaluate system improvements, threat changes and operational environment conditions, verify models and simulations to promote program success through application of rigorous and disciplined systems engineering principles and practices in a consistent manner across system elements over the program life cycle, make prudent use of authoritative technical expertise for advice and independent review, identify a range of technically acceptable alternatives to resolve engineering issues, assist in development of T&E planning, and continue to maintain NSPO essential research and engineering capabilities and corporate memory.					
FY 2011 Base Plans: Provides funding for the Combat System Integration Technical Direction Agent (TDA) who will provide engineering support for combat system performance and risk mitigation. The TDA will leverage it's technical expertise & leadership to cover a broad range of activities such as defining near-term and future requirements for current systems and future upgrades, maintain system performance models to evaluate system improvements, threat changes and operational environment conditions, verify models and simulations to promote program success through application of rigorous and disciplined					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0173: *NATO Sea Sparrow*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
systems engineering principles and practices in a consistent manner across system elements over the program life cycle, make prudent use of authoritative technical expertise for advice and independent review, identify a range of technically acceptable alternatives to resolve engineering issues, assist in development of T&E planning, and continue to maintain NSPO essential research and engineering capabilities and corporate memory.					
Defense Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded Defense Acquisition Workforce Fund	0.047	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	9.364	7.141	4.313	0.000	4.313

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 2307: *ESSM*	84.597	51.229	48.152	0.000	48.152	49.999	53.273	73.142	117.028	778.732	1,876.452
• OPN 5237: *NATO SEA SPARROW*	10.290	13.514	11.121	0.000	11.121	9.265	9.279	8.609	8.641	0.000	185.619

D. Acquisition Strategy

ESSM is a directed sole source contract to Raytheon Missile Systems Company. The MK 29 ESSM Launcher Upgrade and REARC/SSDS Integration effort was a directed sole source contract to Raytheon Company (IDS).

E. Performance Metrics

Successfully complete Developmental Test/Operational 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0173: *NATO Sea Sparrow*	

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
ESSM-Primary Hardware Development	C/CPAF	Raytheon Tucson	143.356	0.000		0.000		0.000		0.000	0.000	143.356	Continuing
ESSM-Primary Hardware Development	Allot	TDW various	3.746	0.000		0.000		0.000		0.000	0.000	3.746	3.746
Amphin Self-Defense PRA Imp	Various/ Various	various various	1.717	0.382	Oct 2009	0.000		0.000		0.000	0.000	2.099	11.200
Ancillary Hardware Development	SS/CPAF	Lockhead/UDLP various	46.706	0.000		0.000		0.000		0.000	0.000	46.706	46.706
Systems Engineering	Various/ Various	various various	22.622	0.000		0.000		0.000		0.000	0.000	22.622	22.622
MK 29/ESSM Launcher upgrade	C/CPAF	Raytheon Sys Tucson	8.521	0.000		0.000		0.000		0.000	0.000	8.521	8.521
NATO-Primary Hdw Dev	SS/CPAF	Raytheon Sys Tucson	30.627	0.000		0.000		0.000		0.000	0.000	30.627	30.627
Software Development/ Test	SS/CPAF	Raytheon Sys Tucson	7.691	0.000		0.000		0.000		0.000	0.000	7.691	Continuing
Systems Engineering/ Firing Spt	Various/ Various	various various	5.731	0.450	Nov 2009	0.475	Nov 2010	0.000		0.475	0.000	6.656	Continuing
		Subtotal	270.717	0.832		0.475		0.000		0.475	0.000	272.024	123.422

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0173: *NATO Sea Sparrow*

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	NSWC PHD CA	3.568	0.000		0.000		0.000		0.000	0.000	3.568	Continuing
Engr Support1	WR	various various	4.207	0.000		0.000		0.000		0.000	0.000	4.207	Continuing
MK 29/ESSM Launcher Support	WR	Dahlgren/PHD VA/CA	0.375	0.000		0.000		0.000		0.000	0.000	0.375	Continuing
Engr Support2	WR	various various	0.195	0.000		0.000		0.000		0.000	0.000	0.195	0.195
NATO-MK 91/SSDS Integ	WR	Dahlgren/PHD VA/CA	0.834	0.000		0.000		0.000		0.000	0.000	0.834	Continuing
Engr Support3	WR	various various	6.364	0.000		0.000		0.000		0.000	0.000	6.364	Continuing
Engr Support4	WR	APL MD	0.600	0.307	Oct 2009	0.313	Oct 2010	0.000		0.313	Continuing	Continuing	Continuing
		Subtotal	16.143	0.307		0.313		0.000		0.313			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0173: *NATO Sea Sparrow*

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 CL CA	14.298	0.735	Nov 2009	0.665	Nov 2010	0.000		0.665	Continuing	Continuing	Continuing
OPEVAL/TECHEVAL/ Test Firings	WR	various (Corona, IHD, Dahlgren, SNSWC, PHD) various	11.878	0.000		0.000		0.000		0.000	0.000	11.878	Continuing
Developmental Test & Evaluation	SS/CPFF	APL MD	2.304	0.300	Oct 2009	0.375	Oct 2010	0.000		0.375	0.275	3.254	2.010
ESSM Test & Evaluation	Various/ Various	various various	4.204	3.203	Dec 2009	0.753	Dec 2010	0.000		0.753	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	Dahlgren VA	0.418	0.000		0.000		0.000		0.000	0.000	0.418	0.836
		Subtotal	33.102	4.238		1.793		0.000		1.793			

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
ESSM-ENGR SPT	WR	various various	4.913	0.000		0.000		0.000		0.000	0.000	4.913	Continuing
ESSM-PM SPT	WR	various	0.498	0.000		0.000		0.000		0.000	0.000	0.498	0.498

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	PROJECT 0173: *NATO Sea Sparrow*	

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											
ESSM-Labor	Allot	various various	10.855	1.564	Oct 2009	1.532	Oct 2010	0.000		1.532	Continuing	Continuing	Continuing
ESSM-Travel	Allot	various various	2.382	0.200	Oct 2009	0.200	Oct 2010	0.000		0.200	Continuing	Continuing	Continuing
ESSM-Misc	Various/ Various	various various	2.065	0.000		0.000		0.000		0.000	0.000	2.065	2.065
NATO Travel/Misc	Various/ Various	various various	1.831	0.000		0.000		0.000		0.000	0.000	1.831	Continuing
Defense Acquisition Workforce Development Fund	Various/ Various	various various	0.047	0.000		0.000		0.000		0.000	0.000	0.047	Continuing
		Subtotal	22.591	1.764		1.732		0.000		1.732			

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	342.553	7.141		4.313		0.000		4.313			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	**PROJECT** 0173: *NATO Sea Sparrow*

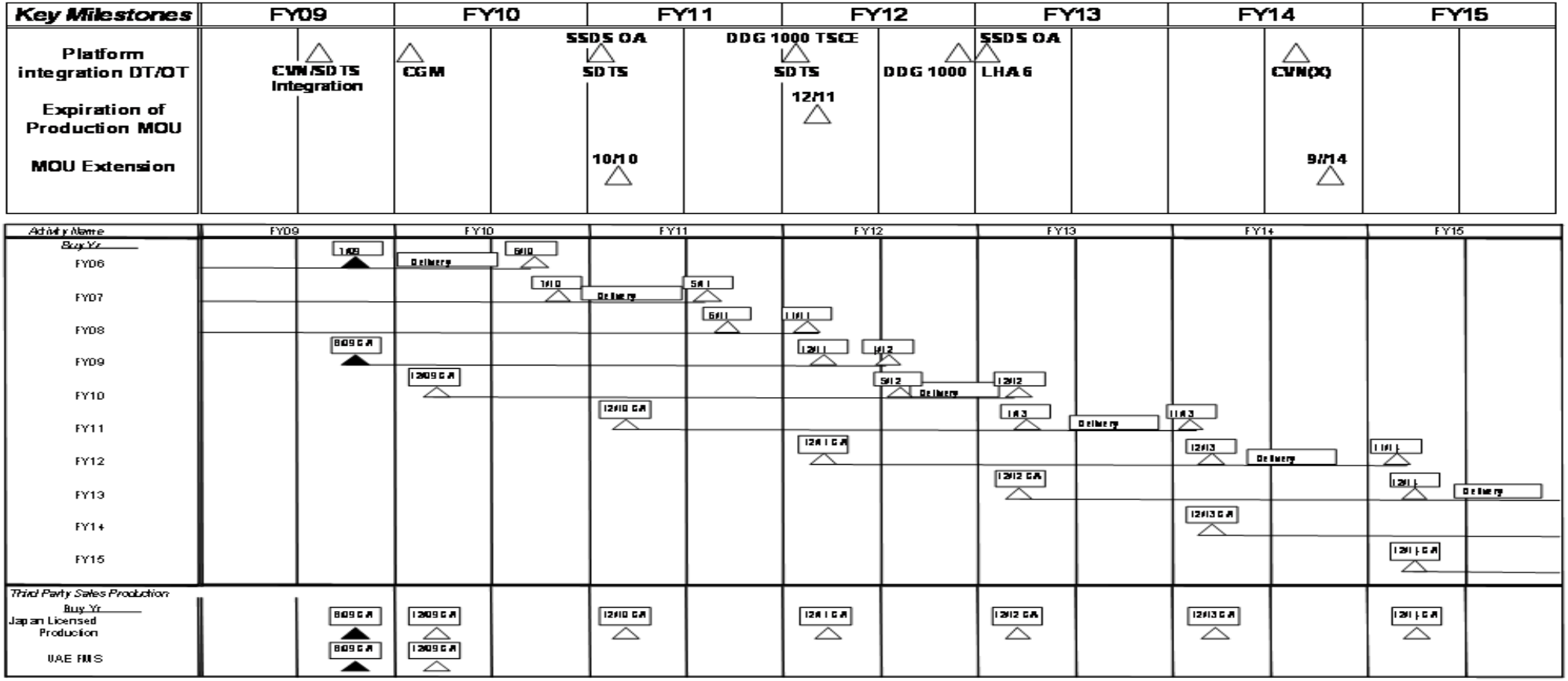


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	**PROJECT** 0173: *NATO Sea Sparrow*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Platform Intergration DT/OT	3	2009	3	2014
Expiration of Production MOU	1	2012	1	2012
MOU Extension	1	2011	4	2014
FY 06 FRP DELIVERIES	4	2009	3	2010
FY 07FRP DELIVERIES	4	2010	3	2011
FY 08 FRP DELIVERIES	3	2011	1	2012
FY 09 FRP CONTRACT AWARD	4	2009	4	2009
FY 09 FRP DELIVERIES	1	2012	3	2012
FY 10 FRP CONTRACT AWARD	1	2010	1	2010
FY 10 FRP DELIVERIES	3	2012	1	2013
FY 11 FRP CONTRACT AWARD	1	2011	1	2011
FY 11 FRP DELIVERIES	2	2013	1	2014
FY 12 FRP CONTRACT AWARD	1	2012	1	2012
FY 12 FRP DELIVERIES	1	2014	1	2015
FY 13 FRP CONTRACT AWARD	1	2013	1	2013
FY 13 FRP DELIVERIES	1	2015	4	2015
FY 14 FRP CONTRACT AWARD	1	2014	1	2014
FY 15 FRP CONTRACT AWARD	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604756N: *Ship Self Def (Engage: Hard Kill)*	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*	10.671	11.950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.855
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: PHALANX CIWS FUTURE CONCEPTS/NEXT GEN *FY 2009 Accomplishments:* FY09 Congressional Add provides funding for Future Phalanx Next Generation improvements. *FY 2010 Plans:* FY10 Congressional Add provides funding for Laser Phalanx	10.671	11.950
Congressional Adds Subtotals	10.671	11.950

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/EW)*							
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	57.184	88.526	84.525	0.000	84.525	131.788	139.674	148.822	71.991	Continuing	Continuing
0954: *Shipboard EW Improvement Program*	24.464	21.135	13.386	0.000	13.386	19.935	20.206	17.525	17.294	Continuing	Continuing
2190: *NULKA Decoy*	2.995	4.777	5.291	0.000	5.291	4.389	3.558	3.689	3.630	Continuing	Continuing
3227: *SEWIP Increment 2*	23.342	62.614	65.848	0.000	65.848	107.464	115.910	127.608	51.067	Continuing	Continuing
9999: *Congressional Adds*	6.383	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	30.079

A. Mission Description and Budget Item Justification

0954 - The Surface Electronic Warfare Improvement Program (SEWIP) provides enhanced Electronic Warfare (EW) capabilities to existing and new ship combat systems to improve Anti Ship Missile Defense (ASMD), counter-targeting and counter-surveillance capabilities, as well as improved battlefield situational awareness. The SEWIP employs an evolutionary acquisition and incremental development strategy to upgrade surface EW capabilities via a series of block upgrades to the AN/SLQ-32(V) system, and field EW improvements to keep pace with the ASMD threat.

2190 - The Offboard Active Decoy (NULKA) is a joint cooperative program between the United States and Australia that developed an active offboard decoy that utilizes a broadband radio frequency repeater mounted atop a hovering rocket. NULKA is designed to counter a wide variety of present and future radar guided Anti-Ship Missiles (ASMs) by radiating a large radar cross section while flying a ship-like trajectory. The United States developed the electronic payload and fire control system, while Australia developed the hovering rocket.

3227 - SEWIP Block 2 is expected to be a separate program to develop an upgraded antenna, receiver, and combat system interface for SLQ-32. The upgrades are necessary in order to pace the threat, improving detection, accuracy, and mitigation of Electromagnetic Interference (EMI). Beginning in FY11, development of SEWIP Block 3 will commence to add Electronic Attack capability to the SLQ-32.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604757N: *Ship Self Def (Engage: Soft Kill/EW)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	63.780	88.895	0.000	0.000	0.000
Current President's Budget	57.184	88.526	84.525	0.000	84.525
Total Adjustments	-6.596	-0.369	84.525	0.000	84.525
• Congressional General Reductions		-0.369			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-5.071	0.000			
• SBIR/STTR Transfer	-1.525	0.000			
• Program Adjustments	0.000	0.000	84.525	0.000	84.525

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Nulka Decoy System and Mk 53 Decoy Launch System*	1.596	0.000
Congressional Add: *Shipboard Electronic Warfare Sustainment Training*	3.191	0.000
Congressional Add: *Accelerated Improvement for Active Surface Electro*	1.596	0.000
Congressional Add Subtotals for Project: 9999	6.383	0.000
Congressional Add Totals for all Projects	6.383	0.000

Change Summary Explanation

Minor program changes in FY 09 are due to execution realignments by the fundholder for higher priority needs. Program changes in FY 11 include adding funds for SEWIP Block 3 and reducing funding for SEWIP Block 1 and 2 to fund higher department priorities.

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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604757N: *Ship Self Def (Engage: Soft Kill/EW)*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 0954: *Shipboard EW 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
0954: *Shipboard EW Improvement Program*	24.464	21.135	13.386	0.000	13.386	19.935	20.206	17.525	17.294	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 Electronic Warfare Improvement Program (SEWIP) provides enhanced Electronic Warfare (EW) capabilities to existing and new ship combat systems to improve Anti Ship Missile Defense (ASMD), counter-targeting and counter surveillance capabilities, as well as improved situational awareness. The SEWIP employs an evolutionary acquisition and incremental development strategy to upgrade surface EW capabilities via a series of block upgrades to the AN/SLQ-32(V) system, and field EW improvements to keep pace with the ASMD threat. SEWIP will provide required EW capabilities and will incorporate technology advances as they become available to provide incremental upgrades and improvements in performance.

SEWIP Block 1 is segmented into Block 1A, and Block 1B. Block 1A upgrades the AN/SLQ-32 pulse-processing computers and the display console allowing the system to more quickly identify threats and better display the information to the operator. Block 1A Electronic Surveillance Enhancements (ESE) pulse processing computers and the Improved Control and Display (ICAD) Human System Interface (HSI) console partially open the electronic warfare system architecture to support subsequent EW capability upgrades. Block 1B adds adjunct sensors for special signal intercept, including Specific Emitter Identification (SEI), and High Gain High Sensitivity (HGHS) (Block 1B3), a critical improvement for threat correlation, situational awareness, and extending the battle space.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Block 1B1/1B2 SEI *FY 2009 Accomplishments:* Completed development of Improved Control and Display(ICAD)-integrated SEI (Block 1B2), adding capability to the AN/SLQ-32B(V) System.	1.121	0.000	0.000	0.000	0.000
Block 1B3	18.761	17.264	10.535	0.000	10.535

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 0954: *Shipboard EW Improvement Program*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Commenced Engineering and Manufacturing Development (E&MD) of the High Gain High Sensitivity (HGHS) adjunct sensor. *FY 2010 Plans:* Continue E&MD of the HGHS subsystem, commence integration with the 1B2-enhanced AN/ SLQ-32B(V) system. *FY 2011 Base Plans:* Complete E&MD by taking delivery of Engineering Development Models (EDMs). Commence integrated testing of EDMs.					
V(4) Electronic Surveillance Enhancements (ESE) *FY 2009 Accomplishments:* Commenced development of V(4) ESE upgrade providing proven Block 1A (V)3 ESE processing adapted to the aircraft carrier variant of SLQ-32. *FY 2010 Plans:* Continue development of V(4) ESE upgrade. *FY 2011 Base Plans:* At-sea testing of V(4) ESE upgraded SLQ-32(V)4 system.	4.456	3.871	2.851	0.000	2.851
DAWF *FY 2009 Accomplishments:* Funded the DoD Acquisition Workforce Fund	0.126	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	24.464	21.135	13.386	0.000	13.386

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 0954: *Shipboard EW Improvement Program*

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
• 0204228N/2312: *OPN BA-2 AN/ SLQ-32(V)*	22.788	31.171	49.677	0.000	49.677	78.268	78.386	93.808	138.938	Continuing	Continuing
• 24575N & 72827N/1C2C: *OMN BA-1 AN/SLQ-32(V)*	5.633	5.601	8.622	0.000	8.622	11.688	11.873	11.981	12.217	Continuing	Continuing

D. Acquisition Strategy

The Surface EW Improvement Program (SEWIP) will develop Block upgrades to SLQ-32 based on integrating technology advances and adding functional capabilities in an incremental fashion. Each Block and sub-Block will be developed and contracted in an individual yet coordinated and overlapping fashion.

E. Performance Metrics

Successfully achieve Block 1B3 Milestone C / Low Rate Initial Production (LRIP) Decision Review (DR).
Successfully complete Block 1B3 Operational Evaluation (OPEVAL).
Successfully achieve Block 1B3 Full Rate Production (FRP) Decision Review (DR).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 0954: *Shipboard EW Improvement 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
Ancillary Hardware Development	C/TBD	Not Specified Not Specified	151.420	0.000		0.000		0.000		0.000	0.000	151.420	Continuing
ESE Development	SS/CPFF	Northrop Grumman Goleta, CA	10.307	2.592	Feb 2010	1.006	Nov 2010	0.000		1.006	Continuing	Continuing	Continuing
ICAD Development	SS/CPFF	GD-AIS Fairfax, VA	11.747	0.000		0.000		0.000		0.000	0.000	11.747	Continuing
ESE Development (Block 1A)	SS/CPFF	Northrop Grumman Goleta, CA	0.471	0.000		0.000		0.000		0.000	0.000	0.471	Continuing
System Integrator	C/CPAF	GD-AIS Fairfax, VA	13.798	0.000		0.000		0.000		0.000	0.000	13.798	Continuing
1B Development	SS/CPIF	GD-AIS Fairfax, VA	68.583	10.089	Nov 2009	1.375	Nov 2010	0.000		1.375	Continuing	Continuing	Continuing
Q-70 Mods	C/CPFF	LM-EAGAN Eagan, MN	3.491	0.000		0.000		0.000		0.000	0.000	3.491	Continuing
Block 2 Study/ Development	C/CPIF	BAE & Others Various	0.336	0.000		0.000		0.000		0.000	0.000	0.336	Continuing
		Subtotal	260.153	12.681		2.381		0.000		2.381			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 0954: *Shipboard EW Improvement Program*

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
Block 1 Integrated Logistics Support	WR	NSWC Crane, DD, NRL Various	9.612	1.000	Nov 2009	0.978	Nov 2010	0.000		0.978	Continuing	Continuing	Continuing
Block 1 Government Engineering Support	WR	NSWC Crane, DD, NRL Various	33.398	4.616	Nov 2009	2.814	Nov 2010	0.000		2.814	Continuing	Continuing	Continuing
Block 2 Integrated Logistics Support	WR	NSWC Crane, DD, NRL Various	0.540	0.000		0.000		0.000		0.000	0.000	0.540	Continuing
Block 2 Government Engineering Support	WR	NSWC Crane, DD, NRL Various	2.496	0.000		0.000		0.000		0.000	0.000	2.496	Continuing
		Subtotal	46.046	5.616		3.792		0.000		3.792			

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
Block 1 Integration and Test	WR	NSWC Crane, DD, NRL Various	0.853	0.000		0.000		0.000		0.000	0.000	0.853	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 0954: *Shipboard EW Improvement Program*

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/Various	Various Various	8.958	0.000		0.000		0.000		0.000	0.000	8.958	Continuing
Block 1A Test Planning/ T&E Events	WR	NSWC Crane, DD, NRL Various	11.036	0.000		0.000		0.000		0.000	0.000	11.036	Continuing
Block 1B Test Planning/ T&E Events	WR	NSWC Crane, DD, NRL, NAVAIR, OPTEVFOR, NSWC PHD Various	9.048	0.280	Nov 2009	0.925	Nov 2010	0.000		0.925	Continuing	Continuing	Continuing
(V)4 ESE Test Planning/ T&E Events	WR	NSWC Crane, DD, NRL Various	0.542	0.386	Nov 2009	3.937	Nov 2010	0.000		3.937	Continuing	Continuing	Continuing
Block 2 Test Planning/ T&E Events	WR	NSWC Crane, DD, NRL Various	0.941	0.000		0.000		0.000		0.000	0.000	0.941	Continuing
		Subtotal	31.378	0.666		4.862		0.000		4.862			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 0954: *Shipboard EW Improvement Program*

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
Block 1 Program Management	C/FFP	SEAPORT Various	28.202	1.516	Jan 2010	1.598	Nov 2010	0.000		1.598	0.000	31.316	Continuing
Block 1 Program Management Support	WR	NSWC Crane, DD, NRL Various	14.894	0.556	Nov 2009	0.653	Nov 2010	0.000		0.653	Continuing	Continuing	Continuing
Block 1 Travel	WR	NAVSEA Program Office Travel Washington, D.C.	0.705	0.100	Nov 2009	0.100	Nov 2010	0.000		0.100	Continuing	Continuing	Continuing
Block 2 Program Managment Support	C/FFP	SEAPORT Various	0.023	0.000		0.000		0.000		0.000	0.000	0.023	Continuing
Block 2 Program Managment Support	WR	NSWC Crane, DD, NRL Various	0.823	0.000		0.000		0.000		0.000	0.000	0.823	Continuing
Block 2 Travel	WR	NAVSEA Program Office Travel Washington, D.C.	0.050	0.000		0.000		0.000		0.000	0.000	0.050	Continuing
Block 1 DoD Acquisition Workforce Fund	Various/ Various	Various Various	0.126	0.000		0.000		0.000		0.000	0.000	0.126	Continuing
		Subtotal	44.823	2.172		2.351		0.000		2.351			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 0954: *Shipboard EW Improvement 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	382.400	21.135		13.386		0.000		13.386			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	**PROJECT** 0954: *Shipboard EW Improvement Program*

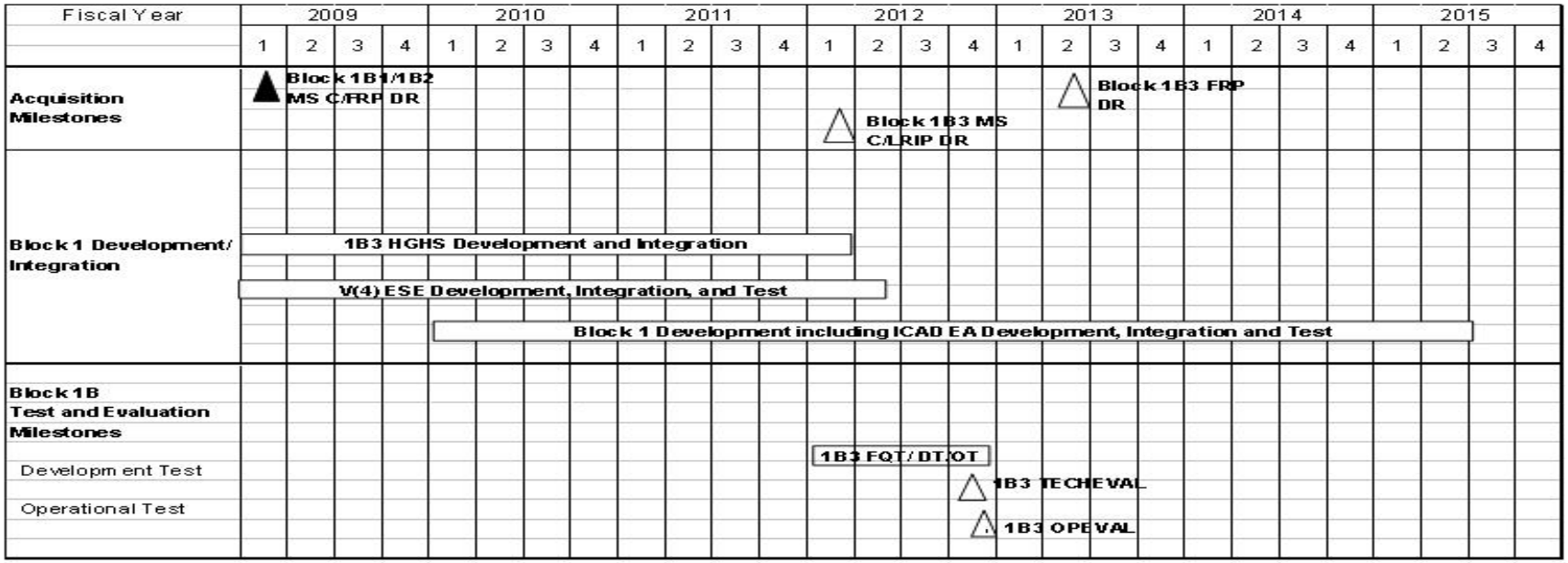


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	**PROJECT** 0954: *Shipboard EW Improvement Program*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Block 1B1/1B2 MS C/FRP DR	1	2009	1	2009
1B3 HGHS Development and Integration	1	2009	1	2012
V(4) ESE Development, Integration, and Test	1	2009	2	2012
Block 1 Development including ICAD EA Development, Integration, and Test	1	2010	2	2015
Block 1B3 MS C/LRIP DR	1	2012	1	2012
1B3 FQT & DT/OT	1	2012	4	2012
Block 1B3 TECHEVAL	4	2012	4	2012
Block 1B3 OPEVAL	4	2012	4	2012
Block 1B3 MS C/FRP	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 2190: *NULKA Decoy*	

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
2190: *NULKA Decoy*	2.995	4.777	5.291	0.000	5.291	4.389	3.558	3.689	3.630	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Offboard Active Decoy (NULKA) is a joint cooperative program between the United States and Australia that developed an active offboard decoy that utilizes a broadband radio frequency repeater mounted atop a hovering rocket. NULKA is designed to counter a wide variety of present and future radar guided Anti-Ship Missiles (ASMs) by radiating a large radar cross section while flying a ship-like trajectory. The United States developed the electronic payload and fire control system, while Australia developed the hovering rocket. Future efforts involve development of the capability for high value unit protection.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NULKA Decoy Subsystem	1.100	1.600	1.600	0.000	1.600
FY 2009 Accomplishments: Evaluated updated threat information and current tactics to verify continued NULKA effectiveness. *FY 2010 Plans:* NULKA decoy subsystem integration and improvements to include Effectiveness Studies, Engineering Studies and Fly Out Tactics. *FY 2011 Base Plans:* NULKA decoy subsystem integration and improvements to include Effectiveness Studies, Engineering Studies and Fly Out Tactics.					
NULKA Decoy Enhancements	1.880	0.430	0.691	0.000	0.691

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	**PROJECT** 2190: *NULKA Decoy*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Investigated NULKA Electromagnetic Compatibility (EMC) payload design changes to facilitate interoperability between NULKA and emerging own force emitters. *FY 2010 Plans:* Continue design and development efforts aimed at increasing the interoperability between NULKA and emerging surface ship radars. *FY 2011 Base Plans:* Continue the development of NULKA decoy enhancements to include increased duty cycle and Electromagnetic Compatibility (EMC).					
NULKA Software *FY 2010 Plans:* Upgrade Launching System software to provide CVN protection capability. *FY 2011 Base Plans:* Upgrade Launching System software to provide CVN protection capability.	0.000	2.747	3.000	0.000	3.000
DoD Acquisition Workforce Fund (DAWF) *FY 2009 Accomplishments:* Funded the DAWF	0.015	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	2.995	4.777	5.291	0.000	5.291

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 2190: *NULKA Decoy*

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/5530: *Anti-Ship Missile Decoy System*	37.759	33.525	36.588	0.000	36.588	35.971	37.083	35.875	55.605	0.000	699.693
• OMN/12CR0 (1C2C): *Nulka*	3.381	4.671	4.547	0.000	4.547	4.295	4.628	4.693	4.843	0.000	31.058

D. Acquisition Strategy

NULKA is a joint cooperative program between United States and Australia in full rate production.

E. Performance Metrics

Successfully complete critical design review (CDR) for MK 53 Decoy Launch System (DLS) upgrade for CVN class.
Successfully complete first-of-class testing of MK 53 DLS upgrade for CVN.
NULKA will complete Decoy Launch Processor (DLP) software version 6_5 Beta 1 for CVN 68 ship class.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 2190: *NULKA Decoy*

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	Lockheed Martin Sippican, MA	5.956	0.409	Oct 2009	0.450	Oct 2010	0.000		0.450	Continuing	Continuing	Continuing
Primary Hardware Development	MIPR	BAE Systems Australia	6.142	0.743	Oct 2009	0.500	Oct 2010	0.000		0.500	Continuing	Continuing	Continuing
Systems Engineering	WR	NRL Washington, DC	12.537	1.350	Oct 2009	1.700	Oct 2010	0.000		1.700	Continuing	Continuing	Continuing
Systems Engineering	WR	NWAD China Lake, CA	0.120	0.000		0.000		0.000		0.000	0.000	0.120	Continuing
Mk 53 System Eng Changes	C/FFP	Sechan PA	0.150	0.000		0.000		0.000		0.000	0.000	0.150	Continuing
Systems Engineering	WR	NSWC Dahlgren Dahlgren, VA	1.743	1.225	Oct 2009	2.069	Oct 2010	0.000		2.069	Continuing	Continuing	Continuing
Systems Engineering	WR	NSMA VA	0.360	0.000		0.000		0.000		0.000	0.000	0.360	Continuing
Systems Engineering	WR	NSWC Crane IN	4.228	0.700	Oct 2009	0.250	Oct 2010	0.000		0.250	Continuing	Continuing	Continuing
		Subtotal	31.236	4.427		4.969		0.000		4.969			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 2190: *NULKA Decoy*

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	NRL Washington, DC	1.314	0.000		0.000		0.000		0.000	0.000	1.314	Continuing
Software Development	WR	NSWC Dahlgren Dahlgren, VA	2.527	0.000		0.000		0.000		0.000	0.000	2.527	Continuing
		Subtotal	3.841	0.000		0.000		0.000		0.000	0.000	3.841	

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 Dahlgren Dahlgren, VA	0.700	0.000		0.000		0.000		0.000	0.000	0.700	Continuing
Developmental Test & Evaluation	WR	NRL Washington, DC	1.181	0.000		0.000		0.000		0.000	0.000	1.181	Continuing
Test Assets	WR	NRL Washington, DC	0.701	0.000		0.000		0.000		0.000	0.000	0.701	Continuing
Test Support	WR	BAE Systems Australia	0.050	0.000		0.000		0.000		0.000	0.000	0.050	Continuing
		Subtotal	2.632	0.000		0.000		0.000		0.000	0.000	2.632	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 2190: *NULKA Decoy*

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/FFP	SEAPORT Various	0.847	0.300	Oct 2009	0.270	Oct 2010	0.000		0.270	Continuing	Continuing	Continuing
Travel	WR	NAVSEA Program Office Travel Washington, DC	0.478	0.050	Oct 2009	0.052	Oct 2010	0.000		0.052	Continuing	Continuing	Continuing
DoD Acquisition Workforce Fund (DAWDF)	Various/ Various	Various Various	0.015	0.000		0.000		0.000		0.000	0.000	0.015	Continuing
		Subtotal	1.340	0.350		0.322		0.000		0.322			

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	39.049	4.777		5.291		0.000		5.291			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	**PROJECT** 2190: *NULKA Decoy*

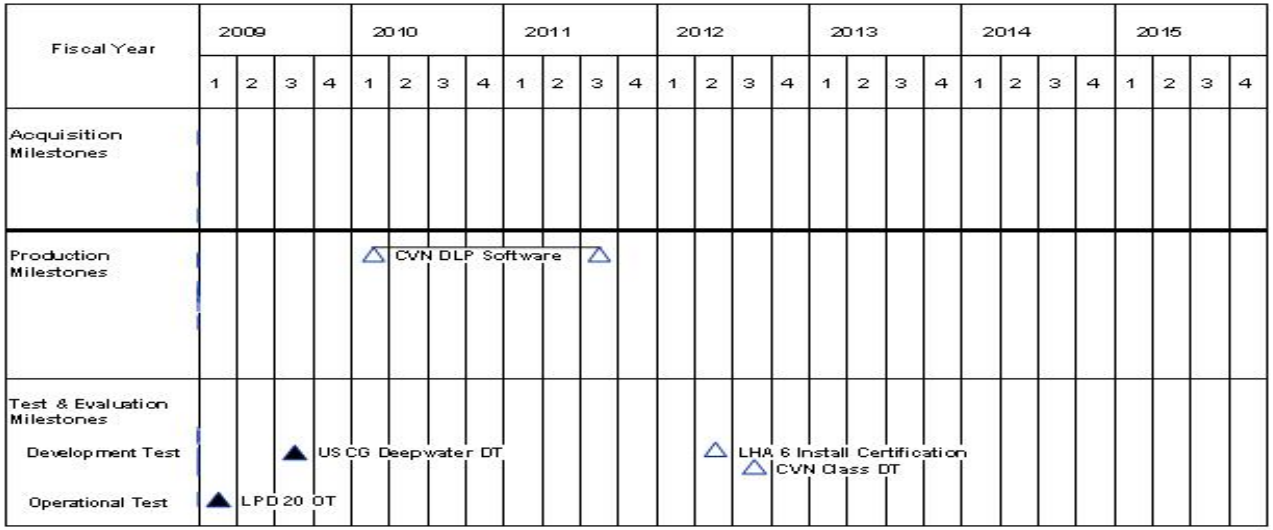


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	**PROJECT** 2190: *NULKA Decoy*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
LPD 20 OT	1	2009	1	2009
USCG DEEPWATER DT	3	2009	3	2009
CVN DLP SOFTWARE	1	2010	3	2011
LHA 6 INSTALL CERTIFICATION	2	2012	2	2012
CVN CLASS DT	3	2012	3	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 3227: *SEWIP Increment 2*	

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
3227: *SEWIP Increment 2*	23.342	62.614	65.848	0.000	65.848	107.464	115.910	127.608	51.067	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The SEWIP Block 2 program is developing an upgraded antenna, receiver, and combat system interface for SLQ-32. The upgrades are necessary in order to pace the threat, improving detection, accuracy, and mitigation of Electromagnetic Interference (EMI). Beginning in FY11, development of SEWIP Block 3 will commence to add Electronic Attack capability. Future Budget Submissions will report SEWIP Block 3 RDT&E under a separate PU, in PE 0604757N.

NOTE: FY 11 funding was reduced to fund higher Navy priorities.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SEWIP Increment 2 *FY 2009 Accomplishments:* Awarded contract, commenced preliminary design of the SEWIP Block 2 system. *FY 2010 Plans:* Commence Engineering and Manufacturing Development (E&MD) of the SEWIP Block 2 system. *FY 2011 Base Plans:* Continue E&MD of SEWIP Block 2. Commence integrated testing.	23.205	62.614	61.133	0.000	61.133
SEWIP Block 3	0.000	0.000	4.715	0.000	4.715

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 3227: *SEWIP Increment 2*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Conduct Technology Maturation demonstration and testing in support of technology transition from the Office of Naval Research.					
DoD Acquisition Workforce Fund	0.137	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Funded the DoD Acquisition Workforce Fund					
Accomplishments/Planned Programs Subtotals	23.342	62.614	65.848	0.000	65.848

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
• 0204228N/2312: *OPN BA-2 AN/ SLQ-32(V)*	22.788	31.171	49.677	0.000	49.677	78.268	78.386	93.808	138.938	Continuing	Continuing

D. Acquisition Strategy

The Surface EW Improvement Program (SEWIP) will develop Block upgrades to SLQ-32 based on integrating technology advances and adding functional capabilities in an incremental fashion. Each Block and sub-Block will be developed and contracted in an individual yet coordinated and overlapping fashion.

E. Performance Metrics

Successfully achieve Block 2 Milestone B.
Successfully achieve Block 2 MS C / Low Rate Initial Production (LRIP) Decision Review (DR).
Successfully complete Block 2 Initial Operational Test & Evaluation (IOT&E).
Successfully achieve Block 2 Full Rate Production (FRP) Decision Review (DR).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 3227: *SEWIP Increment 2*	

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
Block 2 E&MD	C/CPIF	Lockheed Martin Syracuse, NY	3.261	46.570	Jan 2010	43.786	Jan 2011	0.000		43.786	Continuing	Continuing	Continuing
Block 2 Preliminary Development	C/CPIF	Lockheed Martin Syracuse, NY	16.305	3.005		0.000		0.000		0.000	0.000	19.310	Continuing
Block 3 Technology Development	C/TBD	TBD TBD	0.000	0.000		0.420	Jan 2011	0.000		0.420	Continuing	Continuing	Continuing
		Subtotal	19.566	49.575		44.206		0.000		44.206			

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
Block 2 Integrated Logistics Support	WR	NSWC Crane, DD, NRL, APL Various	0.739	0.621	Nov 2009	1.146	Nov 2010	0.000		1.146	Continuing	Continuing	Continuing
Block 2 Government Engineering Support	WR	NSWC Crane, DD, NRL, APL Various	3.414	2.869	Nov 2009	4.955	Nov 2010	0.000		4.955	Continuing	Continuing	Continuing
Block 3 Integrated Logistics Support	WR	NSWC Crane, DD, NRL, APL Various	0.000	0.000		0.418	Nov 2010	0.000		0.418	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 3227: *SEWIP Increment 2*	

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
Block 3 Government Engineering Support	WR	NSWC Crane, DD, NRL, APL Various	0.000	0.000		1.638	Nov 2010	0.000		1.638	Continuing	Continuing	Continuing
		Subtotal	4.153	3.490		8.157		0.000		8.157			

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
Block 2 Test Planning/ T&E Events	WR	NSWC Crane, DD, NRL Various	0.182	2.492	Nov 2009	3.143	Nov 2010	0.000		3.143	Continuing	Continuing	Continuing
		Subtotal	0.182	2.492		3.143		0.000		3.143			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	PROJECT 3227: *SEWIP Increment 2*

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
Block 2 Program Management Support	C/FFP	SEAPORT Various	1.094	2.645	Jan 2010	3.503	Nov 2010	0.000		3.503	Continuing	Continuing	Continuing
Block 2 Program Management Support	WR	NSWC Crane, DD, PHD, NRL Various	2.709	4.312	Nov 2009	4.500	Nov 2010	0.000		4.500	Continuing	Continuing	Continuing
Block 2 Travel	WR	NAVSEA Program Office Travel Washington, DC	0.054	0.100	Nov 2009	0.100	Nov 2010	0.000		0.100	Continuing	Continuing	Continuing
Block 3 Program Management Support	C/TBD	TBD TBD	0.000	0.000		2.239	Nov 2010	0.000		2.239	Continuing	Continuing	Continuing
Block 2 DoD Acquisition Workforce Fund	Various/ Various	Various Various	0.137	0.000		0.000		0.000		0.000	0.000	0.137	Continuing
		Subtotal	3.994	7.057		10.342		0.000		10.342			

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	27.895	62.614		65.848		0.000		65.848			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	**PROJECT** 3227: *SEWIP Increment 2*

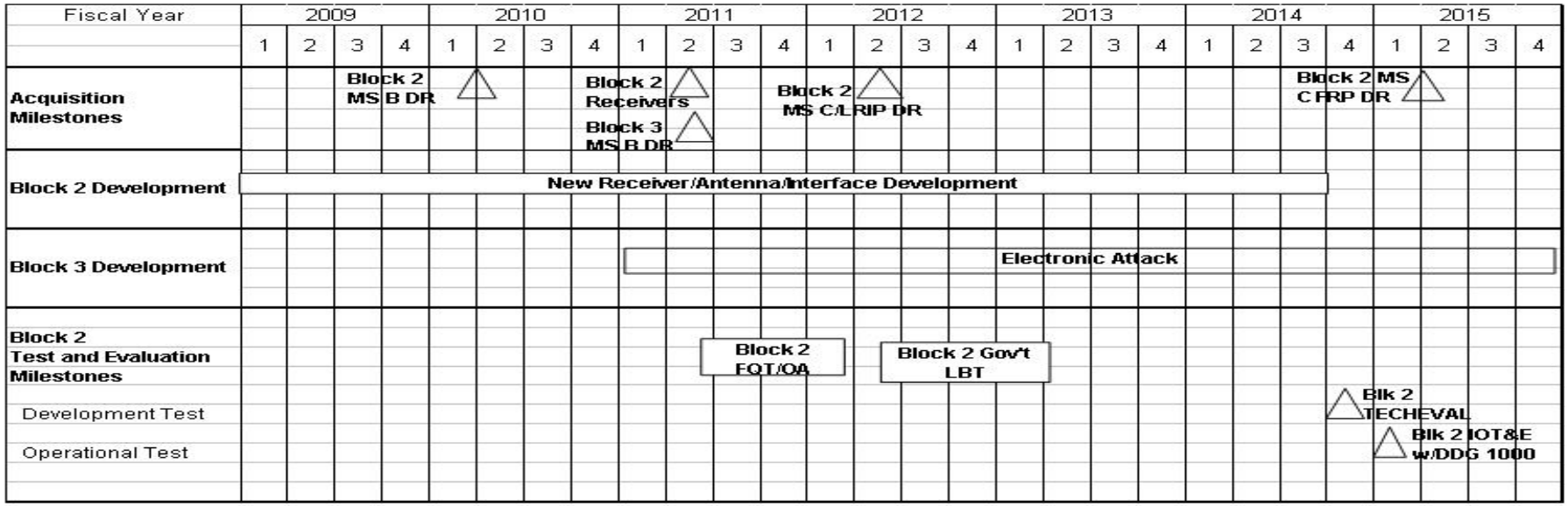


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	**PROJECT** 3227: *SEWIP Increment 2*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Block 2 MS B DR	1	2010	2	2010
Block 2 New Receiver/Antenna/Interface Development	1	2009	3	2014
Block 3 Electronic Attack	1	2011	4	2015
Block 2 Receivers	2	2011	2	2011
Block 3 MS B DR	2	2011	2	2011
Block 2 FQT/OA	2	2011	1	2012
Block 2 MS C/LRIP DR	2	2012	2	2012
Block 2 Gov't LBT	2	2012	2	2013
Block 2 TECHEVAL	4	2014	4	2014
Block 2 IOT&E w/DDG	1	2015	1	2015
Block 2 MS C FRP DR	1	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	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*	6.383	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	30.079
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: Nulka Decoy System and Mk 53 Decoy Launch System *FY 2009 Accomplishments:* Developed capability improvements for shipboard radars.	1.596	0.000
Congressional Add: Shipboard Electronic Warfare Sustainment Training *FY 2009 Accomplishments:* Developed the capability to perform synthetic training for the SEI and HGHS.	3.191	0.000
Congressional Add: Accelerated Improvement for Active Surface Electro *FY 2009 Accomplishments:* Developed display enhancements for the active variants of the AN/SLQ-32(V) system similar to those already provided for passive variants.	1.596	0.000
Congressional Adds Subtotals	6.383	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604757N: *Ship Self Def (Engage: Soft Kill/ EW)*	**PROJECT** 9999: *Congressional Adds*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604761N: *Intelligence 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
Total Program Element	23.705	14.378	6.820	0.000	6.820	7.262	7.266	7.416	7.561	Continuing	Continuing
3103: *Intelligence Engineering*	23.705	14.378	6.820	0.000	6.820	7.262	7.266	7.416	7.561	Continuing	Continuing

A. Mission Description and Budget Item Justification

This PE encompasses the Navy Foreign Materiel Program (FMP) and the Advanced Maritime Analysis Center (AMAC). The funding for the Maritime Domain Awareness (MDA) program ended in FY09. The FMP provides high leverage cost benefit through acquisition of foreign manufactured equipment with military application and potential military application and the subsequent exploitation of that materiel for potential vulnerabilities and countermeasures. Advanced Maritime Analysis Center (AMAC) fosters continual improvements in the quality of naval intelligence analysis by identifying and developing analytic best practices with respect to methods and tools, facilitating their implementation throughout ONI's analytic workforce, and introducing them to other naval intelligence entities

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	13.706	14.438	0.000	0.000	0.000
Current President's Budget	23.705	14.378	6.820	0.000	6.820
Total Adjustments	9.999	-0.060	6.820	0.000	6.820
• Congressional General Reductions		-0.060			
• 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	0.000	0.000			
• Program Adjustments	0.000	0.000	6.820	0.000	6.820

Change Summary Explanation

FY09 delta is an add from a Below Threshhold Reprogramming (BTR) action in the amount of $999K to continue work in three specific Spiral 1 areas in support of MDA and a $9000K increase from a coordinated effort between DUSN & FMB for BLUEWATER withhold.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604761N: *Intelligence Engineering*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604761N: *Intelligence Engineering*	PROJECT 3103: *Intelligence 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
3103: *Intelligence Engineering*	23.705	14.378	6.820	0.000	6.820	7.262	7.266	7.416	7.561	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The FMP provides high leverage cost benefit through acquisition of foreign manufactured equipment with military application and potential military application and the subsequent exploitation of that materiel for potential vulnerabilities and countermeasures. The AMAC's objective is to integrate cutting edge technology and tradecraft into Naval Intelligence collection and analytic processes, leveraging to the maximum extent possible, National Intelligence capabilities to satisfy requirements across the Navy and advance Navy Information Dominance.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Intelligence Engineering	23.705	14.378	6.820	0.000	6.820
FY 2009 Accomplishments: Foreign Materiel Explotiation Foreign Materiel Acquisition Maritime Domain Awareness, IT enterprise Hardware and software					
FY 2010 Plans: Foreign Materiel Acquisition OUSDI Higher Priority Program (This OUSDI funding will be functionally transferred out of this project during 2nd QTR FY10.)					
FY 2011 Base Plans: Foreign Materiel Exploitation Foreign Materiel Acquisition					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604761N: *Intelligence Engineering*	PROJECT 3103: *Intelligence Engineering*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Analytic Tools Testing & Evaluation					
Accomplishments/Planned Programs Subtotals	23.705	14.378	6.820	0.000	6.820

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The FMP program combines operational, intelligence and RDT&E requirements into a prioritized list used to identify which acquisition opportunities will obtain priority for funding. The limited N2/N6 FMP funding line is then used to leverage additional funding from OSD in order to fulfill full costs of acquisitions. After acquisition approval the FMP utilizes a Navy contracting office to write and execute the contract. AMAC leverages relevant intelligence community efforts and in collaboration with ONI Staff, stakeholders and external entities, the Innovation Office shall foster continual improvement in the quality of naval intelligence analysis by identifying, developing and testing advanced information technology solutions, tools, and tradecraft and facilitate implementation throughout ONI's analytic workforce. Hardware and software procurements are based on ONI Command requirements and in accordance with established CIO policy and the HOPPER Information Technology requirement process.

E. Performance Metrics

Details held at a higher classification level.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604771N: *Medical 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	39.457	56.692	12.337	0.300	12.637	14.054	14.083	11.056	11.357	Continuing	Continuing
0933: *Medical/Dental Equipment Dev*	7.544	9.847	12.337	0.300	12.637	14.054	14.083	11.056	11.357	Continuing	Continuing
9999: *Congressional Adds*	31.913	46.845	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	172.667

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification: The purpose of this item is to develop biomedical equipment and related techniques to reduce morbidity; to enhance the logistic feasibility of modern medical care for combat casualties; to sustain casualties for evacuation to fixed medical facilities for definitive care; and to ensure that personnel are medically qualified for military duty. Each work unit undertaken in this project has a military requirement. Efforts are justified based upon military payoff and cost benefit. There is a strong potential for dual use, technology transfer, and biotechnology firms/industry participation in the projects.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	39.725	9.888	0.000	0.000	0.000
Current President's Budget	39.457	56.692	12.337	0.300	12.637
Total Adjustments	-0.268	46.804	12.337	0.300	12.637
• Congressional General Reductions		-0.236			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		47.040			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.268	0.000			
• Program Adjustments	0.000	0.000	12.337	0.000	12.337
• Rate/Misc Adjustments	0.000	0.000	0.000	0.300	0.300

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604771N: *Medical Development*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add: *Biocidal Wound Dressings*	0.000	1.195
Congressional Add: *Deployment Health and Chronic Disease Surveillance*	0.000	0.797
Congressional Add: *Integrated Psycho-Social Health Care Demonstration Program*	0.000	0.996
Congressional Add: *Management of Lung Injury by Micronutrients*	0.000	1.195
Congressional Add: *Multivalent Dengue Vaccine Program*	0.000	1.275
Congressional Add: *National Functional Geonomics Center Colloborating Site*	0.000	3.187
Congressional Add: *Simplified Orthopedic Surgery*	0.000	4.222
Congressional Add: *Wound Care Research (transferred from Defense Health Program)*	0.000	12.946
Congressional Add: *MILITARY DENTAL RESEARCH*	5.984	5.975
Congressional Add: *Advanced Molecular Medicine Initiative*	1.995	0.797
Congressional Add: *ON-DEMAND CUSTOM BODY IMPLANTS/PROSTHESIS FOR INJU*	1.596	1.593
Congressional Add: *HAMPTON UNIVERSITY CANCER TREATMENT INITIATIVE*	7.977	3.983
Congressional Add: *Mobile Oxygen, Veniliation & External Suction (Mo*	1.197	2.709
Congressional Add: *US NAVY PANDAMIC INFLUENZA VACCINE PROGRAM*	1.596	1.593
Congressional Add: *PENN STATE CANCER INSTITUTE*	2.792	0.000
Congressional Add: *Composite Tissue Transplanation for Combat Wounded*	1.995	1.992
Congressional Add: *Heal The Force*	2.792	0.000
Congressional Add: *Topical Homostat Effectiveness Study*	0.798	0.000
Congressional Add: *US Navy Cancer Vaccine Program*	2.393	2.390
Congressional Add: *Disposable Biocidal Medical Masks for NAMRU Evalua*	0.798	0.000
Congressional Add Subtotals for Project: 9999	31.913	46.845
Congressional Add Totals for all Projects	31.913	46.845

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604771N: *Medical Development*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604771N: *Medical Development*	PROJECT 0933: *Medical/Dental Equipment 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
0933: *Medical/Dental Equipment Dev*	7.544	9.847	12.337	0.300	12.637	14.054	14.083	11.056	11.357	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The purpose of this item is to develop biomedical equipment and related techniques to reduce morbidity; to enhance the logistic feasibility of modern medical care for combat casualties; to sustain casualties for evacuation to fixed medical facilities for definitive care; and to ensure that personnel are medically qualified for military duty. Each work unit undertaken in this project has a military requirement. Efforts are justified based upon military payoff and cost benefit. There is a strong potential for dual use, technology transfer, and biotechnology firms/industry participation in the projects.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Medical/Dental Equipment Dev	7.544	9.847	12.337	0.300	12.637
FY 2009 Accomplishments: PreClinical Trials for FDA approval of an Infusible Hemostatic Agent - Initiated final preclinical trials of platelet derived hemostatic agents. Two candidate agents will be compared in a parallel effort. The outcomes will drive subsequent FDA Safety/Efficacy Trials of the infusible hemostatic agent selected from preclinical tests. The agent is designed for applications to non-compressible injuries. Heterotopic Ossification Incidence - Researched clinical procedures for reducing the incidence and severity of Heterotopic Ossification (HO) associated with traumatic injury. Identified potential modifications of clinical causes and timing of interventions. The Use of the Vacuum Assisted Wound Closure Device and Quantitative Bacteriology in Extremity Wound Closure transitioning to Wound Management Program - Finalized Clinical Protocols for use					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604771N: *Medical Development*	PROJECT 0933: *Medical/Dental Equipment Dev*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
of cytokine/growth factor expression in reducing associated debridement and irrigation. Initiated transition to standard clinical practice at medical treatment facilities. Monitoring, Oxygen Ventilation and External Suction (MOVES) System - Conducted reconfiguration of MOVES to reduce weight and cost for subsequent production runs. Incorporated joint service requirements. Continued Configuration Management of MOVES anesthesia module. Forward-Deployable Dental Dressing Developmental/Operational Test and Evaluation - Conducted Final Field Testing of ruggedized delivery system for the novel dental dressing. Restoration of Endodontically-Treated or Compromised Teeth to Prevent or Rehabilitate Tooth Fracture Using Computer-Aided Direct Ceramic/Composite Full-Coverage Restoration - Initiated transition of CEREC protocols to clinical practice. Cybertech Cric Cricothyroidotomy Device - Conducted late Developmental Test & Evaluation for human factors and ruggedization of Low Rate Initial Production cricothryoidotomy devices. This is a joint program with the USMC and US Army. Refinement and Development of Medical Planning Factors Among the Services - Finalized modelling technologies for medical planning. Updated and augmented algorithms using data collected from available data sources. Transitioning final product to medical planners. Transition Projects from Force Health Protection Future Naval Capability - Initiated Development, Testing, and Evaluation program for transition products from the Office of Naval Research 6.3 Advanced Development program. Focus will be on transition of novel hemostatic agents (e.g. infusible hemostatics and field/first responder devices). Establishing a 3D Craniofacial Image Protocol and Pre-Injury Database - Continued refinement of the pre-traumatic 3D image database for soft and hard tissue for use to re-establish structures for					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604771N: *Medical Development*	PROJECT 0933: *Medical/Dental Equipment Dev*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
reconstruction of craniofacial abnormalities or traumatic injuries. Resulting images will be used for surgical guides to decrease OR time and increase predictability of surgical outcomes. Validation of a Readiness to Fly Assessment Tool - Continued Validation of an operational readiness assessment tool. The tool is computer-based and used to assess an aviator's readiness to fly. It is based on cognitive abilities crucial to heavy mental workload of aircraft operations and the effects of fatigue. Development of the Medical Force Planning Factors - Measured the effectiveness of combat casualty medical care and preventive gear. Clinical Evaluation of a Vaxfectin TM - Formulated Tetravalent Dengue DNA Vaccine (VTDDV) - Continued clinical investigations trials on four serotypes of dengue. Evaluation of HemCon's Dental Dressing for Controlling Hemorrhage - Finalize the assessment of the stability/shelf-life of the product under extreme environmental operating conditions. *FY 2010 Plans:* Clinical Evaluation of a Vaxfectin TM - Formulated Tetravalent Dengue DNA Vaccine (VTDDV) - Continue clinical investigations trials on four serotypes of dengue. Phase I Clinical Trials for FDA approval of an Infusible Hemostatic Agent - Complete Phase I Safety Trials of the infusible hemostatic agent selected from preclinical tests. The agent is designed for applications to non-compressible injuries. Transition to US Army Medical Materials Development Agency for Phase II. Mobile Oxygen Ventilation and External Suction (MOVES) Anesthesia - Continue Development of MOVES anesthesia module.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604771N: *Medical Development*	PROJECT 0933: *Medical/Dental Equipment Dev*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Joint Development Projects with MARCORSYSCOM Medical Acquisition - Initiate Joint Development Testing and Evaluation program for medical products and equipment. Finalize development for USMC Procurement. Transition Projects from Force Health Protection Future Capability - Initiate Development, Testing, and Evaluation program for transition products from the Office of Naval Research 6.3 Advanced Development program. Focus will be on transition of novel hemostatic agents (e.g. infusible hemostatics and field/first responder devices). *FY 2011 Base Plans:* Joint Development Projects with MARCORSYSCOM Medical Acquisition - Initiate Joint Development Testing and Evaluation program for medical products and equipment. Finalize development for USMC Procurement. Transition Projects from Force Health Protection Future Capability - Initiate Development, Testing, and Evaluation program for transition products from the Office of Naval Research 6.3 Advanced Development program. Focus will be on transition of novel hemostatic agents (e.g. infusible hemostatics and field/first responder devices). USMC Participation in the National Institute of mental Health (NIMH) Suicide Study - Provide annual report on risks and protective factors associated with increased suicides among Marines, while supporting the development of evidence-based prevention, assessment, and treatment services. Assessment and reporting will be in accordance with MOU developed with Department of the Army. *FY 2011 OCO Plans:* Combined Maritime Acoustic Device and Optical (Laser) Field Test - Based on a 5th Fleet requirement, an evaluation of various commercial off-the-shelf (COTS) and government-off-the-shelf (GOTS) Non-Lethal Weapons (NLW) technology is required to determine the effectivess of a combined Acoustic and Laser device as a long range NLW hailing and warning device. The future acquisition to deploy these types of systems in-theater will be determined by the Armed Services based on this evaluation.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604771N: *Medical Development*	PROJECT 0933: *Medical/Dental Equipment Dev*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	7.544	9.847	12.337	0.300	12.637

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Milestone reviews.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604771N: *Medical Development*	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*	31.913	46.845	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	172.667
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: Biocidal Wound Dressings *FY 2010 Plans:* This project will procure for testing and evaluation low levels of wound dressings, which are able to remove more than 99.999% of bacteria, fungi and viruses passing through their media.	0.000	1.195
Congressional Add: Deployment Health and Chronic Disease Surveillance *FY 2010 Plans:* This project will demonstrate and evaluate patient encounter points in the Arlington Health Clinics and provide lessons learned for health care record surveillance to the Department of Defense as a demonstration project. This demonstration will leverage civilian operational clinical settings in Northern Virginia and then evaluated for deployment applicability within the DoD.	0.000	0.797
Congressional Add: Integrated Psycho-Social Health Care Demonstration Program	0.000	0.996

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604771N: *Medical Development*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2010 Plans: This project will enhance healthcare for US service members and their families, and will proactively address their unique psychological healthcare needs through the use of industry-leading targeted population management models. it will target a pilot population of DoD beneficiaries within a designed Military Treatment Facility area.		
Congressional Add: Management of Lung Injury by Micronutrients *FY 2010 Plans:* Continue a pilot project that defined oxidative damage and inflammation in lung injury in military recruits and made a preliminary assessment of the effects of antioxidant micronutrient supplementation. The prospective, randomized double blind, placebo-controlled study will evaluate impact on respiratory disease, military readiness and quality of life, as well as laboratory data including antioxidant levels, markers of oxidative damanage and inflammation.	0.000	1.195
Congressional Add: Multivalent Dengue Vaccine Program *FY 2010 Plans:* Continue work to manufacture the two vaccine mixture under Good Manufacturing Processes (GMP) conditions for a Phase I clinical investigation; conduct the Phase I clinical trial; and develop and test a single vaccine candidate that will produce neutralizing antibodies against all four serotypes in vaccinated animals.	0.000	1.275
Congressional Add: National Functional Geonomics Center Colloborating Site *FY 2010 Plans:* This project will establish the Penn State Center for Pharmacogenetics, which will create a repository of samples from every cancer patient that visits Penn State.	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604771N: *Medical Development*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Simplified Orthopedic Surgery *FY 2010 Plans:* This project will further develop a computer-aided system that simplifies complex orthopedic surgical procedures by enabling them to be performed more accurately and quickly without using cumbersome and expensive mechanical jigs.	0.000	4.222
Congressional Add: Wound Care Research (transferred from Defense Health Program) *FY 2010 Plans:* This project will support research for the advancement of deep tissue and surface wound care. This will be accomplished through: a study of mechanisms for enhanced wound healing, novel methods for identifying wound healing progression, most efficacious treatment protocols, and novel therapeutic regimens. It will also explore the use of amnion-derived, multipotent progenitor cells for the treatment of acute wounds in a relevant animal model of acute injury. This will support molecular and cellular investigations and support of clinical studies that include biomarker and other analysis, which can be used to promote development of a Good Manufacturing Practice facility for the production of such unique cells important to positive healing outcomes.	0.000	12.946
Congressional Add: MILITARY DENTAL RESEARCH *FY 2009 Accomplishments:* Developed innovative designs for dental care and dental health for CONUS and OCONUS operations. Conducted critical research in development of rapid-read diagnostic tests and other protective measures that will help reduce the severity and number of casualties due to dental and other medical emergencies.	5.984	5.975

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604771N: *Medical Development*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2010 Plans: Develop Antimicrobial Nanoemulsions to prevent infections in the field and evaluate the incidence and treatment required for dental emergencies occuring in deployed military personnel. Conduct critical research in development of antimicrobial resin.		
Congressional Add: Advanced Molecular Medicine Initiative *FY 2009 Accomplishments:* Conducted research to identify patients' individual cancer cells for a more effective and less toxic treatment of cancer and to understand more fully why the human immune system fails to recognize cancer cells. *FY 2010 Plans:* Continue research to improve cancer therapy primarily through imoproved understanding of cancer cell targeting, with a focus on radiation therapy, in addition to using pioneering efforts in the science of radiation resistance for potential casualties.	1.995	0.797
Congressional Add: ON-DEMAND CUSTOM BODY IMPLANTS/PROSTHESIS FOR INJU *FY 2009 Accomplishments:* Continued testing and evaluation of Phase I efforts to develop manufacturing methods and materials necessary for rapid prototyping and delivery of prostheses. Applied state-of-the-art CAD/CAM procedures to prosthesis manufacturing technology. *FY 2010 Plans:* Continue testing and evaluation of Phase I efforts to develop manufacturing methods and materials necessary for rapid prototyping and delivery of prostheses. Apply state-of-the-art CAD/CAM procedures to prosthesis manufacturing technology.	1.596	1.593

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604771N: *Medical Development*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: HAMPTON UNIVERSITY CANCER TREATMENT INITIATIVE *FY 2009 Accomplishments:* Continued research on advanced technologies for diagnosis and treatment of cancer. Particular emphasis has been placed on military and military veterans. *FY 2010 Plans:* Continue research on advanced technologies for diagnosis and treatment of cancer. Particular emphasis will be placed on military and military veterans.	7.977	3.983
Congressional Add: Mobile Oxygen, Veniliation & External Suction (Mo *FY 2009 Accomplishments:* Initiated reconfiguration of Low Rate Initial Production (LRIP) units Monitoring, Oxygen Ventilation and External Suction System (MOVES) for human factors, weight, cube and cost. Reconfiguration of MOVES was specifically targeted to reduce weight and cost. Incorporated requirements from other services into LRIP units as part of the planned next generation research and development spiral. Designed configurations based on feedback from the warfighter and joint requirements for en-route care. *FY 2010 Plans:* Continue reconfiguration of Low Rate Initial Production (LRIP) units Monitoring, Oxygen Ventilation and External Suction System (MOVES) for human factors, weight, cube and cost. Reconfiguration of MOVES is specifically targeted to reduce weight and cost. Incorporate requirements from other services into LRIP units as part of the planned next generation research and development spiral. Design configurations based on feedback from the warfighter and joint requirements for en-route care.	1.197	2.709
Congressional Add: US NAVY PANDAMIC INFLUENZA VACCINE PROGRAM	1.596	1.593

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604771N: *Medical Development*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: Determine incidence and severity of pandemic influenza in active duty and reserve DoD personnel and determine the extent to which this disease may be preventable through vaccine development. *FY 2010 Plans:* Initiate research to develop safe and effective pandemic influenza vaccines. Develop strategies to assure and protect the health of military personnel with these vaccines.		
Congressional Add: PENN STATE CANCER INSTITUTE *FY 2009 Accomplishments:* Continued research and development efforts in support of the new Penn State Cancer Institute (PSCI) and the focus on expansion of translational cancer research capabilities in the areas of the breast, colon, and treatment of cancer.	2.792	0.000
Congressional Add: Composite Tissue Transplanation for Combat Wounded *FY 2009 Accomplishments:* Initiated effort to establish a multidisciplinary center for the systematic study of composite tissue transplantation. This center will conduct mechanistic studies on the immune response and rejection of transplanted tissues and establish a capability to conduct clinical trials in hand transplantation. The program will include a strategy to collect and analyze clinical data and materials to further the knowledge base on composite tissue transplants and will be used to develop novel immunosuppressive treatments.	1.995	1.992

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604771N: *Medical Development*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2010 Plans: These funds will be executed through an existing cooperative agreement through the National Business Center to Emory University. The FY 10 funds will be used to conduct clinical trials for hand transplants.		
Congressional Add: Heal The Force *FY 2009 Accomplishments:* Ensured continued delivery of quality product and services to West Virginia clinics that support rural health and provide additional capabilities and features tailored to this state. Examples of these features are additional chronic disease registries guided by national standards and local clinical input, ePrescribing, and enhanced patient education and support the expansion of HEALTHeWV program in collaboration with the National Technology Transfer Center.	2.792	0.000
Congressional Add: Topical Homostat Effectiveness Study *FY 2009 Accomplishments:* Designed and tested medical technologies and agents that decrease battlefield fatalities. These followed a review of existing commercial over-the-shelf hemostatic products.	0.798	0.000
Congressional Add: US Navy Cancer Vaccine Program *FY 2009 Accomplishments:* Began development of a novel prostate cancer vaccine in conjunction with Oncbiomune, LLC and supported the development of an IND submission needed for FDA approval. Initiated a Phase IA/B clinical trial at the VA San Diego Healthcare System, located in San Diego, CA. US military veterans who have received previous treatment (surgery, radiation or radioactive seed implants) and now have a rising PSA participate in the study.	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604771N: *Medical Development*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2010 Plans: Continue development of a novel prostate cancer vaccine in conjunction with Oncbiomune, LLC. Continue a Phase IA/B clinical trial at the VA San Diego Healthcare System, located in San Diego, CA. US military veterans who have received previous treatment (surgery, radiation or radioactive seed implants) and now have a rising PSA participate in the study.		
Congressional Add: Disposable Biocidal Medical Masks for NAMRU Evalua *FY 2009 Accomplishments:* Conducted field and laboratory evaluation of human factors and efficacy of N95 Respirator with antimicrobial protection (Triosyn). Masks will be evaluated for form, fit, and function in select environments where conventional masks are used. Focus will be on field evaluations where infection control is a critical issue.	0.798	0.000
Congressional Adds Subtotals	31.913	46.845

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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id 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	46.053	62.886	66.636	0.000	66.636	67.420	51.994	45.363	50.691	Continuing	Continuing
0253: *Nav & Electro-Optical Supt*	7.725	7.938	7.470	0.000	7.470	8.061	8.131	8.210	8.376	Continuing	Continuing
0676: *Improve ID Development*	2.754	2.882	2.662	0.000	2.662	2.564	2.662	2.731	2.781	Continuing	Continuing
0921: *NAVSTAR GPS Equipment*	24.400	21.804	20.021	0.000	20.021	27.550	23.964	24.107	24.591	Continuing	Continuing
1253: *Combat Ident System*	9.179	30.262	36.483	0.000	36.483	29.245	17.237	10.315	14.943	Continuing	Continuing
9999: *Congressional Adds*	1.995	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.311

A. Mission Description and Budget Item Justification

Reliable and secure navigation and positive identification (ID) systems are essential elements of battle management in the naval environment. The Photonics Imaging System (0253) is a non-hull penetrating replacement for existing optical periscopes. The Photonics Imaging System exploits a wide portion of the electro-magnetic spectrum utilizing advanced Electro-Optic/thermal imaging, and communications intercept/Electronic Warfare Support (ES). The Integrated Submarine Imaging System (ISIS) (0253) is a back fit system to integrate all imaging capabilities on existing submarine classes. The Combat Identification System (CIS) project (1253) for Mark XIIA, and Improved Identification Development (0676) for AN/UPX-29, covers the Navy lead of a MK XIIA Mode 5 upgrade to the existing Mark XII family of systems that is Joint and NATO interoperable. Per OSD direction, NATO participation is encouraged and performance data is exchanged to ensure the opportunity for interoperability with allied identification systems is maximized. In addition to distinguishing friend from foe for weapons employment, the Navy requires secure, jam resistant Identification Friend or Foe (IFF) systems for battle group air defense management and air traffic control. Identification is multifaceted and includes information received from several sensors (both cooperative and non-cooperative systems). NAVSTAR Global Positioning System (GPS) project (0921) is a space-based positioning, navigation and timing (PNT) system that provides authorized users with secure, worldwide, all weather, three dimensional position, velocity and precise time data. Navigation Sensor System Interface (NAVSSI) is a system that provides an integrated navigation message structure for network distribution to support combat, command and control, information and other mission critical capabilities. Navy Air and Sea Navigation Warfare (NAVWAR) are major elements of the GPS program. NAVWAR's mission is to provide continued access to GPS information in a denied environment. NAVWAR accomplishes this through the use of enhanced user equipment (UE). GPS Modernization addresses the Navy's future integration of GPS Joint Program Office (JPO) Modernized User Equipment (MUE) products being developed that will enable the use of new signals in space. WRN-X is a modernized ship GPS equipment development program required to provide a replacement for the existing WRN-6 receiver and other shipboard receivers. Navigation Sensor System Interface (NAVSSI) is a surface based system that integrates shipboard position, navigation and timing data and distributes the processed output to user systems and networks.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604777N: *Navigation/Id System*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	48.542	63.184	0.000	0.000	0.000
Current President's Budget	46.053	62.886	66.636	0.000	66.636
Total Adjustments	-2.489	-0.298	66.636	0.000	66.636
• Congressional General Reductions		-0.262			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.036			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-3.899	0.000			
• SBIR/STTR Transfer	-0.584	0.000			
• Program Adjustments	0.000	0.000	66.636	0.000	66.636
• Rate/Misc Adjustments	-0.001	0.000	0.000	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: *Sure Track Re-Architecture and Sensor Augmentation*	1.995	0.000
Congressional Add Subtotals for Project: 9999	1.995	0.000
Congressional Add Totals for all Projects	1.995	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: None required.

Project 0676: Changes in the schedule reflect the revised Acquisition Program Baseline.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604777N: *Navigation/Id System*

Project 1253: Changes in the schedule reflect the revised Acquisition Program Baseline.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0253: *Nav & Electro-Optical 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
0253: *Nav & Electro-Optical Supt*	7.725	7.938	7.470	0.000	7.470	8.061	8.131	8.210	8.376	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Navigation and Electro-Optical (E-O) Support program develops Submarine Electro-Optical and imagery systems and equipment that will improve submarine imaging capability in the areas of: ship safety, Intelligence, Surveillance and Reconnaissance (ISR), and tactical control (contact management in the littorals). The Photonics Imaging System, mounted on the Universal Modular Mast, will provide imaging capability for the SSGN and VIRGINIA Class submarines. The Photonics Imaging System design exploits a wide portion of the electro-magnetic spectrum through advanced E-O and thermal imaging and Electronic Warfare Support (ES)/ Communications intercept. It will provide significant improvements in submarine stealth and Infra-Red (IR) imaging capability. The non-hull penetrating design provides freedom in Ship design and space savings for SSGN and VIRGINIA Class and future submarines designs. The system was designed to satisfy Operational Requirement #365-87-94. Specific efforts include: (1) Low Light Level TV development, digital sensor development and integration, and displays, and (2) Imaging System Test Efforts.

The Department of the Navy established the Integrated Submarine Imaging System (ISIS) to rapidly field the Type 18 Periscope Patriot Rangefinder, Type 8 Mod 4 IR Periscope systems, and integrate existing periscope imagery systems into a single system for installation on board SSN 688 Class and SEAWOLF Class submarines. The ISIS baseline includes the Type 18 Periscope Patriot Rangefinder, Type 8 Mod 4 IR Periscope, and supports high intensity operations in the littorals and provides the submarine force with the tactical imaging systems necessary to safely and effectively employ its surveillance and weapons capabilities. Specific efforts undertaken to meet the ISIS requirements are: (1) Type 18 Periscope Automated Range Finder development; (2) Development of hardware capabilities common to ISIS and Photonics via the Technology Insertion process.

This program funds the development of Patriot Radar Range Finding for Photonics for SSGN and VIRGINIA Class Submarines. Patriot for Photonics will provide SSGN and VIRGINIA Class submarines with enhanced situational awareness and collision avoidance. Currently Patriot has only been developed for SSN 688 and SSN 21 Class submarines. This effort will provide Patriot Radar Range Finding to SSGN and VIRGINIA Class submarines on the Photonics Mast.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0253: *Nav & Electro-Optical Supt*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Upgrade/Resolve Obsolescent Photonics On-Board Team Trainer development. *FY 2009 Accomplishments:* Continued improvements to the PMOBT system to provide on board training capability for the Photonics Mast Periscope (AN/BVS-1) system with no interference to tactical operations. Includes development of an Image Generator to send visual scenes to the Photonics Mast system in response to received scenarios and mast control data. *FY 2010 Plans:* Further develop the PMOBT system and necessary interface components to allow simulation of future capabilities of the Photonics Mast. In addition, update hardware and software for obsolescence and other associated improvements.	0.127	0.139	0.000	0.000	0.000
ISIS and Photonics common hardware capabilities development and obsolescence. *FY 2009 Accomplishments:* Initial development efforts of hardware capabilities common to both ISIS and Photonics via the Technology Insertion process. *FY 2010 Plans:* ISIS Technical Insertion (TI-10) development for LOS ANGELES and SEAWOLF Classes. ISIS Inboard System Development (TI-10) for VIRGINIA Class. *FY 2011 Base Plans:* ISIS Technical Insertion (TI-12) development for LOS ANGELES and SEAWOLF Classes.	4.759	4.206	3.759	0.000	3.759
Low Light Level TV development, digital sensor development and integration and displays. *FY 2009 Accomplishments:* Low Light Level TV Camera Module Development for Photonics MTI-10. High Definition Color Camera Development for Photonics MTI-10.	1.020	2.008	2.071	0.000	2.071

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0253: *Nav & Electro-Optical Supt*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: High Definition Color Camera Integration into ISIS TI-10. Infrared Camera Upgrade Development. *FY 2011 Base Plans:* Incorporation of IR Camera Upgrades into ISIS Inboard Systems.					
Imaging Systems Test Efforts. *FY 2009 Accomplishments:* Conduct imaging systems testing. *FY 2010 Plans:* Continuation of imaging systems testing. *FY 2011 Base Plans:* Continuation of imaging systems testing.	0.687	1.045	1.050	0.000	1.050
Patriot Radar Range Finder Development for Photonics for SSGN and VIRGINIA Class Submarine. *FY 2009 Accomplishments:* Type 18 Periscope Automated Rangefinder Integration. VA Class Patriot Stand-alone Rangefinder Integration. *FY 2010 Plans:* Type 18 Periscope Automated Rangefinder Software Upgrades. VA Class MTI-10 Patriot Rangefinder Integration and Software Development. *FY 2011 Base Plans:* Type 18 Periscope Automated Rangefinder Software Upgrades.	1.066	0.540	0.590	0.000	0.590

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0253: *Nav & Electro-Optical Supt*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ISIS TI-10 Patriot Rangefinder Integration and Software Development for VIRGINIA and SSGN Classes.					
Defense Acqusition Workforce Defense Fund (DAWDF) *FY 2009 Accomplishments:* Defense Acquisition Workforce Defense Fund requirement satisfied.	0.066	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	7.725	7.938	7.470	0.000	7.470

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
• SCN/201300: *Photonics Mast*	14.109	14.477	28.382	0.000	28.382	29.119	29.876	30.342	31.039	Continuing	Continuing
• OPN/0831: *Sub Periscopes & Imaging Equip.*	67.179	69.812	85.619	0.000	85.619	68.175	62.850	50.591	57.081	Continuing	Continuing
• RDT&E/0604558N: *VIRGINIA Class Design Development*	1.150	1.019	1.038	0.000	1.038	1.058	1.078	1.098	1.119	Continuing	Continuing

D. Acquisition Strategy

The Acquisition Strategy for AN/BVS-1 Photonics Mast Program (PMP) is dated 24 Sept 2001. The PMP provides for the development and acquisition of a non-hull penetrating submarine electronic imaging system for VIRGINIA Class submarines. The Acquisition Strategy for Integrated Submarine Imaging System (ISIS) is dated 07 Jul 2003. The ISIS will provide mission critical, all weather, visual, and electronic search, digital image management, indication, warning, and platform architecture interface capabilities for SSN 688, SSN 21, SSN 774 and SSGN class submarines.

E. Performance Metrics

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. 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604777N: *Navigation/Id System*	**PROJECT** 0253: *Nav & Electro-Optical Supt*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0253: *Nav & Electro-Optical Supt*	

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 Not Specified	9.233	1.801	Oct 2009	1.822	Oct 2010	0.000		1.822	Continuing	Continuing	Continuing
Software Development	Various/ Various	Various Not Specified	7.721	2.125	Oct 2009	1.546	Oct 2010	0.000		1.546	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	Various Not Specified	8.573	2.072	Oct 2009	2.129	Oct 2010	0.000		2.129	Continuing	Continuing	Continuing
Miscellaneous	Various/ Various	Various Not Specified	2.555	0.515	Oct 2009	0.519	Oct 2010	0.000		0.519	Continuing	Continuing	Continuing
		Subtotal	28.082	6.513		6.016		0.000		6.016			

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 Managemnet Support	C/CPAF	AT&T Not Specified	2.395	0.557	Oct 2009	0.569	Oct 2010	0.000		0.569	Continuing	Continuing	Continuing
		Subtotal	2.395	0.557		0.569		0.000		0.569			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0253: *Nav & Electro-Optical Supt*	

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
Development Test & Evaluation	Various/ Various	Various Not Specified	3.805	0.817	Oct 2009	0.833	Oct 2010	0.000		0.833	Continuing	Continuing	Continuing
		Subtotal	3.805	0.817		0.833		0.000		0.833			

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
Travel	C/CPAF	AT&T Not Specified	0.200	0.051		0.052		0.000		0.052	Continuing	Continuing	Continuing
Defense Acquisition Workforce Fund	Various/ Various	Not Specified Not Specified	0.066	0.000		0.000		0.000		0.000	0.000	0.066	Continuing
		Subtotal	0.266	0.051		0.052		0.000		0.052			

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	34.548	7.938		7.470		0.000		7.470			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0253: *Nav & Electro-Optical Supt*	

	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0253: *Nav & Electro-Optical Supt*

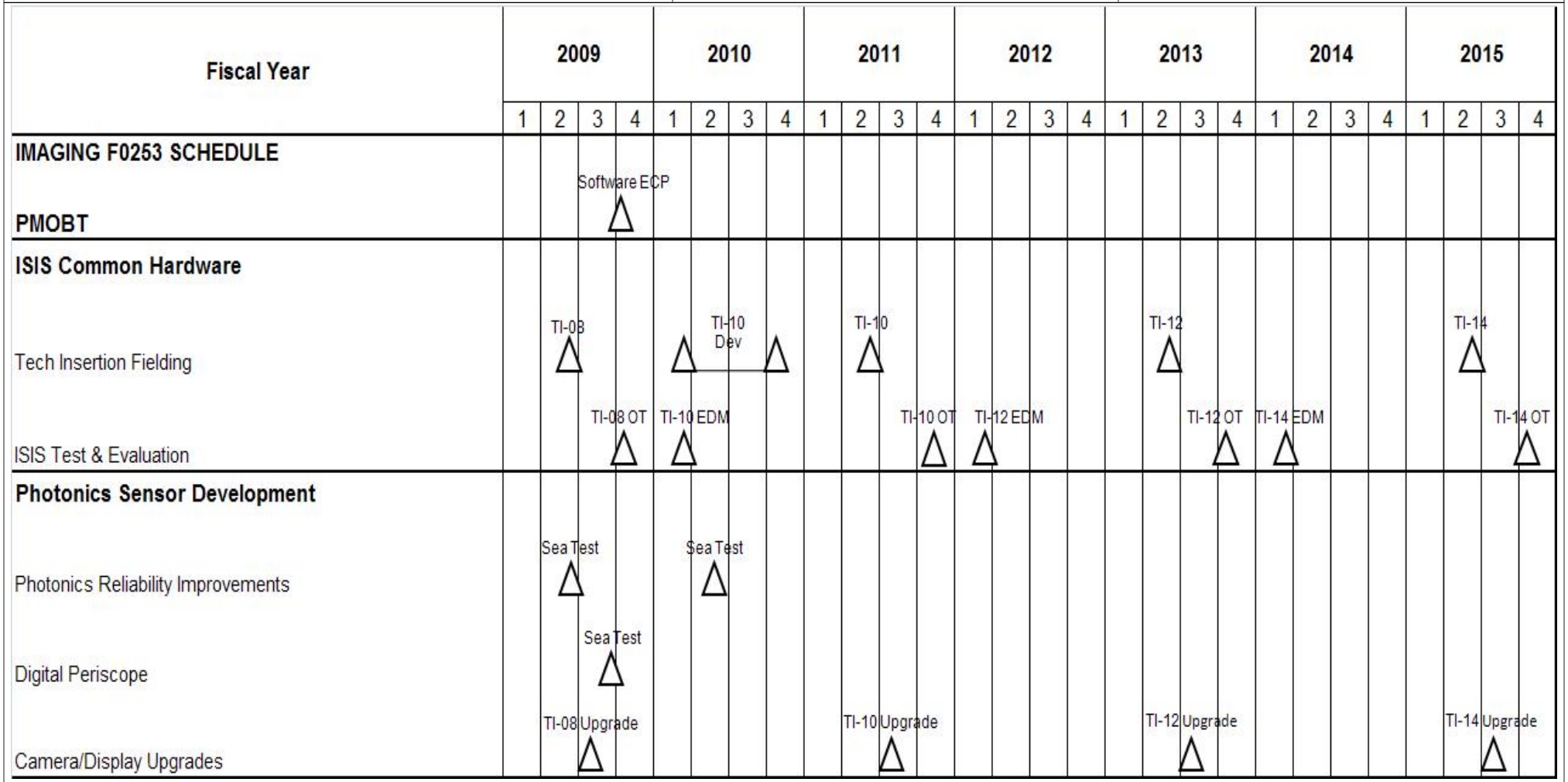


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604777N: *Navigation/Id System*	**PROJECT** 0253: *Nav & Electro-Optical Supt*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Imaging PMOBT Software ECP	4	2009	4	2009
ISIS Tech Insertion Fielding - TI-08	2	2009	2	2009
ISIS Tech Insertion Fielding- TI-10 Development	1	2010	4	2010
ISIS Tech Insertion Fielding - TI-10	2	2011	2	2011
ISIS Tech Insertion Fielding - TI-12	2	2013	2	2013
ISIS Tech Insertion Fielding - TI-14	2	2015	2	2015
ISIS Test & Evaluation - TI-08 OT	4	2009	4	2009
ISIS Test & Evaluation - TI-10 EDM	1	2010	1	2010
ISIS Test & Evaluation - TI-10 OT	4	2011	4	2011
ISIS Test & Evaluation - TI-12 EDM	1	2012	1	2012
ISIS Test & Evaluation - TI-12 OT	3	2013	3	2013
ISIS Test & Evaluation - TI-14 EDM	1	2014	1	2014
ISIS Test & Evaluation - TI-14 OT	4	2015	4	2015
Photonics Reliability Improvements - Sea Test	2	2009	2	2010
Photonics Digital Periscope - Sea Test	3	2009	3	2009
Photonics Camera/Displays Upgrade - TI-08	3	2009	3	2009
Photonics Camera/Displays Upgrade - TI-10	3	2011	3	2011
Photonics Camera/Displays Upgrade - TI-12	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0253: *Nav & Electro-Optical Supt*

	Start		End	
Event	Quarter	Year	Quarter	Year
Photonics Camera/Displays Upgrade - TI-14	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0676: *Improve ID 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
0676: *Improve ID Development*	2.754	2.882	2.662	0.000	2.662	2.564	2.662	2.731	2.781	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Reliable and secure Navigation and positive identification (ID) systems are essential elements of battle management in the naval environment. In addition to providing platform identification for weapons employment, the Navy requires secure, jam resistant Identification Friend or Foe (IFF) systems for battle group air defense management and air traffic control. The Improved ID Development project addresses the Navy Lead of a Mark XIIA Mode 5 upgrade to the existing AN/UPX-29(V) Mark XII family of systems that is Joint and NATO interoperable. This exhibit also addresses the AN/UPX-29(V) antenna, the OE-120/UPX.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
AN/UPX-29 (V) - OE-120 Antenna Replacement	0.491	0.877	1.590	0.000	1.590
Engineering and integration development for antenna group OE-120/UPX modernization. Develop design studies and Analysis of Alternitives (AoA), draft specifications, and perform system development and integration efforts.					
FY 2009 Accomplishments: Developed systems requirements. Conducted BAE Systems Nashua Modernization studies and prospective Risk Mitigation for including Mode S capability in the antenna group including draft specification. Performed a digital trade study and identified modernization risks.					
FY 2010 Plans: Perform Initial Technical Review (ITR). Conduct AoA. Perform risk mitigation for parts and component obsolescence, evaluate phase shifter and power divider redesign alternatives, and evaluate conceptual antenna architectures.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0676: *Improve ID Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Develop Antenna Group OE-120/UPX system requirements and determine system architecture. Consider incorporating product improvements into the Interrogator System AN/UPX-29(V) as a part of Ship ID Systems. Convene Systems Requirement Review (SRR) and System Functional Review (SFR). Review results of the final concept refinement phase and assess the technology development plan and preferred system concept.					
Mark XIIA Mode 5 Improve for AN/UPX-29(V)	1.604	1.675	0.772	0.000	0.772
Engineering, development, and integration of Mark XIIA Improvements to the AN/UPX-29 (V). Correct deficiencies from Integrated Test and Operational Test (IT - OT) and baseline software and documentation. Funds development and integration of Mark XIIA Improvement to the AN/UPX-29 (V) system on CG 47, DDG 51, LHD 1, LPD 17 and CV/CVN class ships. Provides core Integrated Logistics Support (ILS) documentation; formalizes hardware/software configuration; finalizes technical/ design data, and resolves testing anomalies. Development, test and integration of ethernet interface for the AN/UPX-29(V) to meet emergent needs of the Navy to eliminate all Navy Tactical Data System (NTDS) cables on CG 47, DDG 51, LHD 1, LPD 17 and CV/CVN class ships.					
FY 2009 Accomplishments: AN/UPX-29(V) Mode 5 Operational Assessment (OA). Integrated AN/UPX-29(V) Mode 5 in AEGIS baseline 7.1. Resolved PRIORITY 1 Trouble Reports in preparation for OA. Developed, tested and received approval for installation for AN/UPX-24(V) M5V054. Participated in Mode 5 OA. Addressing OA feedback/issues.					
FY 2010 Plans: Develop and test AN/UPX-24(V) SW V2.1.2 to correct DT Deficiencies/OA Risk items. Develop/ Test Jitter fix to meet FAA requirements. Address integration issues on LHD 1, LPD, and CV/CVN. Design: Complete final IDS review and approval, Complete CDR, initiate Unit and System level testing. Participate in testing, test planning and issue resolution for tech eval and IOT&E.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0676: *Improve ID Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Prepare systems and platforms for IOT&E. Final deficiency resolution. Resolve any remaining system deficiencies and any final ILS documentation updates. Continue integration on LHD 1 class and begin LPD 17 integration Certification testing. Conduct interface certification testing and qualification with CEC/7.1					
AN/UPX-29 Management Support Engineering and Program Management of the AN/UPX 29 (V). Perform system integration efforts. *FY 2009 Accomplishments:* Manage engineering investigations, provide engineering assessments and recommend resolution. Participate in Test Working Integrated Product Team (TWIPT), Technical Interchange Meetings (TIM) and Program Management Reviews (PMR). Review and evaluate reports. *FY 2010 Plans:* Manage engineering investigations, provide engineering assessments, and recommend resolution. Review and evaluate reports. *FY 2011 Base Plans:* Manage engineering investigations, provide engineering assessments, and recommend resolution. Review and evaluate reports.	0.659	0.330	0.300	0.000	0.300
Accomplishments/Planned Programs Subtotals	2.754	2.882	2.662	0.000	2.662

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0676: *Improve ID 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/2851: *Identification Systems*	31.367	37.563	29.572	0.000	29.572	33.687	36.355	39.370	36.242	Continuing	Continuing

D. Acquisition Strategy

The Acquisition Strategy is to develop Mode 5 Engineering Change Proposals (ECPs) for modern Mark XII Identification Friend or Foe (IFF) equipment and integrate into all Navy Combat Weapons systems platforms and augment the Navy's Cooperative Identification Capability to include Mode 5.

E. Performance Metrics

Successfully complete Initial Technical Review and IT Regression Test in FY 2010. Complete System Requirements Review (SRR) and Systems Functional Review (SFR) in FY 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0676: *Improve ID 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
Primary Hardware Development	WR	NAWCAD St Inigoes, MD	2.332	0.877	Nov 2009	1.590	Nov 2010	0.000		1.590	0.000	4.799	Continuing
Ship Integration	WR	NAWCAD St Inigoes, MD	1.854	0.146	Nov 2009	0.150	Nov 2010	0.000		0.150	0.000	2.150	Continuing
Systems Engineering	WR	NAWCAD St Inigoes, MD	4.072	0.397	Nov 2009	0.199	Nov 2010	0.000		0.199	0.000	4.668	Continuing
		Subtotal	8.258	1.420		1.939		0.000		1.939	0.000	11.617	

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
Configuration Management	WR	NAWCAD St Inigoes, MD	0.169	0.000		0.000		0.000		0.000	0.000	0.169	Continuing
ILS	WR	NAWCAD St Inigoes, MD	2.146	0.188	Nov 2009	0.190	Nov 2010	0.000		0.190	0.000	2.524	Continuing
Software Development	WR	NAWCAD St Inigoes, MD	3.367	0.945	Nov 2009	0.233	Nov 2010	0.000		0.233	0.000	4.545	Continuing
Technical Data	WR	NAWCAD St Inigoes, MD	0.859	0.202	Nov 2009	0.200	Nov 2010	0.000		0.200	0.000	1.261	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0676: *Improve ID 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
Training	WR	NAWCAD St Inigoes, MD	0.200	0.000		0.000		0.000		0.000	0.000	0.200	Continuing
		Subtotal	6.741	1.335		0.623		0.000		0.623	0.000	8.699	

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 St Inigoes, MD	0.500	0.000		0.000		0.000		0.000	0.000	0.500	Continuing
Operational Test & Evaluation	WR	NAWCAD St Inigoes, MD	1.328	0.000		0.000		0.000		0.000	0.000	1.328	Continuing
Test Assets	WR	NAWCAD St Inigoes, MD	0.731	0.000		0.000		0.000		0.000	0.000	0.731	Continuing
		Subtotal	2.559	0.000		0.000		0.000		0.000	0.000	2.559	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0676: *Improve ID Development*

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/CPFF	American Electric California, MD	1.081	0.127	Dec 2009	0.100	Dec 2010	0.000		0.100	0.000	1.308	Continuing
Engineering Support	WR	NAWCAD PAX River, MD	0.244	0.000		0.000		0.000		0.000	0.000	0.244	Continuing
		Subtotal	1.325	0.127		0.100		0.000		0.100	0.000	1.552	

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	18.883	2.882		2.662		0.000		2.662	0.000	24.427	

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604777N: *Navigation/Id System*	**PROJECT** 0676: *Improve ID Development*

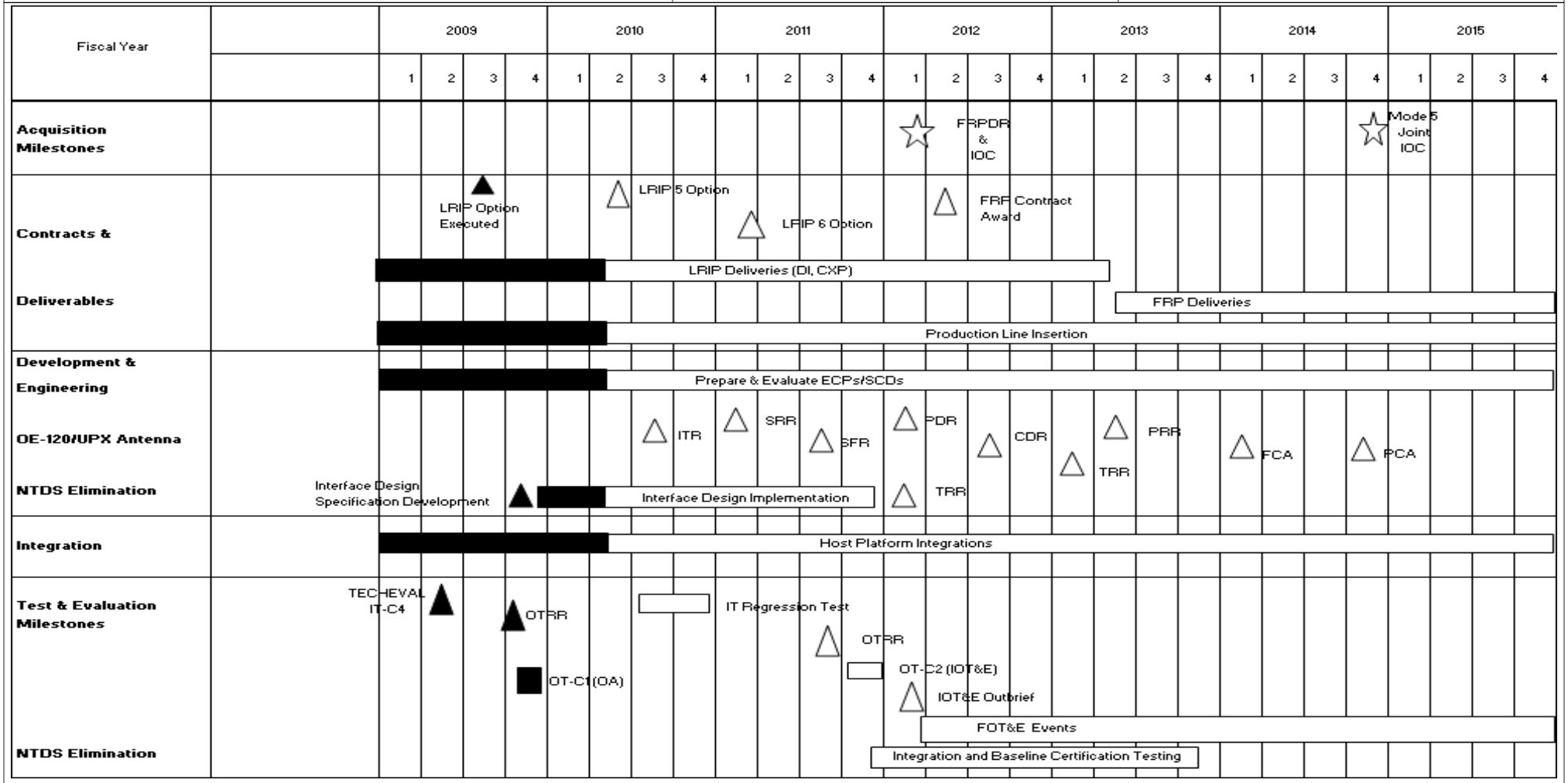


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0676: *Improve ID Development*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Mode 5 - Full rate Production Decision Review (FRPDR) & IOC	1	2012	1	2012
Mode 5 - FRP Contract Award	2	2012	2	2012
Mode 5 - Low-Rate Initial Production (LRIP) 4 Contract Award	3	2009	3	2009
Mode 5 - Low-Rate Initial Production Deliveries (CXP, DI)	1	2009	2	2013
Mode 5 - LRIP 5 Contract Award	2	2010	2	2010
Mode 5 - FRP Deliveries	2	2013	4	2015
Mode 5 - LRIP 6 Contract Award	1	2011	1	2011
Mode 5 - Prepare and Evaluate ECPs/SCDs	1	2009	4	2015
Mode 5 - Production Line Insertion	1	2009	4	2015
Mode 5 - Host Platform Integrations	1	2009	4	2015
Mode 5 - TECHEVAL (IT-C4)	2	2009	2	2009
Mode 5 - Operational Test Readiness Review (OTRR)	4	2009	4	2009
Mode 5 - OT-C1 (OA)	4	2009	4	2009
Mode 5 - IT Regression Test	3	2010	4	2010
Operational Test Readiness Review (OTRR)	3	2011	3	2011
Mode 5 - OT-C2 (IOT&E)	4	2011	4	2011
Mode 5 - IOT&E Outbrief	1	2012	1	2012
Mode 5 - Joint IOC	4	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0676: *Improve ID Development*

	Start		End	
Event	Quarter	Year	Quarter	Year
Mode 5 - Follow-on Test and Evaluation	1	2012	4	2015
OE-120/UPX Antenna - Initial Technical Review (ITR)	3	2010	3	2010
OE-120/UPX Antenna - Systems Requirements Review (SRR)	1	2011	1	2011
OE-120/UPX Antenna - System Functional Review (SFR)	3	2011	3	2011
OE-120/UPX Antenna - Preliminary Design Review (PDR)	1	2012	1	2012
OE-120/UPX Antenna - Critical Design Review (CDR)	3	2012	3	2012
OE-120/UPX Antenna - Test Readiness review (TRR)	1	2013	1	2013
OE-120/UPX Antenna - Production Readiness Review (PRR)	2	2013	2	2013
OE-120/UPX Antenna - Functional Configuration Audit (FCA)	1	2014	1	2014
OE-120/UPX Antenna - Physical Configuration Audit (PCA)	4	2014	4	2014
NTDS - Interface Design Specification (IDS) Development	4	2009	4	2009
NTDS - Interface Design Implementation	4	2009	4	2011
NTDS - Test Readiness Review (TRR)	1	2012	1	2012
NTDS - Integration and Baseline Certification Testing	4	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*	

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
0921: *NAVSTAR GPS Equipment*	24.400	21.804	20.021	0.000	20.021	27.550	23.964	24.107	24.591	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 Global Positioning System (GPS) program efforts is to provide assured and protected navigation solutions to the war fighters through supported, affordable, and integrated systems. Research, Development, Testing and Evaluation (RDT&E) funds are used to perform all the non-recurring GPS Surface Ship, Submarine and Aircraft Integration efforts. GPS continues to be integrated in all DoD platforms and the development of enhanced GPS is an urgent national security priority in accordance with US Code - 10USC2281 of 15 November 2005. As stated in the Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6130.01D, 2007 Master Positioning, Navigation, and Timing Plan (MPNTP), the "GPS is the primary source of Positioning Navigation and Timing (PNT) information for the DoD." In accordance with OPNAVINST 9420.1B "GPS Precise Positioning Service (PPS) systems shall be used for all combat, combat support, and combat service support operations and training" to provide assured access to accurate position and performance under intentional and unintentional interference. This direction is in keeping with the National Security/Presidential Directive (NSPD)-39 of 15 December 2004 and current solutions are well-supported by numerous studies and analyses that include Defense Science Board Task Force reports (October 2005), the DoD's GPS III System Architecture/Requirements Definition (SA/RD) of January 2003, and various DoD and Navy requirements documents.

NAVSTAR Global Positioning System (GPS) project (0921) is a space-based positioning, navigation, and timing (PNT) system that provides authorized users with secure, worldwide, all weather, three dimensional position, velocity, and precise time data. Navy Air and Sea Navigation Warfare (NAVWAR) are major elements of the GPS program. NAVWAR's mission is to provide continued access to GPS information in a denied environment. NAVWAR accomplishes this through the use of modernized User Equipment (UE). Beginning in FY 11, the Global Positioning System (GPS) - Based Positioning, Navigation and Timing (PNT) Service (GPNTS) system will integrate modernized GPS UE being developed by the GPS Wing into a complete NAVWAR solution for Navy surface and subsurface platforms. The GPNTS will be scalable to replace stand-alone WRN-6 systems as well as integrated Navigation Sensor System Interface (NAVSSI) systems. Additionally, future capability will migrate toward a Common Computing Environment (CCE) such as Consolidated Afloat Networks Enterprise Services (CANES).

The Naval Research Advisory Committee (NRAC) GPS Vulnerability Study Panel assessed the Navy's GPS Vulnerabilities and recommended specific actions to resolve serious issues to ensure the continued availability of GPS information in a high risk hostile jamming environment. As a result, the Navy Enhanced GPS User Equipment ORD was drafted to address operational requirements. These were validated and the ORD was approved on June 7, 2000. With this beginning, OSD directed the first phase of the Navy's overall GPS upgrade program with RDT&E leading to initial procurements of GPS anti-jam (AJ) antennas beginning in 2001 for aircraft and 2002 for ships. RDT&E continues to support platform integration requirements, Developmental Test/Operational Test (DT/OT), as well as the GPS Wing

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*

development of an Advanced Digital Antenna Production (ADAP), the Navy's development of a smaller Anti-Jam (AJ) antenna and a conformal low-observable AJ antenna for aircraft with unique requirements, new technology AJ solutions for submarines), and the integration of AJ protection into handheld receivers. Two similar but separate ACAT III programs (Air and Sea NAVWAR) have been established and have become the basis for the Navy's Air and Sea Navigation Warfare (NAVWAR) programs. The Sea NAVWAR Program is executed in 3 increments. The GPS Antenna System (GAS-1) is integrated on surface platforms in Increment 1. Increment 2 is ADAP. It is an enhanced adaptive AJ antenna system based on advanced digital electronics and digital signal processing planned for surface ship integrations. Increment 3 addresses anti-jam (AJ) capabilities for submarines. The Air NAVWAR program is a single increment with GAS-1, ADAP, and other efforts continuing. The capability production document for Sea NAVWAR Increment 2 (12/08) was approved to support the ADAP development.

The primary Global Positioning System (GPS) shipboard receivers fielded on the majority of U.S. Navy ships today include the AN/WRN-6 and the GPS VME Receiver Card (GVRC). These military GPS receivers provide precise Position, Navigation, and Time (PNT) data required for many combat weapons and navigation systems, as well as providing the time synchronization critical to the network environments. The failure of the GPS receiver ultimately means the loss of GPS for the ship and those systems that depend upon it. However, as GPS devices have proliferated throughout the commercial community, it has become more readily available not only to civilians, but to adversaries as well. As a result, even the military GPS Precise Positioning System (PPS) is more vulnerable today to unintentional and intentional jamming. The new security architecture, known as Selective Availability Anti-Spoof Module (SAASM), addresses this vulnerability, and has been mandated for all military combat GPS receiver procurements beginning in FY07. Additionally, the GPS satellite constellation is being modernized to incorporate new GPS signals from space for both military and civilian users (e.g., M-code and L5). While SAASM-capable GPS receivers are available commercially today, they require modification to support the various combat system requirements and interfaces required by the Navy shipboard systems, and will require modification in the future to implement the new GPS modernized signals (expected to become available in FY11). The GPNTS system will be engineered for immediate implementation of SAASM, and will be an open architecture allowing for modification to implement modernized GPS signals when they become available; thus making it backwards and forwards compatible with all GPS systems (e.g., Y code, M code, (C/A) code (YMCA)). Similarly, SAASM is required for GPS receivers in aircraft, and aircraft related SAASM integration and test will be required.

The Navy's overall GPS User Equipment upgrade is modernization of all GPS systems on Air and Sea platforms. This will require RDT&E to support the replacement of existing legacy GPS receivers with enhanced capability receivers and antennas based upon and coordinated with the GPS Wing program. These new receivers and antennas will incorporate GPS Wing and Navy directed and developed technology enhancements to support new signals in the maritime domain, in space, enhanced receiver security, aircraft operations within controlled airspace and future weapons, combat, and C4I systems requirements.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Air Navigation Warfare (NAVWAR)	12.904	9.596	7.233	0.000	7.233

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Completed development of Conformal - Controlled Reception Pattern Antenna (C-CRPA) for F/A-18 E/F/G. Continued integration of C-CRPA and Advanced Digital Antenna Production (ADAP) on F/A-18 E/F/G. Completed initial antenna integration efforts on E-2D. Continued ADAP testing and NAVWAR integration on H-53. Continued monitoring potential Small Antenna System (SAS)/Miniaturized - Controlled Reception Pattern Antenna (M-CRPA) solutions. Continued participation in joint NAVWAR Memorandum Of Understanding (MOU) initiatives with Canada, United Kingdom and Australia. *FY 2010 Plans:* Continue integration of C-CRPA and ADAP on F/A-18 E/F/G and NAVWAR on other Air platforms to include unmanned air systems (UAS) and weapons. Start developmental testing of C-CRPA and ADAP on F/A-18 E/F/G. Continue SAASM integration and testing on Air platforms. Monitor SAS/M-CRPA development. Start GPS Modernization platform impact studies and provide Navy unique requirements to GPS Wing. Develop Navy Air GPS Modernization Acquisition Strategy, Systems Engineering Plan and Test and Evaluation Master Plan (TEMP). Coordinate GPS Modernization efforts with other programs and DoD services to reduce impacts to platform navigation systems. Participate in joint NAVWAR MOU initiatives with Canada, United Kingdom and Australia. *FY 2011 Base Plans:* Complete integration of NAVWAR on F/A-18 E/F/G. Complete developmental testing and start operational testing of NAVWAR on F/A-18 E/F/G. Monitor SAS/M-CRPA development. Continue integration of NAVWAR on other Air platforms to include unmanned air systems (UAS) and weapons. Continue GPS Modernization platform impact studies and provide Navy unique requirements to GPS Wing. Continue to coordinate GPS Modernization efforts with other programs and DoD services to reduce impacts to platform navigation systems. Start studies for integration of GPS Wing developed modernized user equipment into Air platforms. Participate in joint NAVWAR MOU initiatives with Canada, United Kingdom and Australia.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Sea Navigation Warfare (NAVWAR)	4.765	4.132	4.776	0.000	4.776
FY 2009 Accomplishments: Increment 2 Advanced Digital Antenna Production (ADAP): Completed Increment 2 Development Test (DT) for Landing Craft Air Cushioned (LCAC) and Mine Countermeasures Ship (MCM). Continued modeling and simulation, integration and DT for ADAP in support of Milestone C. Continued participation in joint Navigation Warfare (NAVWAR) Memorandum of Understanding (MOU) initiatives with Canada, United Kingdom, and Australia. *FY 2010 Plans:* Increment 2 (ADAP): Complete DT and support Operational Assessment in support of Milestone C scheduled for 2Q10. Conduct DT for Increment 2 ADAP on DDG. Support Operational Test (OT) on DDG. Participation in joint NAVWAR MOU initiatives with Canada, United Kingdom, and Australia. *FY 2011 Base Plans:* Increment 2 (ADAP): Conduct DT and integration for ADAP on CG and CVN. Participation in joint NAVWAR MOU initiatives with Canada, United Kingdom, and Australia.					
Global Positioning System (GPS) Modernization	4.030	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Global Positioning System (GPS) Modernization Pre-Acquisition activities supported the GPS-Based Positioning, Navigation and Timing (PNT) Service (GPNTS) increment 2 fielding of M-Code. Finalize Air and Sea modernized GPS user equipment (UE) specifications. Develop technical requirements for the Maritime Domain for GPS User Equipment (MGUE). Supported the development of modernized interface documents, the MGUE Enterprise Test and Evaluation Master Plan (TEMP), and modernized GPS user equipment for the Maritime and Air domains. Participated in source selection activities at the GPS Wing (GPSW) for Air and Maritime MGUE. Began platform integration groundwork, such as identification of new capabilities to be incorporated, physical platform modification design, software					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
requirements specification development, platform audits to determine suitability for transition, refining the platform capability.					
Global Positioning System (GPS) - Based Positioning, Navigation and Timing (PNT) Service (GPNTS) *FY 2010 Plans:* Beginning in FY10 attain a Milestone B decision to move into the next phase of the program. Approval of an Acquisition Program Baseline (APB) and the Acquisition Plan (AP). Completion of source selection activities and a contract award for system development. Support of post contract award activities including tracking of contractor deliverables, earned value management, and financial management. Oversee the contractor and review deliverables through initial design analysis against the Technical Requirements Document (TRD) and complete the System Requirements Review (SSR) and the System Functional Reviews (SFR) to prepare for the Preliminary Design Review. The metrics that will be used to determine if objectives are met will be: Obtainment of a Milestone B decision from the Milestone Decision Authority (MDA), an approved APB and AP, successful completion of the system development contract award, completion of the SRR and SFR review events. *FY 2011 Base Plans:* Work to update or develop statutory and regulatory acquisition requirements in accordance with the Milestone B Acquisition Decision Memorandum (ADM). Complete Preliminary Design Review (PDR) and Critical Design Review (CDR). Prepare Capability Production Document (CPD) complete comment resolution and submit for approval. Metrics that will be used to determine if the objectives are met will be: Completion of the PDR and CDR review events, completion of the draft CPD, completion of quarterly integrated test team meetings to prepare for the OTRR event in FY12, and initial updates to the programs acquisition documents.	0.000	8.076	8.012	0.000	8.012
WRN X	2.701	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: WRN-X Pre-Acquisition activities supported the GPNTS increment 1 fielding of a new scalable military GPS receiver with Selective Availability Anti-Spoof Module (SAASM). These efforts included completion or solid drafts of all statutory and regulatory acquisition requirements to include the Capabilities Development Document (CDD), Test and Evaluation Master Plan (TEMP), Programmatic, Environmental, Safety, and Health Assessment (PESHE), Information Assurance (IA) Strategy, Information Support Plan (ISP), Human Systems Integration (HSI), Systems Engineering Plan (SEP), Independent Logistics Support Plan (ILSP), Independent Logistics Assessment (ILA), Performance Based Logistics (PBL), Acquisition Strategy (AS)/Acquisition Plan (AP), Project Life Cycle Cost Estimate (PLCCE), and Navy Training Service Plan (NTSP) documents. A Contract Planning Conference (CPC) was conducted and an Industry Day was held. A draft of the Request for Proposal (RFP) documents were released to Industry.					
Accomplishments/Planned Programs Subtotals	24.400	21.804	20.021	0.000	20.021

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 / 2657, 0604777N: *Other Procurement, Navy*	8.749	7.941	9.319	0.000	9.319	12.355	16.652	16.960	17.383	434.498	523.857
• APN / 0577: *Common Avionics*	9.954	4.316	8.952	0.000	8.952	9.079	9.270	9.672	9.880	0.000	61.123

D. Acquisition Strategy

NAVWAR: Participate in Global Positioning System (GPS) Wing and Warner Robbins Air Logistics Center (ALC) FY 01-FY 12 procurements for the GAS-1 anti-jam antenna. Initiate Navy contracting options for smaller array anti-jam antennas and conformal-controlled reception pattern antenna (C-CRPA) for selected aircraft. Initiate Navy contracting for the shipboard ground plane and submarine array. Participate with the GPS Wing in their development of an Advanced Digital Antenna Program (ADAP) Line Replaceable Unit (LRU) and identify potential Navy candidate platforms.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*

GPNTS: The GPNTS program will be conducted in two increments. This Acquisition Strategy is in support of Increment I. Increment I will develop, acquire, and field the GPNTS, a scalable SAASM GPS based SOA PNT system that will provide an open, extensible, modernized replacement for the current fleet PNT systems, while targeting Common Computing Environments (CCE). Increment II will integrate modernized GPS UE that will allow the U.S. Navy to leverage current and future technology development provided by the GPS Wing, formerly known as the GPS Joint Program Office (JPO), including M-Code and GPS security architecture. GPNTS will operate at the UNCLASSIFIED level, and can provide the PNT data to higher classified systems. Procurements for Increment 1 systems (with the SAASM capability) will begin in FY13 with LRIP units, full rate production will begin in FY15.

E. Performance Metrics

The primary metric used for the Air NAVWAR Program is acceptable system performance in a GPS denied environment which is defined by classified values of jamming to signal ratio (J/S) identified in the Enhanced GPS User Equipment (UE) Operational Requirements Document (ORD) 562-06-00 of 7 June 2000. The performance goal is met if acceptable system performance is achieved in the threshold J/S environment cited in the classified appendix.

The primary metric used for the Sea NAVWAR is acceptable system performance in a GPS denial environment defined by classified values of jamming to signal ratio (J/S) identified in the Sea NAVWAR Increment 2 CPD (12/08). The performance goal is met if acceptable system performance is achieved in the threshold J/S environment cited in the CPD.

The primary metrics used for the GPNTS is obtainment of a Milestone B decision from the MDA, an approved APB and AP, successful completion of the system development contract award, completion of the SRR and SFR review events.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*

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 Development	Various/ Various	Product Vendors Various	284.922	4.000	Oct 2009	4.891	Oct 2010	0.000		4.891	0.000	293.813	Continuing
Product Development (SSC-SD)	WR	SSC PAC San Diego	69.609	0.800	Oct 2009	0.600	Oct 2010	0.000		0.600	0.000	71.009	Continuing
Product Dev (other in house)	WR	Various Field Activities Various	439.397	0.000		0.000		0.000		0.000	0.000	439.397	Continuing
Systems Engineering	Various/ Various	Various Govt/ Contractor Various	16.391	2.000	Oct 2009	1.750	Oct 2010	0.000		1.750	0.000	20.141	Continuing
		Subtotal	810.319	6.800		7.241		0.000		7.241	0.000	824.360	

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	12.710	0.000		0.000		0.000		0.000	0.000	12.710	Continuing
Software Development	Various/ Various	SSC PAC San Diego	10.100	0.200	Oct 2009	0.150	Oct 2010	0.000		0.150	0.000	10.450	Continuing
			5.757	0.645	Oct 2009	0.700	Oct 2010	0.000		0.700	0.000	7.102	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*

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	SSC PAC/ NAWC/Various Contractors Various											
Training Development	WR	SSC PAC/NAWC Various	4.125	0.800	Oct 2009	0.450	Oct 2010	0.000		0.450	0.000	5.375	Continuing
Technical Data	Various/ Various	Platform PMOs Various	3.700	0.500	Oct 2009	0.450	Oct 2010	0.000		0.450	0.000	4.650	Continuing
		Subtotal	36.392	2.145		1.750		0.000		1.750	0.000	40.287	

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 (NAWC PAX)	WR	NAWC PAX PAX River	25.929	2.000	Oct 2009	1.800	Oct 2010	0.000		1.800	0.000	29.729	Continuing
Test & Evaluation (DCS)	C/CPAF	DCS CORP PAX PAX River	4.276	0.500	Oct 2009	0.500	Oct 2010	0.000		0.500	0.000	5.276	Continuing
Test & Evaluation (SSC-SD)	WR	SSC PAC San Diego	6.975	1.000	Oct 2009	0.900	Oct 2010	0.000		0.900	0.000	8.875	Continuing
		Various	24.996	3.759	Oct 2009	3.272	Oct 2010	0.000		3.272	0.000	32.027	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*

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 Platform Testing	Various/ Various	Various											
		Subtotal	62.176	7.259		6.472		0.000		6.472	0.000	75.907	

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	DCS, SAIC, ARINC Various	11.957	1.800	Oct 2009	1.400	Oct 2010	0.000		1.400	0.000	15.157	Continuing
Government Engineering Support	WR	SSC, NAWC, WR Various	10.860	2.000	Oct 2009	1.800	Oct 2010	0.000		1.800	0.000	14.660	Continuing
Program Management Support	C/CPAF	DCS, Price Systems Various	17.039	1.800	Oct 2009	1.358	Oct 2010	0.000		1.358	0.000	20.197	Continuing
Acquistion Workforce	Allot	Not Specified Not Specified	0.139	0.000		0.000		0.000		0.000	0.000	0.139	Continuing
		Subtotal	39.995	5.600		4.558		0.000		4.558	0.000	50.153	

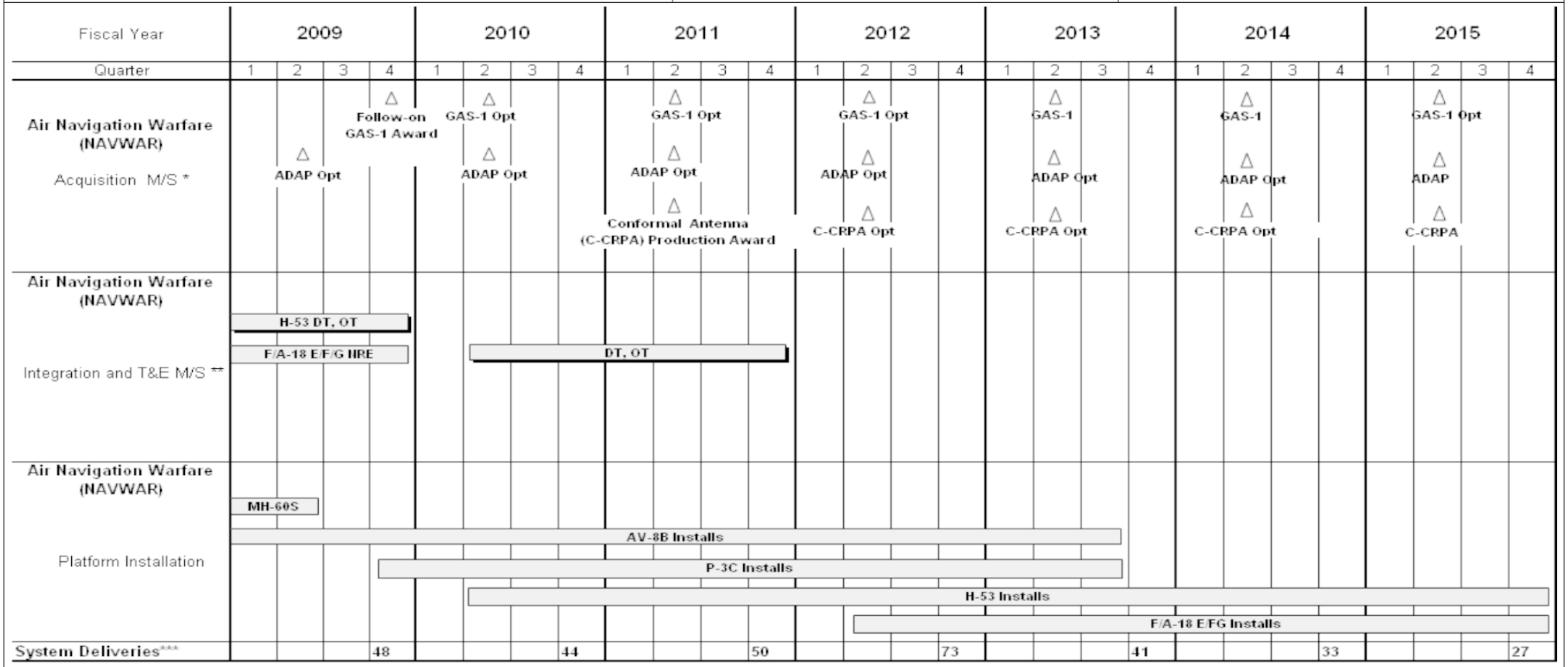
Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*	

	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	948.882	21.804		20.021		0.000		20.021	0.000	990.707	

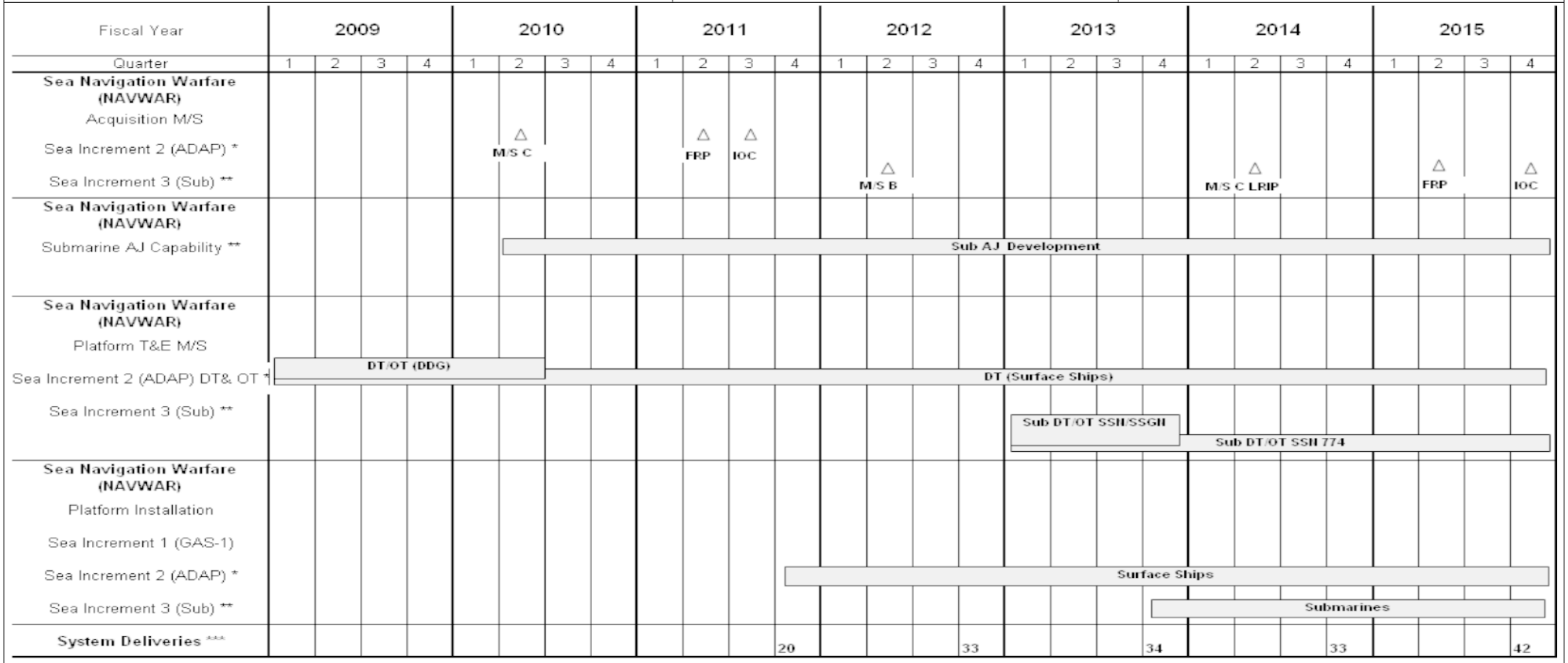
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*



*ADAP (Advanced Digital Antenna Production), C-CRPA (Conformal Controlled Reception Pattern Antenna), GAS-1/1N (GPS Antenna System /Navy) are Anti-Jam (AJ) antenna solutions for designated platforms.
**MDA direction of 3/30/06 directed streamlining Air NAVWAR program from three phases to one. Milestone C decision of Oct 2001 applies to all current phases. Anticipate NAVWAR Air Phase 2 to integrate Modernized (M-Code) GPS Receivers.
***APN quantities are approximate year-end total number of NAVWAR system deliveries. Quantities do not include RDT&E units, Spares, or those projected for new construction aircraft.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604777N: *Navigation/Id System*	**PROJECT** 0921: *NAVSTAR GPS Equipment*



* ADAP is the Advanced Digital Antenna Production program, the Navy's development of a smaller Anti-Jam (AJ) antenna.

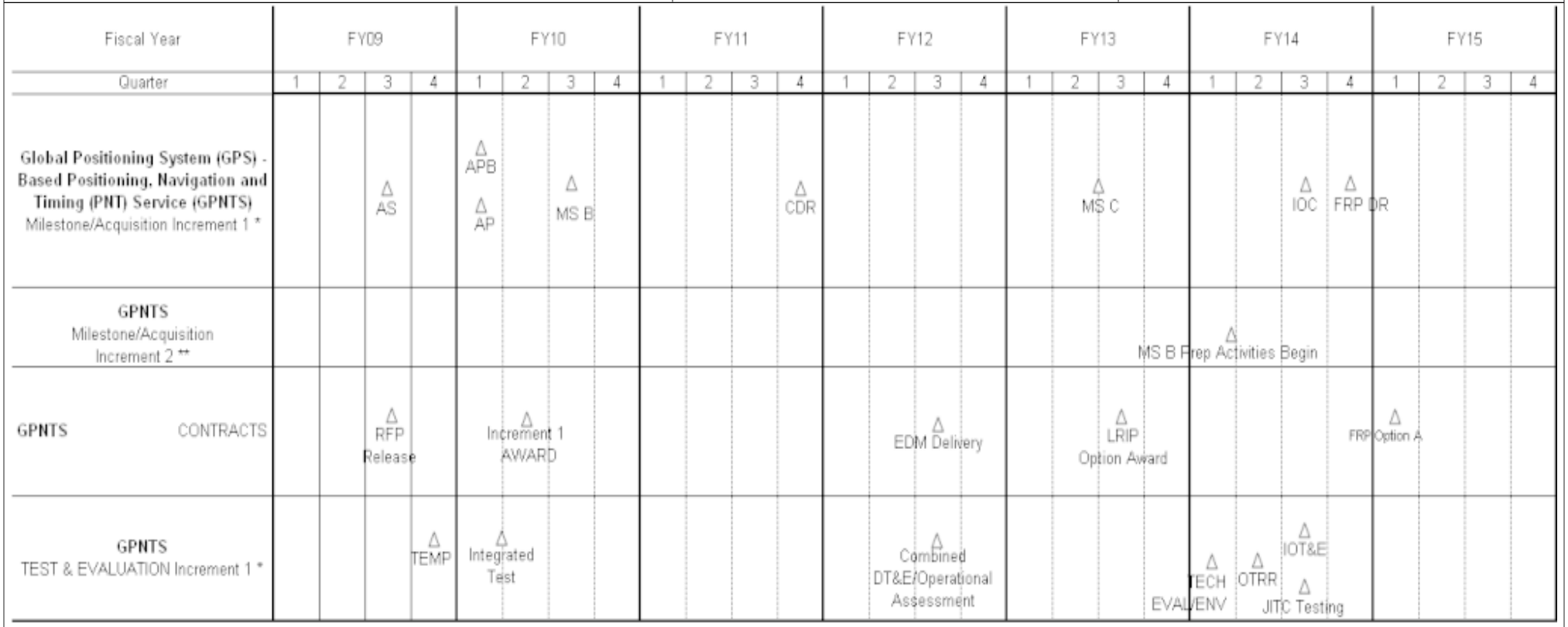
* ADAP (Advanced Digital Antenna Production) M/S C moved from 3Q FY 09 to 2Q FY10

* NAVWAR Sea has been restructured to reflect program changes. Phase 1A has been redesignated as Increment 1. Phase 1B has been terminated and installations planned for this phase are deferred to ADAP (Increment

** Submarine integrations have been redesignated as Increment 3.

***Quantities are approximate year-end total number of NAVWAR system deliveries. Quantities do not include RDT&E units, SCN or Spares.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*



* Global Positioning System (GPS) Positioning, Navigation, Timing (PNT) Service GPNTS will be a single Program of Record (POR), which will receive, process, and distribute three dimensional position, velocity, acceleration, time, and frequency in the formats required by shipboard user systems. GPNTS will be scalable to accommodate back fit of current legacy PNT systems as well as forward fit of new platforms.

* Increment 1 will develop, acquire, and field a baseline GPNTS integrating current Selective Availability Anti-Spoof Module (SAASM) GPS receiver. GPNTS will be based on open standards in a Service Oriented Architecture (SOA) that will provide an open, extensible, and modernized replacement for the current fleet PNT systems, while targeting Common Computing Environments (CCE).

** Increment 2 will integrate Military GPS User Equipment (MGUE), which will allow the U.S. Navy to leverage current and future technology that will allow the U.S. Navy to leverage current and future technology development provided by the GPS Wing (GPSW), including Military Code (M-Code).

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 0921: *NAVSTAR GPS Equipment*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Air Navigation Conformal Array Development	1	2009	4	2009
Air Navigation H-53 DT/OT	1	2009	4	2009
Air Navigation AV-8B DT/OT	1	2010	1	2010
Air Navigation F/A 18 E/F/G DT/OT	1	2010	4	2011
Sea Navigation Increment 2 (ADAP) DT/OT	1	2010	1	2015
Sea Navigation Increment 2 (ADAP) M/S C LRIP	2	2010	2	2010
Sea Navigation Increment 2 (ADAP) FRP	2	2011	2	2011
Sea Navigation Increment 2 (ADAP) IOC	3	2011	3	2011
Sea Navigation Increment 3 (Sub A/J) M/S B	2	2012	2	2012
Sea Navigation Increment 3 (Sub A/J)DT/OT	1	2013	4	2015
Sea Navigation Increment 3 (Sub A/J) M/S C LRIP	2	2014	2	2014
Sea Navigation Increment 3 (Sub A/J)FRP	2	2015	2	2015
Sea Navigation Increment 3 (Sub A/J)IOC	4	2015	4	2015
GPNTS INCREMENT 1 MS B	3	2010	3	2010
GPNTS MS C	2	2013	2	2013
GPNTS M/S C LRIP	3	2013	3	2013
GPNTS FRP	4	2014	4	2014
GPNTS IOC	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 1253: *Combat Ident 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
1253: *Combat Ident System*	9.179	30.262	36.483	0.000	36.483	29.245	17.237	10.315	14.943	Continuing	Continuing
Quantity of RDT&E Articles	2	19	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

In 1995, the Under Secretary of Defense (Acquisition and Technology)/Vice Chairman, Joint Chiefs of Staff {USD(A7T)/VCJCS} tasked the Services to develop a high-level plan and long-range strategy for migrating to new Mark XII equipment. The services were also tasked to work with participating NATO Allies to develop a new MK XII waveform and document it in NATO Standard Agreement (STANAG). The Navy took the lead in a waveform development effort conducted in coordination with a five nation Technical Working Group (TWG), supported by Joint Services and Industry. The Navy, in conjunction with the TWG, designed, developed, modeled, and tested a new waveform - MK XIIA Mode 5. A separate five nation Communications Security (COMSEC) group, led by the National Security Administration (NSA), developed a new cryptographic algorithm and associated cryptographic equipment interoperability requirements specification, STANAG 4193, Part V has been ratified and promulgated to all NATO nations, and Part VI was approved for promulgation in January 2002.

In August 2003 the Navy MK XIIA Mode 5 program was approved for entry in Systems Development and Demonstration (SDD) phase with approval to develop prototypes.
In July 2006, the Navy MK XIIA Mode 5 program was approved for entry into the Production and Deployment Phase and Low Rate Initial Production. In March 2007, Joint Requirements Oversight Council Memorandum (JROCM 047-07) endorsed a Mode 5 Joint Initial Operational Capability (IOC) in FY14 and Joint Full Operational Capability (FOC) in 2020. A Program Deviation Report was submitted in July 2009 reporting a schedule breach to Operational Evaluation (OPEVAL) and IOC due to joint asset participations and on-going resolution of DT deficiencies. The IOT&E is replanned for FY2011 with additional DT events planned in FY10 to address system-of-system OA deficiencies.

Beginning in FY08 the RDT&E articles include Mode 5 cryptographic modules and associated hardware and software changes, AN/APX-123, AN/APX-119, and AN/APX-111. These RDT&E units are to support hardware, software, and integration efforts to host systems on remaining aircraft T/M/S, including AH-1Z/UH-1Y, E-2D, KC-130J, MV-22, VH-71A, and F/A-18E/F and EA-18G.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 1253: *Combat Ident System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Mode 5 prototype hardware, cryptographic module	1.665	19.619	21.632	0.000	21.632
Perform development of kits for installation into existing fleet assets including AN/UPX-37/41C Interrogator, AN/APX-118/123 Common Digital Transponder, and AN/APX-111 Combined Interrogator Transponder. Repair and correct deficiencies identified during testing and procure low rate initial production (LRIP) units to support testing and platform integration. LRIP units include Mode 5 cryptographic module install kits for AN/UPX-37/41C, AN/APX-118/123, AN/APX-119, and AN/UPX-24 with associated hardware and software changes to the host boxes. Perform platform integration efforts for the AN/UPX-37/41C Interrogator, AN/APX-118/123 Common Digital Transponder, AN/APX-119 Transponder, and AN/APX-111 Combined Interrogator Transponder. *FY 2009 Accomplishments:* Procure AN/APX-123 for MV-22. Continue AN/APX-123 integration on the E-2D. *FY 2010 Plans:* Procure AN/APX-123 for MV-22, AN/APX-119 for lab, and AN/APX-111 for labs and F/A-18 test aircraft. Initiate AN/APX-123 integration on the MV-22. Initiate AN/APX-119 integration on the KC-130J. Commence development of the Mode 5 kit in the AN/APX-111 and integration into the F/A-18E/F and EA-18G. *FY 2011 Base Plans:* Continue AN/APX-123, AN/APX-119 and AN/APX-111 integrations.				
Mode 5 systems Engineering and ILS	2.872	3.397	7.786	0.000	7.786
Perform systems engineering and analysis in support of Mode 5 hardware/software development on AN/UPX-37/41C Interrogator, AN/APX-118/123 Common Digital Transponder, AN/APX-119 Transponder, AN/APX-111 Combined Interrogator Transponder, Cryptographic Module, Mode 5 Engineering Test Equipment, and Mode 5 support equipment. The Cryptographic Module includes, but					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 1253: *Combat Ident System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
is not limited to, activities such as Integrated Logistics Support, Design and Engineering Studies and Analysis, and Configuration Management performed as the Lead Service. *FY 2009 Accomplishments:* Continue systems engineering and analysis on multiple aircraft platforms (including H-1, MH-60, E-2D, and MV-22) and deficiency correction on transponders and interrogators. *FY 2010 Plans:* Continue systems engineering and analysis on multiple aircraft platforms (including H-1, MH-60, E-2D, MV-22, KC-130J, and F/A-18) and deficiency correction on transponders and interrogators. *FY 2011 Base Plans:* Continue systems engineering and analysis on multiple aircraft platforms (including E-2D, MV-22, KC-130J, and F/A-18).					
Mode 5 Upgrade DT & OT Perform Mode 5 developmental and operational test phases for AN/UPX-37/41C Interrogator, AN/APX-118/123 Common Transponder, AN/APX-119 Transponder, and AN/APX-111 Combined Interrogator Transponder. *FY 2009 Accomplishments:* Conduct an Operational Assessment on the AN/APX-123 and AN/UPX-41C. *FY 2010 Plans:* Conduct Regression Testing on the AN/APX-123 and AN/UPX-41C. Test the AN/APX-123 as integrated on the E-2D.	4.642	7.246	7.065	0.000	7.065

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 1253: *Combat Ident System*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Conduct an Operational Test and begin testing of the AN/APX-123 as integrated on the MV-22.					
Accomplishments/Planned Programs Subtotals	9.179	30.262	36.483	0.000	36.483

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/2851: *Identification Systems*	31.367	37.563	29.572	0.000	29.572	33.687	36.355	39.370	36.242	Continuing	Continuing
• APN/0582: *Identification Systems*	11.997	24.051	20.397	0.000	20.397	37.927	39.208	41.687	35.903	Continuing	Continuing

D. Acquisition Strategy

The Acquisition Strategy is to develop Mode 5 Engineering Change Proposals (ECPs) for modern Mark XII Identification Friend or Foe (IFF) equipment and integrate into all Navy Combat Weapons systems platforms and transition the Navy's Cooperative Identification Capability to Mode 5.

E. Performance Metrics

Award LRIP 5 Contract Option in 2nd Quarter FY 2010 and LRIP 6 Contract Option in 1st Quarter FY 2011. Complete Operational Test Readiness Review (OTRR) in 3rd Quarter FY 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 1253: *Combat Ident 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/FFP	Lockheed Owego, NY	3.167	0.062	May 2010	0.125	May 2011	0.000		0.125	3.640	6.994	6.994
Primary Hardware Development	WR	NAWCWD China Lake CA	3.200	3.648	May 2010	6.179	May 2011	0.000		6.179	20.042	33.069	Continuing
Primary Hardware Development	SS/CPFF	Northrup Grumman Bethpage NY	3.508	0.378	Jun 2010	0.000		0.000		0.000	1.701	5.587	5.587
Primary Hardware Development	Various/ Various	BAE Greenlawn NY	26.343	0.000		0.000		0.000		0.000	0.597	26.940	26.940
Primary Hardware Development	C/TBD	Boeing Philiadelphia, PA	0.000	5.190	May 2010	2.289	Jun 2011	0.000		2.289	0.639	8.118	8.118
Primary Hardware Development	C/TBD	Raytheon Towson, MD	0.000	1.027	Dec 2009	0.137	Mar 2011	0.000		0.137	0.277	1.441	1.441
Primary Hardware Development	C/TBD	Boeing St Louis. MO	0.000	9.314	May 2010	12.902	Jun 2011	0.000		12.902	19.233	41.449	41.449
Systems Engineering	WR	NAWCAD PAX River, MD	5.420	1.963	Nov 2009	4.288	Nov 2010	0.000		4.288	7.131	18.802	Continuing
Systems Engineering	WR	NAWCAD St Inigoes, MD	10.611	0.534	Nov 2009	2.312	Nov 2010	0.000		2.312	2.121	15.578	Continuing
Systems Engineering	WR	NAWCWD China Lake	0.600	0.000		0.000		0.000		0.000	0.000	0.600	Continuing
		Subtotal	52.849	22.116		28.232		0.000		28.232	55.381	158.578	90.529

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 1253: *Combat Ident 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
ILS	Various/ Various	Various Various	1.466	0.900	Nov 2009	1.186	Nov 2010	0.000		1.186	0.000	3.552	Continuing
Software Development	Various/ Various	Various Various	2.708	0.000		0.000		0.000		0.000	0.000	2.708	Continuing
Technical data	Various/ Various	Various Various	0.053	0.000		0.000		0.000		0.000	0.000	0.053	Continuing
		Subtotal	4.227	0.900		1.186		0.000		1.186	0.000	6.313	

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 T & E	WR	NAWCAD PAX River MD	4.030	6.612	Nov 2009	3.970	Nov 2010	0.000		3.970	0.000	14.612	Continuing
Operational T & E	WR	NAWCAD PAX River MD	14.426	0.362	Nov 2009	1.645	Nov 2010	0.000		1.645	0.000	16.433	Continuing
Test Assets	Various/ Various	Various Various	1.674	0.272	Nov 2009	1.450	Nov 2010	0.000		1.450	0.000	3.396	Continuing
		Subtotal	20.130	7.246		7.065		0.000		7.065	0.000	34.441	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 1253: *Combat Ident 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
Contract Engineering Support	Various/ Various	Various Various	0.450	0.000		0.000		0.000		0.000	0.000	0.450	Continuing
Government Engineering Support	Various/ Various	Various Various	1.811	0.000		0.000		0.000		0.000	0.000	1.811	Continuing
Program Management Support	Various/ Various	Various Various	1.961	0.000		0.000		0.000		0.000	0.000	1.961	Continuing
ETS (Non-FFRDC)	WR	Various PAX River MD	0.174	0.000		0.000		0.000		0.000	0.000	0.174	Continuing
		Subtotal	4.396	0.000		0.000		0.000		0.000	0.000	4.396	

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	81.602	30.262		36.483		0.000		36.483	55.381	203.728	90.529

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 1253: *Combat Ident System*

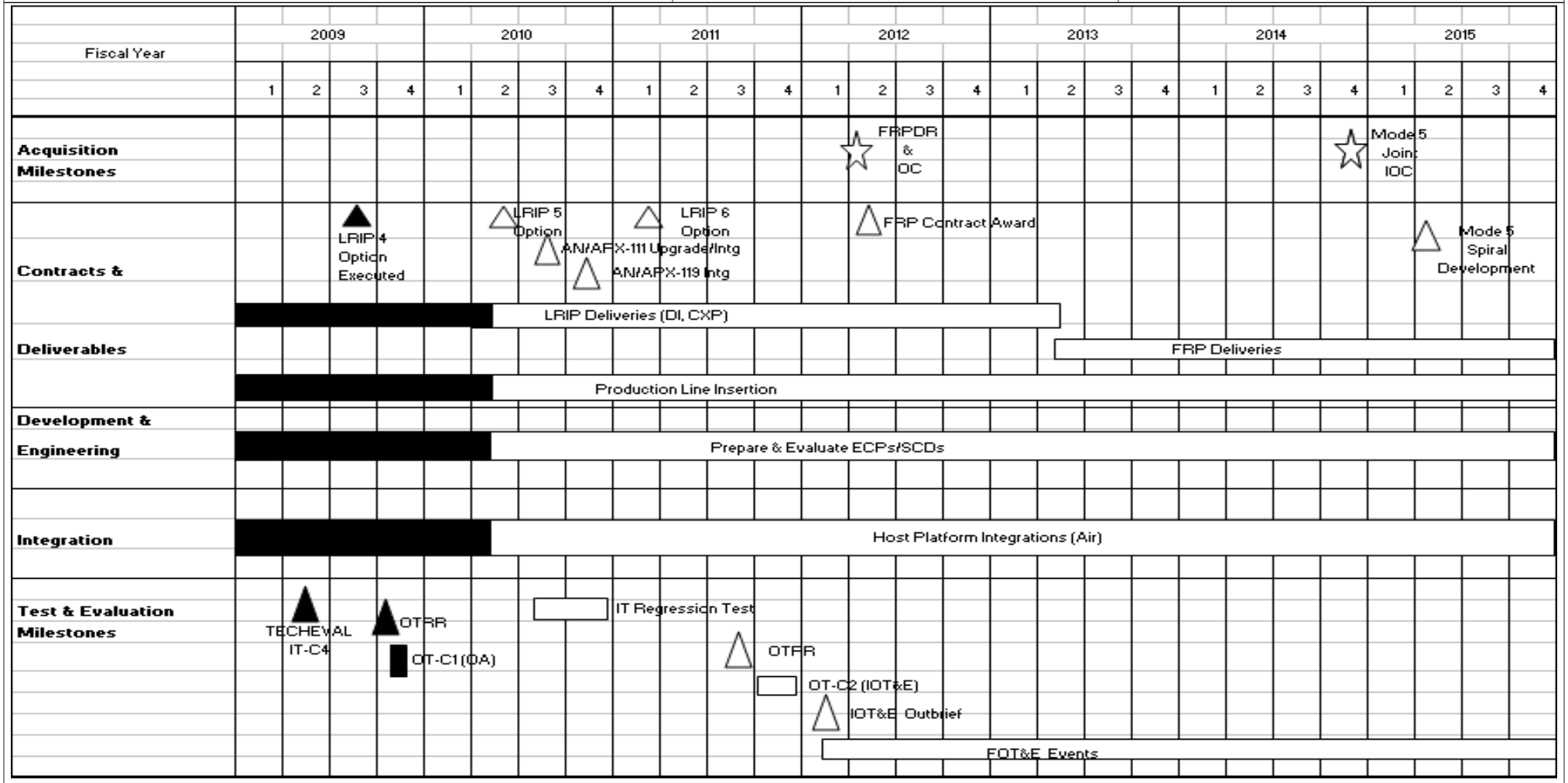


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 1253: *Combat Ident System*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Full Rate Production Decision Review (FRPDR) & IOC	2	2012	2	2012
FRP Contract Award	2	2012	2	2012
AN/APX-111 Upgrade/Integration Begins	3	2010	3	2010
AN/APX 119 Integration Begins	4	2010	4	2010
Low-Rate Initial Production (LRIP) 4 Contract Award	3	2009	3	2009
Low-Rate Initial Production (LRIP) 5 Contract Award	2	2010	2	2010
Low-Rate Initial Production (LRIP) 6 Contract Award	1	2011	1	2011
Low-Rate Initial Production Deliveries (CXP, DI)	1	2009	2	2013
FRP Deliveries	2	2013	4	2015
Prepare & Evaluate ECPs/SCDs	1	2009	4	2015
Production Line Insertion	1	2009	4	2015
Host Platform Integrations	1	2009	4	2015
TECHEVAL (IT-C4)	2	2009	2	2009
Operational Test Readiness Review (OTRR)	4	2009	4	2009
OT-C1 (OA)	4	2009	4	2009
IT Regression Test	3	2010	4	2010
Operational Test Readiness Review (OTRR-2)	3	2011	3	2011
OT-C2 (IOT&E)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id System*	PROJECT 1253: *Combat Ident System*

	Start		End	
Event	Quarter	Year	Quarter	Year
Mode 5 Joint IOC	4	2014	4	2014
Mode 5 Spiral Development	2	2015	2	2015
IOT&E Outbrief	1	2012	1	2012
Follow-on Test and Evaluation	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604777N: *Navigation/Id 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*	1.995	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.311
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: Sure Track Re-Architecture and Sensor Augmentation *FY 2009 Accomplishments:* Funds provided to enhance the SURETRAK capabilities and improve system supportability. Project will implement the new Open Map Display, with respect to Atlantic Test Range (ATR) requirements, in a manner that makes it compatible with the new Services Oriented Architecture (SOA).	1.995	0.000
Congressional Adds Subtotals	1.995	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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*							
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	667.916	0.000	667.916	594.004	529.826	375.925	134.707	Continuing	Continuing
2262: *Joint Strike Fighter EMD STOVL*	0.000	0.000	667.916	0.000	667.916	594.004	529.826	375.925	134.707	Continuing	Continuing

Note

This Program Element continues development efforts budgeted in program element 0603800N prior to FY 2002. Effective with the PB11 budget submission, F-35B (USMC) and F-35C (USN) budgets are reported against separate budget line items and program elements. Starting in FY11, F-35B budget is reported against the newly created program element 0604800M. The F-35C USN budget continues to report under program element 0604800N.

A. Mission Description and Budget Item Justification

The F-35 Lighning II Joint Strike Fighter program will develop and field a family of aircraft that meets the needs of the USN, USAF, USMC, and allies, with maximum commonality among the variants, consistent with National Disclosure Policy, to minimize life cycle costs. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom, 7 other International countries, and 3 Foreign Military Sales cases are participants in the JSF Program. Within the Navy contribution is an equal contributuion of annual funding by the USN and USMC. This funding profile cite against this Program Element reflects USMC F-35B Short Take-Off and Vertical Landing (STOVL) budgetary information, only.

Funding under this USMC project unit supports core F-35 System Design and Demonstration (SDD) objectives and aircraft Follow-on Development efforts.

The SDD Budget funds a total quantity of 19 RDT&E test articles to include 6 ground test articles and 13 flight test articles for Navy and Air Force use. The following fiscal year phasing of the flight test aircraft reflects the scheduled first flight of each asset:
FY07: 1 flight test article
FY08: 1 flight test article
FY09: 1 flight test article
FY10: 10 flight test articles

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*

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	667.916	0.000	667.916
Total Adjustments	0.000	0.000	667.916	0.000	667.916
• 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	667.916	0.000	667.916

Change Summary Explanation

Technical: Technical: F-35 Block IV Follow-on Development starts in FY11 to continue the evolutionary approach of SDD by providing capability enhancements through a combined incremental methodology. The Joint Capabilities Integration and Development System (JCIDS) and Defense Acquisition System (DAS) shall provide the framework and basis for defining, managing, and acquiring the envisioned F-35 enhancements.

Schedule: Delay in manufacturing and delivery of test aircraft resulted in a 1-2 quarter delay to the F-35A Optimized Flight and F-35C First Flight. Note: Additional schedule revision is in process.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*	

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
2262: *Joint Strike Fighter EMD STOVL*	0.000	0.000	667.916	0.000	667.916	594.004	529.826	375.925	134.707	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

This Program Element continues development efforts budgeted in program element 0603800N prior to FY 2002.

The SDD Budget funds a total quantity of 19 RDT&E test articles to include 6 ground test articles and 13 flight test articles for Navy and Air Force use. The following fiscal year phasing of the flight test aircraft reflects the scheduled first flight of each asset:
FY07: 1 flight test article
FY08: 1 flight test article
FY09: 1 flight test article
FY10: 10 flight test articles

A. Mission Description and Budget Item Justification

The F-35 Lightning II (Joint Strike Fighter) program will develop and field a family of aircraft that meets the needs of the USN, USAF, USMC, and allies, with maximum commonality among the variants, consistent with National Disclosure Policy, to minimize life cycle costs. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom, 7 other International countries, and 3 Foreign Military Sales cases are participants in the JSF Program. The following pages combine Navy, Air Force, international, and Congressional Add funding.

Funding under this USN project unit supports core F-35 System Design and Demonstration (SDD) objectives and aircraft Follow-on Development efforts.

The following table presents the total dollars distributed in section B of this R-2A. This has been done to give a more accurate picture of the total dollars being spent on each task.

Name	PU	FY 2009	FY 2010	FY 2011
Navy	2261	1,459.762	1,704.308	667.915
Air Force	3831	1,743.569	2,072.897	1,043.610

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

Marine Corps	2262		667.916	
International		244.584	109.511	91.386
Total RDT&E Funding addressed in PU 2262 Exhibits:		3,447.915	3,886.716	2,470.827

Name	PU	FY 2009	FY 2010	FY 2011
Navy	3194	28.816	31.813	39.876
Navy Cong Add	2261A	214.418	214.108	
Navy Cong Add	9D99A	1.596		

F-35 RDT&E Funding associated with PE 0604800M under separate PUs:	244.830	245.921	39.876
Total F-35 funding associated with PEs 0604800N, 0604800F and 0604800M:	3,692.745	4,132.637	2,510.703

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
System Development & Demonstration	2,452.708	2,445.453	1,465.181	0.000	1,465.181
FY 2009 Accomplishments: Continued System Development and Demonstration (SDD) execution of the Air System, with Lockheed Martin including International Commonality Effort which includes airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue System Development and Demonstration (SDD) execution of the Air System, with Lockheed Martin including International Commonality Effort which includes airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts. *FY 2011 Base Plans:* Continue System Development and Demonstration (SDD) execution of the Air System, with Lockheed Martin including International Commonality Effort which includes airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts					
F135 Propulsion System *FY 2009 Accomplishments:* Continued SDD execution of the F135 Propulsion System with Pratt & Whitney to include engine testing, autonomic logistics, integration and performing technology maturation efforts. *FY 2010 Plans:* Continue SDD execution of the F135 Propulsion System with Pratt & Whitney to include engine testing, autonomic logistics, integration and performing technology maturation efforts. *FY 2011 Base Plans:* Continue SDD execution of the F135 Propulsion System with Pratt & Whitney to include engine testing, autonomic logistics, integration and performing technology maturation efforts.	507.209	636.978	211.828	0.000	211.828
F136 Propulsion System *FY 2009 Accomplishments:* Congressional Add funding for the F136 Propulsion System appears in the PU: 9999 section of the PB 2011 budget submission.	425.390	429.108	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Congressional Add funding for continued F136 Propulsion System development appears in the PU: 9999 section of the PB 2011 budget submission.					
System Engineering *FY 2009 Accomplishments:* Continued SDD Systems Engineering including systems operations requirements analysis, program integration, requirements integration, and interoperability support. *FY 2010 Plans:* Continue SDD Systems Engineering including systems operations requirements analysis, program integration, requirements integration, and interoperability support. *FY 2011 Base Plans:* Continue SDD Systems Engineering including systems operations requirements analysis, program integration, requirements integration, and interoperability support.	39.531	42.537	49.752	0.000	49.752
Development Test and Evaluation *FY 2009 Accomplishments:* Continued Government Development Test and Evaluation (DT&E) continues in support of first flight of test aircraft. Elements of DT&E include preparation for flight testing, weapons integration testing, and Program Introduction Documents.	101.538	311.926	404.103	0.000	404.103

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue Government Development Test and Evaluation (DT&E)/Operational Testing continues in support of first flight of test aircraft. Elements of DT&E include preparation for flight testing, weapons integration testing, and Program Introduction Documents. *FY 2011 Base Plans:* Continue Government Development Test and Evaluation (DT&E)/Operational Testing continues in support of first flight of test aircraft. Elements of DT&E include preparation for flight testing, weapons integration testing, and Program Introduction Documents.					
Development Support *FY 2009 Accomplishments:* Continued SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. *FY 2010 Plans:* Continue SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. *FY 2011 Base Plans:* Continue SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.	100.211	164.758	207.393	0.000	207.393

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program Management	37.342	70.064	74.518	0.000	74.518
FY 2009 Accomplishments: Continued management support services, travel, engineering technical services, and studies analyses and evaluations in support of program objectives. *FY 2010 Plans:* Continue management support services, travel, engineering technical services, and studies analyses and evaluations in support of program objectives. *FY 2011 Base Plans:* Continue management support services, travel, engineering technical services, and studies analyses and evaluations in support of program objectives.					
Follow-On Development	0.000	0.000	58.052	0.000	58.052
FY 2011 Base Plans: Initiate follow-on development BLOCK IV capabilities to include logistics, weapons, security, sensors, survivability, and upgrades required to support F-35 variants. Efforts will support aircraft and engine delivery to services and partner nations commencing in 2014 and will integrate urgent operationally relevant requirements post-IOC.					
Accomplishments/Planned Programs Subtotals	3,663.929	4,100.824	2,470.827	0.000	2,470.827

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/0604800F: *Joint Strike Fighter*	1,743.569	2,072.897	1,043.610	0.000	1,043.610	1,298.495	1,005.511	666.295	223.367	0.000	20,770.580
	244.584	109.511	91.386	0.000	91.386	19.400	11.620	0.000	0.000	0.000	4,549.590

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*	

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
• International: *International Partner*											
• APN/0207142F: *F-35 Joint Strike Strike Fighter*	1,721.724	2,484.641	4,279.515	204.900	4,484.415	4,489.992	4,906.158	6,558.564	7,418.502	147,237.170	181,547.639
• RDT&E/0604800N: *JT Strike Fighter (JSF) - EMD*	1,704.592	1,950.229	707.791	0.000	707.791	621.032	549.618	375.897	134.679	0.000	18,711.239
• APN/0152: *F-35 Joint Strike Fighter STOVL*	0.000	0.000	2,576.142	0.000	2,576.142	2,863.025	4,016.672	3,447.547	3,451.525	22,070.323	38,425.234
• APN/0605B: *F-35 Joint Strike Fighter STOVL Spares*	0.000	0.000	164.135	0.000	164.135	136.957	311.553	325.794	324.437	1,718.297	2,981.173
• APN/0147: *F-35 Joint Strike Fighter CV*	1,692.965	4,464.251	1,886.988	0.000	1,886.988	2,012.008	2,636.771	2,467.155	2,764.547	27,946.270	47,218.923
• APN/0605C: *F-35 Joint Strike Fighter CV Spares*	182.508	248.191	107.030	0.000	107.030	92.216	178.496	194.183	192.599	2,049.006	3,244.229
• OPN/4265: *Other Aviation Support Equipment*	2.972	3.017	5.410	0.000	5.410	5.410	4.901	4.981	5.713	0.000	33.259
• MCN/0212576N: *Edwards Ramp Extension*	0.000	3.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.007
• APN International : *International Procurement*	874.014	629.965	1,936.600	0.000	1,936.600	4,690.200	5,737.700	7,893.900	7,898.740	0.000	29,661.119
• AF MILCON 0207142: *AF MILCON*	21.973	73.360	139.640	0.000	139.640	73.783	82.313	0.000	27.619	0.000	418.688
• APN : *USAF MOD*	0.000	0.000	123.936	0.000	123.936	8.319	5.047	3.461	31.472	0.000	172.235

D. Acquisition Strategy

This Program Element continues development efforts budgeted in program element 0603800N prior to FY 2002. Effective with the PB11 budget submission, F-35B (USMC) and F-35C (USN) budgets are reported against separate budget line items and program elements. Starting in FY11, F-35B budget is reported against the newly created program element 0604800M. The F-35C USN budget continues to report under program element 0604800N. The aquisition strategy for the F-35B and the F-35C follows.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

Activities in the prior phase of JSF centered around three distinct objectives to provide a sound foundation for the start of SDD in Fall 2001:
(1) facilitated the Services' development of fully validated, affordable operational requirements.
(2) lowered risk by investing in and demonstrating key leveraging technologies that lowered the cost of development, production and ownership.
(3) demonstrated operational concepts.

Early warfighter and technologist interaction was an essential aspect of the requirements definition process, and achieved JSF affordability goals. To an unprecedented degree the JSF Program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost at every stage. Each iteration of requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced iterations of the Services' Joint Interim Requirements Documents in 1995, 1997, 1998 and culminated in the approved joint Operational Requirements Document (ORD) in FY 2000.

A sizable technology maturation effort was conducted to reduce risk and life cycle cost (LCC) through technology maturation and demonstrations. The primary emphasis was on technologies identified as high payoff contributors to affordability, supportability, survivability, and lethality. Numerous demonstrations were accomplished to validate performance and life cycle cost impact to component, subsystem, and the total system.

In November 1996, contracts were awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and flew concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin demonstrated commonality and modularity, STOVL hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney provided propulsion hardware and engineering support. General Electric continued development of a second, interchangeable, engine for competition in production.

Following evaluation of proposals and a favorable Milestone B decision, the JSF Program entered SDD on 26 October 2001 with SDD contract awards to Lockheed Martin and Pratt & Whitney. The SDD plan reflects a block approach, based on open systems architecture, for accomplishing aircraft and weapons integration. General Electric continues propulsion development efforts through FY 2009 when program funding ends.

Follow-on Development will continue the evolutionary approach of SDD by providing capability enhancements though an incremental methodology. The Joint Capabilities Integration and Development System (JCIDS) and Defense Acquisition System (DAS) shall provide the framework and basis for defining, managing and acquiring the envisioned F-35 enhancements. The plan for each follow-on increment will include all the development, integration and verification testing of those capabilities. Additionally, the non-recurring efforts for cut-in of retrofit, production and sustainment will be included. Retrofit planning will be based on upgrading all

previously fielded aircraft to the latest increment in order to limit the number of configurations, thus reducing life cycle cost. Retrofit execution will be in accordance with the stakeholder's direction.

These follow-on development efforts will be procured via cost type contracts. It is anticipated that fee provisions will be used to target and motivate contractor performance. The new configurations will be incorporated into production and, if required by the U.S. Services or SDD International Partners, retrofitted to fielded aircraft under F-35 production and sustainment contracts. Similar to SDD, BOA's and ID/IQ contracts may be used for trade studies and analyses to supplement Follow-On requirements development.

The updated JSF Acquisition Strategy and program schedule were approved following the May 05 DAB. APR 06 DAB authorized full funding for LRIP I procurement. USAF LRIP I Advanced Procurement funding was awarded during FY 2006, followed by the USAF Regular Procurement award in FY 2007. USAF and DoN Advanced Procurement funding for LRIP II was awarded during FY07. USAF LRIP II full-funding contract award occurred in April 08. DoN LRIP II full funding contract was awarded July 08, upon successful first flight of the DoN STOVL aircraft.USAF and DoN Advance Procurement funding for LRIP III was awarded in May 08, LRIP III full funding was awarded Jun 09. LRIP IV advance procurement was awarded in Mar 09 and full funding contract award will occur in Feb 10.

Budget reflects a one year flight test extension approved by the Executive Steering Committee.

E. Performance Metrics

COMBAT RADIUS
CTOL MEETS/EXCEEDS TRIPWIRE REQUIREMENT
CV MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL MEETS/EXCEEDS TRIPWIRE REQUIREMENT

CV RECOVERY
VPA MIN MEETS/EXCEEDS REQUIREMENT IN TRIPWIRE BAND

STOVL PERFORMANCE
FLAT DECK (HHH FUEL) MEETS/EXCEEDS REQUIREMENT IN TRIPWIRE BAND
SKI JUMP (HMMH FUEL) MEETS/EXCEEDS REQUIREMENT IN TRIPWIRE BAND
VLBB MEETS/EXCEEDS REQUIREMENT IN TRIPWIRE BAND

INTEROPERABILITY
Net Ready Criteria- MEETS/EXCEEDS REQUIREMENT IN TRIPWIRE BAND

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	**PROJECT** 2262: *Joint Strike Fighter EMD STOVL*

RF SIGNATURE-MEETS/EXCEEDS TRIPWIRE REQUIREMENT

MISSION RELIABILITY
CTOL MEETS/EXCEEDS TRIPWIRE REQUIREMENT
CV EXCEEDS ORD OBJECTIVE
STOVL USMC MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL UK MEETS/EXCEEDS TRIPWIRE REQUIREMENT

SORTIE GENERATION RATE
CTOL MEETS/EXCEEDS TRIPWIRE REQUIREMENT
CV MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL USMC MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL UK MEETS/EXCEEDS TRIPWIRE REQUIREMENT

LOGISTICS FOOTPRINTS C-17
CTOL MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL USMC MEETS/EXCEEDS TRIPWIRE REQUIREMENT

LOGISTICS FOOTPRINT- VOLUME
CV EXCEEDS ORD OBJECTIVE
STOVL USMC MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL UK MEETS/EXCEEDS TRIPWIRE REQUIREMENT

LOGISTICS FOOTPRINT-WEIGHT
CV EXCEEDS ORD OBJECTIVE
STOVL USMC EXCEEDS ORD OBJECTIVE
STOVL UK MEETS/EXCEEDS TRIPWIRE REQUIREMENT

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

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 H/W Development- SDD	C/CPAF	Lockheed Martin Ft. Worth, TX	23,060.300	2,431.167	Oct 2009	1,462.504	Oct 2010	0.000		1,462.504	2,907.330	29,861.301	27,481.288
Primary H/W Development-IDIQ1	SS/Various	Lockheed Martin Ft. Worth, TX	5.015	7.286	Oct 2009	2.677	Oct 2010	0.000		2.677	2.350	17.328	17.328
Primary H/W Development-IDIQ2	SS/Various	Lockheed Martin Ft. Worth, TX	19.733	7.000	Oct 2009	0.000		0.000		0.000	0.000	26.733	26.733
Primary H/W Development-BOA	SS/Various	Lockheed Martin Ft. Worth, TX	3.511	0.000		0.000		0.000		0.000	0.000	3.511	3.511
Primary H/W Development-SDD	C/CPAF	Pratt & Whitney Hartford, CT	6,065.570	636.978	Oct 2009	211.828	Oct 2010	0.000		211.828	373.286	7,287.662	6,660.675
Primary H/W Development-Closeout	SS/CPFF	Pratt & Whitney Hartford, CT	1.364	0.000		0.000		0.000		0.000	0.000	1.364	1.364
Primary H/W Development-CDO Closeout	SS/CPFF	Pratt & Whitney Hartford, CT	2.211	0.000		0.000		0.000		0.000	0.000	2.211	2.211
Primary H/W Development-BOA	SS/Various	Pratt & Whitney Hartford, CT	35.983	0.000		0.000		0.000		0.000	0.000	35.983	35.983
Primary H/W Development-IDIQ3	SS/Various	Pratt & Whitney Hartford, CT	10.862	0.000		0.000		0.000		0.000	0.000	10.862	10.862
Primary H/W Development-SDD	SS/CPAF	GE Cinn.OH	1,670.360	429.108	Oct 2009	0.000		0.000		0.000	0.000	2,099.468	1,716.386
Primary H/W Development-IDIQ D0009	SS/Various	GE Cinn.OH	0.264	0.000		0.000		0.000		0.000	0.000	0.264	0.264
	SS/Various	GE Cinn.OH	4.175	0.000		0.000		0.000		0.000	0.000	4.175	4.175

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

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 H/W Development-IDIQ D0074													
Primary H/W Development-F136	SS/Various	GE Cinn.OH	100.400	0.000		0.000		0.000		0.000	0.000	100.400	100.400
Primary H/W Development-BOA	SS/Various	GE Cinn.OH	5.548	0.000		0.000		0.000		0.000	0.000	5.548	5.548
Primary H/W Development-Phase III	SS/Various	GE Cinn.OH	382.753	0.000		0.000		0.000		0.000	0.000	382.753	382.753
Primary H/W Development-Systems Engineering	SS/Various	various various	240.041	42.537	Oct 2009	0.000		0.000		0.000	0.000	282.578	282.578
Follow on Develoment	C/CPAF	Lockheed Martin Ft Worth, TX	0.000	0.000		52.073	Jan 2011	0.000		52.073	292.333	344.406	344.406
Follow on Development	SS/CPAF	Pratt & Whitney Hartford, CT	0.000	0.000		4.250	Jan 2011	0.000		4.250	9.000	13.250	13.250
Follow on Development PDSE	Various/ Various	various various	0.000	0.000		0.067	Oct 2010	0.000		0.067	1.866	1.933	Continuing
Product Development Sys Eng	Various/ Various	various various	0.000	0.000		49.752	Oct 2010	0.000		49.752	237.634	287.386	Continuing
		Subtotal	31,608.090	3,554.076		1,783.151		0.000		1,783.151	3,823.799	40,769.116	37,089.715

Remarks

Note: Total Values of prime contracts differs from Total Cost because (a) Lockheed Martin and Pratt & Whitney Contracts have not been modified to reflect planned funding allocations and (b) no funds are budgetd for F136 (FET GE/RR) beyond 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

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	EGLIN Florida	71.142	18.081	Oct 2009	20.999	Oct 2010	0.000		20.999	72.006	182.228	Continuing
Development Support	Various/ Various	ASC/AFRL Dayton, OH	35.388	9.463	Oct 2009	6.096	Oct 2010	0.000		6.096	31.376	82.323	Continuing
Development Support	Various/ Various	Bolling AFB Washington DC	6.400	1.170	Oct 2009	1.142	Oct 2010	0.000		1.142	2.198	10.910	Continuing
Development Support	Various/ Various	DMEA Dayton, OH	4.112	0.000		0.000		0.000		0.000	0.000	4.112	Continuing
Development Support	MIPR	ESC Hanscomb, MA	6.383	0.836	Oct 2009	0.455	Oct 2010	0.000		0.455	1.376	9.050	Continuing
Development Support	Various/ Various	AEDC/Fuel Arnold, TN	107.092	62.447	Oct 2009	72.364	Oct 2010	0.000		72.364	179.013	420.916	Continuing
Development Support	WR	NAS Jacksonville Jacksonville, FL	4.832	2.009	Oct 2009	2.143	Oct 2010	0.000		2.143	9.559	18.543	Continuing
Development Support	Various/ Various	Various Various	191.088	10.572	Oct 2009	16.068	Oct 2010	0.000		16.068	41.721	259.449	Continuing
Development Support	Various/ Various	NAWC China Lake	71.847	14.297	Oct 2009	11.751	Oct 2010	0.000		11.751	41.895	139.790	Continuing
Development Support	Various/ Various	NAWC TSD Florida	6.096	1.854	Oct 2009	2.038	Oct 2010	0.000		2.038	7.990	17.978	Continuing
Development Support	Various/ Various	NAWC PAX	233.248	42.612	Oct 2009	73.381	Oct 2010	0.000		73.381	188.114	537.355	Continuing
Development Support	WR	NSWC Maryland	2.880	1.318	Oct 2009	0.909	Oct 2010	0.000		0.909	2.265	7.372	Continuing
Development Support		SPAWAR	6.484	0.099	Oct 2009	0.045	Oct 2010	0.000		0.045	0.249	6.877	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

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	California											
SBIR Congressional Development	Various/ Various	Various various	24.187	0.000		0.000		0.000		0.000	0.000	24.187	Continuing
Follow on Development	Various/ Various	Various various	0.000	0.000		1.662	Oct 2010	0.000		1.662	40.215	41.877	Continuing
		Subtotal	771.179	164.758		209.053		0.000		209.053	617.977	1,762.967	

Remarks

Note: Total Values of prime contracts differs from Total Cost because (a) Lockheed Martin and Pratt & Whitney Contracts have not been modified to reflect planned funding allocations and (b) no funds are budgetd for F136 (FET GE/RR) beyond 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	Various/ Various	NAWC Pax Maryland	158.437	136.921	Oct 2009	174.158	Oct 2010	0.000		174.158	851.343	1,320.859	Continuing
Developmental Test & Evaluation	Various/ Various	NAWC China Lake California	39.441	13.218	Oct 2009	15.266	Oct 2010	0.000		15.266	39.148	107.073	Continuing
Developmental Test & Evaluation	PO	EDWARDS AFB California	147.538	97.290	Oct 2009	129.550	Oct 2010	0.000		129.550	291.103	665.481	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

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	49.391	28.151	Oct 2009	29.127	Oct 2010	0.000		29.127	69.577	176.246	Continuing
Developmental Test & Evaluation	MIPR	WEP/Elgin Florida	60.274	16.119	Oct 2009	21.103	Oct 2010	0.000		21.103	9.614	107.110	Continuing
Developmental Test & Evaluation	MIPR	JITC Various	0.503	0.000		0.000		0.000		0.000	0.000	0.503	Continuing
Developmental Test & Evaluation	Various/ Various	OT-UK UK	3.270	6.910	Oct 2009	11.185	Oct 2010	0.000		11.185	34.931	56.296	Continuing
Developmental Test & Evaluation	MIPR	OT-AFOTEC/ AFFTC Various	18.124	10.956	Oct 2009	20.179	Oct 2010	0.000		20.179	405.214	454.473	Continuing
Developmental Test & Evaluation	Various/ Various	OT-JITC/OPTEV Various	3.485	2.361	Oct 2009	3.535	Oct 2010	0.000		3.535	33.396	42.777	Continuing
		Subtotal	480.463	311.926		404.103		0.000		404.103	1,734.326	2,930.818	

Remarks

Note: Total Values of prime contracts differs from Total Cost because (a) Lockheed Martin and Pratt & Whitney Contracts have not been modified to reflect planned funding allocations and (b) no funds are budgetd for F136 (FET GE/RR) beyond 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

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	SS/CPFF	ACT I Virginia	0.000	2.750	Oct 2009	2.832	Oct 2010	0.000		2.832	12.206	17.788	17.789
Program Management	C/FP	Mantech Virginia	31.399	6.681	Oct 2009	7.015	Oct 2010	0.000		7.015	31.749	76.844	76.844
Program Management	SS/CPFF	PA Consultants Virginia	0.000	2.021	Oct 2009	2.082	Oct 2010	0.000		2.082	8.970	13.073	13.073
Program Management	C/CPFF	DRC Virginia	0.000	2.333	Oct 2009	3.000	Oct 2010	0.000		3.000	3.000	8.333	8.333
Program Management	C/CPFF	First Principles Virginia	0.000	0.881	Oct 2009	0.909	Oct 2010	0.000		0.909	3.951	5.741	5.741
Program Management	C/CPFF	Wyle Virginia	49.032	18.066	Oct 2009	18.970	Oct 2010	0.000		18.970	85.602	171.670	171.670
Program Management	C/Various	Saftas Virginia	46.562	15.504	Oct 2009	16.174	Oct 2010	0.000		16.174	67.581	145.821	145.821
Program Management	C/CPAF	Stanley Virginia	110.805	17.810	Oct 2009	19.500	Oct 2010	0.000		19.500	88.060	236.175	236.175
Travel and Miscellaneous	Various/ Various	Various various	22.917	4.017	Oct 2009	4.037	Oct 2010	0.000		4.037	16.331	47.302	Continuing
Program Management	Various/ Various	various various	0.800	0.000		0.000		0.000		0.000	0.000	0.800	Continuing
		Subtotal	261.515	70.063		74.519		0.000		74.519	317.450	723.547	675.446

Remarks

Note: Total Values of prime contracts differs from Total Cost because (a) Lockheed Martin and Pratt & Whitney Contracts have not been modified to reflect planned funding allocations and (b) no funds are budgetd for F136 (FET GE/RR) beyond 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*	

	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	33,121.247	4,100.823		2,470.826		0.000		2,470.826	6,493.552	46,186.448	37,765.161

Remarks

Totals may not add due to rounding.

Note: Total Values of prime contracts differs from Total Cost because (a) Lockheed Martin and Pratt & Whitney Contracts have not been modified to reflect planned funding allocations and (b) no funds are budgetd for F136 (FET GE/RR) beyond FY10.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

JSF Top-Level Development Program Schedule

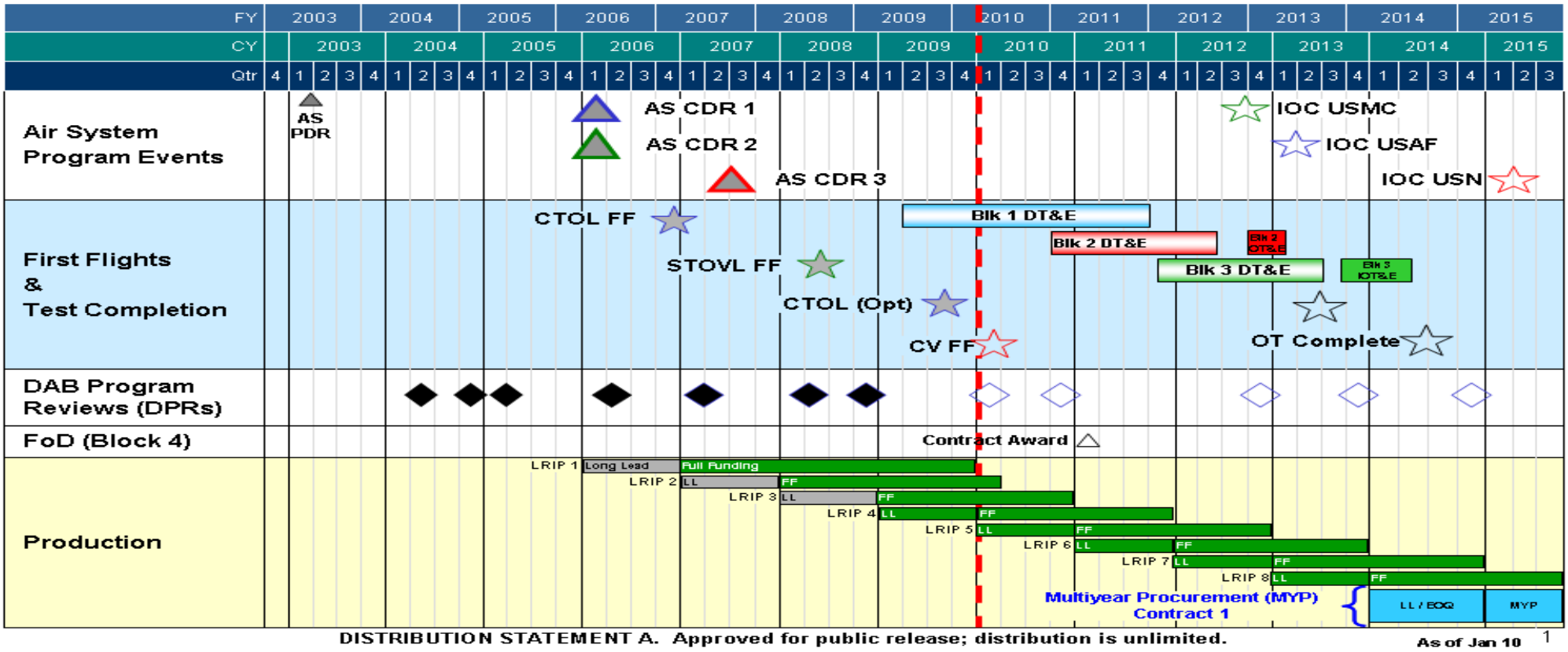


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	PROJECT 2262: *Joint Strike Fighter EMD STOVL*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
DAB Program Review (DPR) - FY10	2	2010	2	2010
DAB Program Review (DPR) - FY11	1	2011	1	2011
DAB Program Review (DPR) - FY13	1	2013	1	2013
DAB Program Review (DPR) - FY14	1	2014	1	2014
DAB Program Review (DPR) - FY15	1	2015	1	2015
CTOL Optimized Flight	4	2009	4	2009
CV First Flight	2	2010	2	2010
Block 1 DT&E	3	2009	4	2011
Block 2, DT&E	1	2011	3	2012
Block 3, DT&E	1	2012	3	2013
Block 2, OT&E	1	2013	2	2013
LRIP VI (CTOL, STOVL, CV. UK)	2	2011	1	2014
Block 3, OT&E	1	2014	3	2014
DT Complete	3	2013	3	2013
OT Complete	3	2014	3	2014
Follow-on Development Contract Award	2	2011	2	2011
LRIP I (CTOL)	1	2009	1	2010
LRIP II (CTOL, STOVL)	1	2009	2	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604800M: *(U)Joint Strike Fighter (JSF) - EMD*	**PROJECT** 2262: *Joint Strike Fighter EMD STOVL*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
LRIP III (CTOL, STOVL, CV, UK)	1	2009	1	2011
LRIP IV (CTOL, STOVL, CV, UK)	2	2009	1	2012
LRIP V (CTOL, STOVL, CV, UK)	2	2010	1	2013
LRIP VII (CTOL, STOVL, CV, UK)	2	2012	1	2015
LRIP VIII (CTOL, STOVL, CV, UK)	2	2013	4	2015
Initial Operational Capability (IOC Threshold) USMC	4	2012	4	2012
Initial Operational Capability (IOC) USAF	2	2012	2	2013
Initial Operational Capability (IOC) USN	2	2015	2	2015
DAB Program Review (DPR) - FY09	1	2009	1	2009
LL/EOQ	2	2014	1	2015
MYP	1	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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*							
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	1,704.592	1,950.229	707.791	0.000	707.791	621.032	549.618	375.897	134.676	Continuing	Continuing
2261: *Joint Strike Fighter EMD*	1,459.762	1,704.308	667.915	0.000	667.915	594.004	529.826	375.897	134.676	Continuing	Continuing
3194: *Joint Reprogramming Center*	28.816	31.813	39.876	0.000	39.876	27.028	19.792	0.000	0.000	0.000	152.703
9999: *Congressional Adds*	216.014	214.108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	932.868

Note

This Program Element continues development efforts budgeted in program element 0603800N prior to FY 2002. Effective with the PB11 budget submission, F-35B (USMC) and F-35C (USN) budgets are reported against separate budget line items and program elements. Starting in FY11, F-35B budget is reported against the newly created program element 0604800M. The F-35C budget continues to report under program element 0604800N.

A. Mission Description and Budget Item Justification

The F-35 Lighning II Joint Strike Fighter program will develop and field a family of aircraft that meets the needs of the USN, USAF, USMC, and allies, with maximum commonality among the variants, consistent with National Disclosure Policy, to minimize life cycle costs. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom, 7 other International countries, and 3 Foreign Military Sales cases are participants in the JSF Program.

Funding under this USN project unit supports core F-35 System Design and Demonstration (SDD) objectives and aircraft Follow-on Development efforts.

The SDD Budget funds a total quantity of 19 RDT&E test articles to include 6 ground test articles and 13 flight test articles for Navy and Air Force use. The following fiscal year phasing of the flight test aircraft reflects the scheduled first flight of each asset:
FY07: 1 flight test article
FY08: 1 flight test article
FY09: 1 flight test article
FY10: 10 flight test articles

Basis for FY2010 OEF Supplemental Budget Request: $1.985M is requested due to revised fuel 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604800N: *JT Strike Fighter (JSF) - EMD*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	1,744.570	1,741.296	0.000	0.000	0.000
Current President's Budget	1,704.592	1,950.229	707.791	0.000	707.791
Total Adjustments	-39.978	208.933	707.791	0.000	707.791
• Congressional General Reductions		-8.052			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		215.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	3.991	0.000			
• SBIR/STTR Transfer	-43.969	0.000			
• Program Adjustments	0.000	0.000	707.791	0.000	707.791
• Rate/Misc Adjustments	0.000	1.985	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: *MAINTAIN DEV OF 2ND SOURCE FOR ENGINE*	214.418	214.108
Congressional Add: *F-35B Lift Fan Component Manurfacturing*	1.596	0.000
Congressional Add Subtotals for Project: 9999	216.014	214.108
Congressional Add Totals for all Projects	216.014	214.108

Change Summary Explanation

Technical: F-35 Block IV Follow-on Development starts in FY11 to continue the evolutionary approach of SDD by providing capability enhancements through a combined incremental methodology. The Joint Capabilities Integration and Development System (JCIDS) and Defense Acquisition System (DAS) shall provide the framework and basis for defining, managing, and acquiring the envisioned F-35 enhancements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604800N: *JT Strike Fighter (JSF) - EMD*

Schedule: Delay in manufacturing and delivery of test aircraft resulted a 1-2 quarter delay to the F-35A Optimized Flight and F-35C First Flight. Block IV Follow-on Development starts in FY11. DRR changed from 1st quarter of FY10 to the 2nd quarter of FY10 to allow time for the Program to implement program changes into detailed planning. Additional schedule revision is in process.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*	

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
2261: *Joint Strike Fighter EMD*	1,459.762	1,704.308	667.915	0.000	667.915	594.004	529.826	375.897	134.676	Continuing	Continuing
Quantity of RDT&E Articles	1	10	0	0	0	0	0	0	0		

Note

This Program Element continues development efforts budgeted in program element 0603800N prior to FY 2002.

The SDD Budget funds a total quantity of 19 RDT&E test articles to include 6 ground test articles and 13 flight test articles for Navy and Air Force use. The following fiscal year phasing of the flight test aircraft reflects the scheduled first flight of each asset:
FY07: 1 flight test article
FY08: 1 flight test article
FY09: 1 flight test article
FY10: 10 flight test articles

A. Mission Description and Budget Item Justification

The F-35 Lightning II (Joint Strike Fighter) program will develop and field a family of aircraft that meets the needs of the USN, USAF, USMC, and allies, with maximum commonality among the variants, consistent with National Disclosure Policy, to minimize life cycle costs. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom, 7 other International countries, and 3 Foreign Military Sales cases are participants in the JSF Program. The following pages combine Navy, Air Force, international, and Congressional add funding.

Funding under this project unit supports core USN System Design and Demonstration (SDD) objectives as well as costs to support Follow-on Development efforts.

The following table presents the total dollars distributed in section B of this R-2A. This has been done to give a more accurate picture of the total dollars being spent on each task.

Name	PU	FY 2009	FY 2010	FY 2011
Navy	2261	1,459.762	1,704.308	667.915
Air Force	3831	1,743.569	2,072.897	1,043.610
Marine Corps	2262			667.916

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

International 244.584 109.511 91.386

Total RDT&E Funding addressed in PU 2261 Exhibits: 3,447.915 3,886.716 2,470.827

Name	PU	FY 2009	FY 2010	FY 2011
Navy	3194	28.816	31.813	39.876
Navy Cong Add	2261A	214.418	214.108	
Navy Cong Add	9D99A	1.596		

F-35 RDT&E Funding associated with PE 0604800N under separate PUs: 244.830 245.921 39.876

Total F-35 funding associated with PEs 0604800N, 0604800F and 0604800M: 3,692.745 4,132.637 2,510.703

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
System Development & Demonstration	2,452.708	2,445.453	1,465.181	0.000	1,465.181
FY 2009 Accomplishments: Continued System Development and Demonstration (SDD) execution of the Air System, with Lockheed Martin including International Commonality Effort which includes airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continue System Development and Demonstration (SDD) execution of the Air System, with Lockheed Martin including International Commonality Effort which includes airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts. *FY 2011 Base Plans:* Continue System Development and Demonstration (SDD) execution of the Air System, with Lockheed Martin including International Commonality Effort which includes airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts.					
F135 Propulsion System *FY 2009 Accomplishments:* Continued SDD execution of the F135 Propulsion System with Pratt & Whitney to include engine testing, autonomic logistics, integration and performing technology maturation efforts. *FY 2010 Plans:* Continue SDD execution of the F135 Propulsion System with Pratt & Whitney to include engine testing, autonomic logistics, integration and performing technology maturation efforts. *FY 2011 Base Plans:* Continue SDD execution of the F135 Propulsion System with Pratt & Whitney to include engine testing, autonomic logistics, integration and performing technology maturation efforts.	507.209	636.978	211.828	0.000	211.828
F136 Propulsion System *FY 2009 Accomplishments:* Congressional Add funding for the F136 Propulsion System appears in the PU: 9999 section of the PB 2011 budget submission.	425.390	429.108	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Congressional Add funding for continued F136 Propulsion System development effort appears in the PU: 9999 section of the PB 2011 budget submission.					
Systems Engineering *FY 2009 Accomplishments:* Continued SDD Systems Engineering including systems operations requirements analysis, program integration, requirements integration, and interoperability support. *FY 2010 Plans:* Continue SDD Systems Engineering including systems operations requirements analysis, program integration, requirements integration, and interoperability support. *FY 2011 Base Plans:* Continue SDD Systems Engineering including systems operations requirements analysis, program integration, requirements integration, and interoperability support.	39.531	42.537	49.752	0.000	49.752
Development Test and Evaluation *FY 2009 Accomplishments:* Continued Government Development Test and Evaluation (DT&E)/Operational Testing continues in support of first flight of test aircraft. Elements of DT&E include preparation for flight testing, weapons integration testing, and Program Introduction Documents. *FY 2010 Plans:* Continue Government Development Test and Evaluation (DT&E)/Operational Testing continues in support of first flight of test aircraft. Elements of DT&E include preparation for flight testing, weapons integration testing, and Program Introduction Documents.	101.538	311.926	404.103	0.000	404.103

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue Government Development Test and Evaluation (DT&E)/Operational Testing continues in support of first flight of test aircraft. Elements of DT&E include preparation for flight testing, weapons integration testing, and Program Introduction Documents.					
Development Support *FY 2009 Accomplishments:* Continued SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. *FY 2010 Plans:* Continue SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. *FY 2011 Base Plans:* Continue SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.	100.211	164.758	207.393	0.000	207.393
Program Management Support *FY 2009 Accomplishments:* Continued management support services, travel, engineering technical services, and studies analyses and evaluations in support of program objectives. *FY 2010 Plans:* Continue management support services, travel, engineering technical services, and studies analyses and evaluations in support of program objectives.	37.342	70.064	74.518	0.000	74.518

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continue management support services, travel, engineering technical services, and studies analyses and evaluations in support of program objectives.					
Follow-on Development *FY 2011 Base Plans:* Initiate follow-on development BLOCK IV capabilities to include logistics, weapons, security, sensors, survivability, and upgrades required to support F-35 variants. Efforts will support aircraft and engine delivery to services and partner nations commencing in 2014 and will integrate urgent operationally relevant requirements post-IOC.	0.000	0.000	58.052	0.000	58.052
Accomplishments/Planned Programs Subtotals	3,663.929	4,100.824	2,470.827	0.000	2,470.827

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/0604800F: *Joint Strike Fighter*	1,743.569	2,072.897	1,043.610	0.000	1,043.610	1,298.495	1,005.511	666.295	223.367	0.000	20,770.580
• International1 : *International Partners*	244.584	109.511	91.386	0.000	91.386	19.400	11.620	0.000	0.000	0.000	4,549.590
• APAF/0207142F: *F-35 Joint Strike Fighter*	1,721.724	2,484.641	4,279.515	204.900	4,484.415	4,489.992	4,906.158	6,558.564	7,418.502	147,239.170	181,549.639
• RDT&E/0604800M: *Joint Strike Fighter (JSF) - EMD*	0.000	0.000	667.916	0.000	667.916	594.004	529.826	375.925	134.707	0.000	2,302.378
• APN/0152: *F-35 Joint Strike Fighter STOVL*	0.000	0.000	2,576.142	0.000	2,576.142	2,863.025	4,016.672	3,447.547	3,451.525	22,070.323	38,425.234
• APN/0605B: *F-35 Joint Strike Fighter STOVL Spares*	0.000	0.000	164.135	0.000	164.135	136.957	311.553	325.794	324.437	1,718.297	2,981.173

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*	

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/0147: *F-35 Joint Strike Fighter CV*	1,692.965	4,464.251	1,886.988	0.000	1,886.988	2,012.008	2,636.771	2,467.155	2,764.547	27,964.270	47,236.923
• APN/0605C: *F-35 Joint Strike Fighter CV Spares*	182.508	248.191	107.030	0.000	107.030	92.216	178.496	194.183	192.599	2,049.006	3,244.229
• OPN/4265: *Other Aviation Support Equipment*	2.972	3.017	5.410	0.000	5.410	5.410	4.901	4.981	5.713	0.000	33.259
• MCN/0212576N: *Edwards Ramp Extension*	0.000	3.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.007
• International2: *International Procurement*	874.014	629.965	1,936.600	0.000	1,936.600	4,690.200	5,737.700	7,893.900	7,898.740	0.000	29,661.119
• MC/0207142F: *USAF MILCON*	21.973	73.360	139.640	0.000	139.640	73.783	82.313	0.000	27.619	0.000	418.688
• APAF/0204142F: *USAF Modification Funding*	0.000	0.000	123.936	0.000	123.936	8.319	5.047	3.461	31.472	0.000	172.235

D. Acquisition Strategy

Activities in the prior phase of JSF centered around three distinct objectives to provide a sound foundation for the start of SDD in Fall 2001:
(1) facilitated the Services' development of fully validated, affordable operational requirements.
(2) lowered risk by investing in and demonstrating key leveraging technologies that lowered the cost of development, production and ownership.
(3) demonstrated operational concepts.

Early warfighter and technologist interaction was an essential aspect of the requirements definition process, and achieved JSF affordability goals. To an unprecedented degree the JSF Program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost at every stage. Each iteration of requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced iterations of the Services' Joint Interim Requirements Documents in 1995, 1997, 1998 and culminated in the approved joint Operational Requirements Document (ORD) in FY 2000.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

A sizable technology maturation effort was conducted to reduce risk and life cycle cost (LCC) through technology maturation and demonstrations. The primary emphasis was on technologies identified as high payoff contributors to affordability, supportability, survivability, and lethality. Numerous demonstrations were accomplished to validate performance and life cycle cost impact to component, subsystem, and the total system.

In November 1996, contracts were awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and flew concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin demonstrated commonality and modularity, STOVL hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney provided propulsion hardware and engineering support. General Electric continued development of a second, interchangeable, engine for competition in production.

Following evaluation of proposals and a favorable Milestone B decision, the JSF Program entered SDD on 26 October 2001 with SDD contract awards to Lockheed Martin and Pratt & Whitney. The SDD plan reflects a block approach, based on open systems architecture, for accomplishing aircraft and weapons integration. General Electric continues propulsion development efforts through FY 2009 when program funding ends.

Follow-on Development will continue the evolutionary approach of SDD by providing capability enhancements though an incremental methodology. The Joint Capabilities Integration and Development System (JCIDS) and Defense Acquisition System (DAS) shall provide the framework and basis for defining, managing and acquiring the envisioned F-35 enhancements. The plan for each follow-on increment will include all the development, integration and verification testing of those capabilities. Additionally, the non-recurring efforts for cut-in of retrofit, production and sustainment will be included. Retrofit planning will be based on upgrading all previously fielded aircraft to the latest increment in order to limit the number of configurations, thus reducing life cycle cost. Retrofit execution will be in accordance with the stakeholder's direction.

These follow-on development efforts will be procured via cost type contracts. It is anticipated that fee provisions will be used to target and motivate contractor performance. The new configurations will be incorporated into production and, if required by the U.S. Services or SDD International Partners, retrofitted to fielded aircraft under F-35 production and sustainment contracts. Similar to SDD, BOA's and ID/IQ contracts may be used for trade studies and analyses to supplement Follow-On requirements development.

The updated JSF Acquisition Strategy and program schedule were approved following the May 05 DAB. APR 06 DAB authorized full funding for LRIP I procurement. USAF LRIP I Advanced Procurement funding was awarded during FY 2006, followed by the USAF Regular Procurement award in FY 2007. USAF and DoN Advanced Procurement funding for LRIP II was awarded during FY07. USAF LRIP II full-funding contract award occurred in April 08. DoN LRIP II full funding contract was awarded July 08, upon successful first flight of the DoN STOVL aircraft.USAF and DoN Advance Procurement funding for LRIP III was awarded in May 08, LRIP III full funding was awarded Jun 09. LRIP IV advance procurement was awarded in Mar 09 and full funding contract award will occur in Feb 10.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604800N: *JT Strike Fighter (JSF) - EMD*	**PROJECT** 2261: *Joint Strike Fighter EMD*

Budget reflects a one year flight test extension approved by the Executive Steering Committee.

E. Performance Metrics

COMBAT RADIUS
CTOL MEETS/EXCEEDS TRIPWIRE REQUIREMENT
CV MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL MEETS/EXCEEDS TRIPWIRE REQUIREMENT

CV RECOVERY
VPA MIN MEETS/EXCEEDS REQUIREMENT IN TRIPWIRE BAND

STOVL PERFORMANCE
FLAT DECK (HHH FUEL) MEETS/EXCEEDS REQUIREMENT IN TRIPWIRE BAND
SKI JUMP (HMMH FUEL) MEETS/EXCEEDS REQUIREMENT IN TRIPWIRE BAND
VLBB MEETS/EXCEEDS REQUIREMENT IN TRIPWIRE BAND

INTEROPERABILITY
Net Ready Criteria- MEETS/EXCEEDS REQUIREMENT IN TRIPWIRE BAND

RF SIGNATURE-MEETS/EXCEEDS TRIPWIRE REQUIREMENT

MISSION RELIABILITY
CTOL MEETS/EXCEEDS TRIPWIRE REQUIREMENT
CV EXCEEDS ORD OBJECTIVE
STOVL USMC MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL UK MEETS/EXCEEDS TRIPWIRE REQUIREMENT

SORTIE GENERATION RATE
CTOL MEETS/EXCEEDS TRIPWIRE REQUIREMENT
CV MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL USMC MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL UK MEETS/EXCEEDS TRIPWIRE REQUIREMENT

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604800N: *JT Strike Fighter (JSF) - EMD*	**PROJECT** 2261: *Joint Strike Fighter EMD*

LOGISTICS FOOTPRINTS C-17
CTOL MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL USMC MEETS/EXCEEDS TRIPWIRE REQUIREMENT

LOGISTICS FOOTPRINT- VOLUME
CV EXCEEDS ORD OBJECTIVE
STOVL USMC MEETS/EXCEEDS TRIPWIRE REQUIREMENT
STOVL UK MEETS/EXCEEDS TRIPWIRE REQUIREMENT

LOGISTICS FOOTPRINT-WEIGHT
CV EXCEEDS ORD OBJECTIVE
STOVL USMC EXCEEDS ORD OBJECTIVE
STOVL UK MEETS/EXCEEDS TRIPWIRE REQUIREMENT

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*	

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 H/W Development - SDD	C/CPAF	Lockheed Martin Ft Worth TX	23,060.300	2,431.167	Oct 2009	1,462.504	Oct 2010	0.000		1,462.504	2,907.330	29,861.301	27,481.288
Primary H/W Development - IDIQ (D.O. 22)	SS/Various	Lockheed Martin Ft Worth TX	5.015	7.286	Oct 2009	2.677	Oct 2010	0.000		2.677	2.350	17.328	17.328
Primary H/W Development - IDIQ (D.O. 0009)	SS/Various	Lockheed Martin Ft Worth TX	19.733	7.000	Oct 2009	0.000		0.000		0.000	0.000	26.733	26.733
Primary H/W Development - BOA	SS/Various	Lockheed Martin Ft Worth TX	3.511	0.000		0.000		0.000		0.000	0.000	3.511	3.511
Primary H/W Development - SDD	SS/CPAF	Pratt & Whitney Hartford, CT	6,065.573	636.978	Oct 2009	211.828	Oct 2010	0.000		211.828	373.286	7,287.665	6,660.675
Primary H/W Development - Closeout	SS/CPFF	Pratt & Whitney Hartford, CT	1.364	0.000		0.000		0.000		0.000	0.000	1.364	1.364
Primary H/W Development - CDP Closeout	SS/CPFF	Pratt & Whitney Hartford, CT	2.211	0.000		0.000		0.000		0.000	0.000	2.211	2.211
Primary H/W Development - BOA	SS/Various	Pratt & Whitney Hartford, CT	35.983	0.000		0.000		0.000		0.000	0.000	35.983	35.983
Primary H/W Development - IDIQ	SS/Various	Pratt & Whitney Hartford, CT	10.862	0.000		0.000		0.000		0.000	0.000	10.862	10.862
Primary H/W Development -SDD	SS/CPAF	GE Cinn. OH	1,670.367	429.108	Oct 2009	0.000		0.000		0.000	0.000	2,099.475	1,716.386
Primary H/W Development - IDIQ	SS/Various	GE Cinn. OH	0.264	0.000		0.000		0.000		0.000	0.000	0.264	0.264
	SS/Various	GE	4.175	0.000		0.000		0.000		0.000	0.000	4.175	4.175

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

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 H.W Development - IDIQ		Cinn. OH											
Primary H/W Development - F136 Transition	SS/Various	GE Cinn. OH	100.400	0.000		0.000		0.000		0.000	0.000	100.400	100.400
Primary H/W Development - BOA	SS/Various	GE Cinn. OH	5.548	0.000		0.000		0.000		0.000	0.000	5.548	5.548
Primary H/W Development - Phase IIIB	SS/Various	GE Cinn. OH	382.753	0.000		0.000		0.000		0.000	0.000	382.753	382.753
Primary H/W Development Systems Engineering	SS/Various	various various	240.041	42.537	Oct 2009	0.000		0.000		0.000	0.000	282.578	282.578
Follow on Development	SS/CPAF	Lockheed Martin Ft Worth TX	0.000	0.000		52.073	Jan 2011	0.000		52.073	292.333	344.406	344.406
Follow on Development	SS/CPAF	Pratt & Whitney Hartford, CT	0.000	0.000		4.250	Jan 2011	0.000		4.250	9.000	13.250	13.250
Follow on Development	Various/ Various	various various	0.000	0.000		0.067	Oct 2010	0.000		0.067	1.866	1.933	Continuing
Product Development Systems Engineering	Various/ Various	various various	0.000	0.000		49.752	Oct 2010	0.000		49.752	237.634	287.386	Continuing
		Subtotal	31,608.100	3,554.076		1,783.151		0.000		1,783.151	3,823.799	40,769.126	37,089.715

Remarks

Note: Total Values of prime contracts differs from Total Cost because (a) Lockheed Martin and Pratt & Whitney Contracts have not been modified to reflect planned funding allocations and (b) no funds are budgetd for F136 (FET GE/RR) beyond 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

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	Eglin AFB Florida	71.142	18.081	Oct 2009	20.999	Oct 2010	0.000		20.999	72.006	182.228	Continuing
Development Support	Various/ Various	ASC/AFRL Dayton, Ohio	35.388	9.463	Oct 2009	6.096	Oct 2010	0.000		6.096	31.376	82.323	Continuing
Development Support	Various/ Various	Bolling AFB Washington DC	6.400	1.170	Oct 2009	1.142	Oct 2010	0.000		1.142	2.198	10.910	Continuing
Development Support	Various/ Various	DMEA Dayton, Ohio	4.112	0.000		0.000		0.000		0.000	0.000	4.112	Continuing
Development Support	MIPR	ESC Hanscom, MA	6.383	0.836	Oct 2009	0.455	Oct 2010	0.000		0.455	1.376	9.050	Continuing
Development Support	Various/ Various	AEDC/Fuel Arnold TN	107.092	62.447	Oct 2009	72.364	Oct 2010	0.000		72.364	179.013	420.916	Continuing
Development Support	WR	NAS Jacksonville Jacksonville, FL	4.832	2.009	Oct 2009	2.143	Oct 2010	0.000		2.143	9.559	18.543	Continuing
Development Support	Various/ Various	Various Various	191.088	10.572	Oct 2009	16.068	Oct 2010	0.000		16.068	41.721	259.449	Continuing
Development Support	Various/ Various	NAWC China Lake	71.847	14.297	Oct 2009	11.751	Oct 2010	0.000		11.751	41.895	139.790	Continuing
Development Support	Various/ Various	NAWC TSD Florida	6.096	1.854	Oct 2009	2.038	Oct 2010	0.000		2.038	7.990	17.978	Continuing
Development Support	Various/ Various	NAWC PAX Maryland	233.248	42.612	Oct 2009	73.381	Oct 2010	0.000		73.381	188.114	537.355	Continuing
Development Support	WR	NSWC Maryland	2.880	1.318	Oct 2009	0.909	Oct 2010	0.000		0.909	2.265	7.372	Continuing
Development Support		SPAWAR	6.484	0.099	Oct 2009	0.045	Oct 2010	0.000		0.045	0.249	6.877	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

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	California											
SBIR Congressional Add	Various/ Various	Various Various	24.187	0.000		0.000		0.000		0.000	0.000	24.187	Continuing
Follow on Development	Various/ Various	Various Various	0.000	0.000		1.662	Oct 2010	0.000		1.662	40.215	41.877	Continuing
		Subtotal	771.179	164.758		209.053		0.000		209.053	617.977	1,762.967	

Remarks

Note: Total Values of prime contracts differs from Total Cost because (a) Lockheed Martin and Pratt & Whitney Contracts have not been modified to reflect planned funding allocations and (b) no funds are budgetd for F136 (FET GE/RR) beyond 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
Development Test & Evaluation	Various/ Various	NAWC Pax Maryland	158.437	136.921	Oct 2009	174.158	Oct 2010	0.000		174.158	851.343	1,320.859	Continuing
Development Test & Evaluation	Various/ Various	NAWC China Lake California	39.441	13.218	Oct 2009	15.266	Oct 2010	0.000		15.266	39.148	107.073	Continuing
Development Test & Evaluation	PO	Edwards AFB California	147.538	97.290	Oct 2009	129.550	Oct 2010	0.000		129.550	291.103	665.481	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

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	49.391	28.151	Oct 2009	29.127	Oct 2010	0.000		29.127	69.577	176.246	Continuing
Development Test & Evaluation	MIPR	WEPS Eglin	60.274	16.119	Oct 2009	21.103	Oct 2010	0.000		21.103	9.614	107.110	Continuing
Development Test & Evaluation	MIPR	JITC Various	0.503	0.000		0.000		0.000		0.000	0.000	0.503	Continuing
Development Test & Evaluatio	Various/ Various	OT- UK Various	3.270	6.910	Oct 2009	11.185	Oct 2010	0.000		11.185	34.931	56.296	Continuing
Development Test & Evaluation	MIPR	OT-AFOTEC/ AFFTC Various	18.124	10.956	Oct 2009	20.179	Oct 2010	0.000		20.179	405.214	454.473	Continuing
Development Test & Evaluation	Various/ Various	OT-JITC/OPTEV Various	3.485	2.361	Oct 2009	3.535	Oct 2010	0.000		3.535	33.396	42.777	Continuing
		Subtotal	480.463	311.926		404.103		0.000		404.103	1,734.326	2,930.818	

Remarks

Note: Total Values of prime contracts differs from Total Cost because (a) Lockheed Martin and Pratt & Whitney Contracts have not been modified to reflect planned funding allocations and (b) no funds are budgetd for F136 (FET GE/RR) beyond 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

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	SS/CPFF	ACT 1 Virginia	0.000	2.750	Oct 2009	2.832	Oct 2010	0.000		2.832	12.206	17.788	17.789
Program Management - Mantech	C/FP	Mantech Virginia	31.399	6.681	Oct 2009	7.015	Oct 2010	0.000		7.015	31.749	76.844	76.844
Program Management - PA Consulting	SS/CPFF	PA Consulting Virginia	0.000	2.021	Oct 2009	2.082	Oct 2010	0.000		2.082	8.970	13.073	13.073
Program Management - DRC	C/CPFF	DRC Virginia	0.000	2.333	Oct 2009	3.000	Oct 2010	0.000		3.000	3.000	8.333	8.333
Program Management	C/CPFF	First Principles Virginia	0.000	0.881	Oct 2009	0.909	Oct 2010	0.000		0.909	3.951	5.741	5.741
Program Management	C/CPFF	Wyle Virginia	49.032	18.066	Oct 2009	18.970	Oct 2010	0.000		18.970	85.602	171.670	171.670
Program Management	C/Various	Saftas Virginia	46.562	15.504	Oct 2009	16.174	Oct 2010	0.000		16.174	67.581	145.821	145.821
Program Management	C/CPAF	Stanley Virginia	110.805	17.810	Oct 2009	19.500	Oct 2010	0.000		19.500	88.060	236.175	236.175
Travel and Miscellaneous	Various/ Various	Various Various	22.917	4.017	Oct 2009	4.037	Oct 2010	0.000		4.037	16.331	47.302	Continuing
Program Manaement	Various/ Various	Various Various	0.800	0.000		0.000		0.000		0.000	0.000	0.800	Continuing
		Subtotal	261.515	70.063		74.519		0.000		74.519	317.450	723.547	675.446

Remarks

Note: Total Values of prime contracts differs from Total Cost because (a) Lockheed Martin and Pratt & Whitney Contracts have not been modified to reflect planned funding allocations and (b) no funds are budgetd for F136 (FET GE/RR) beyond 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*	

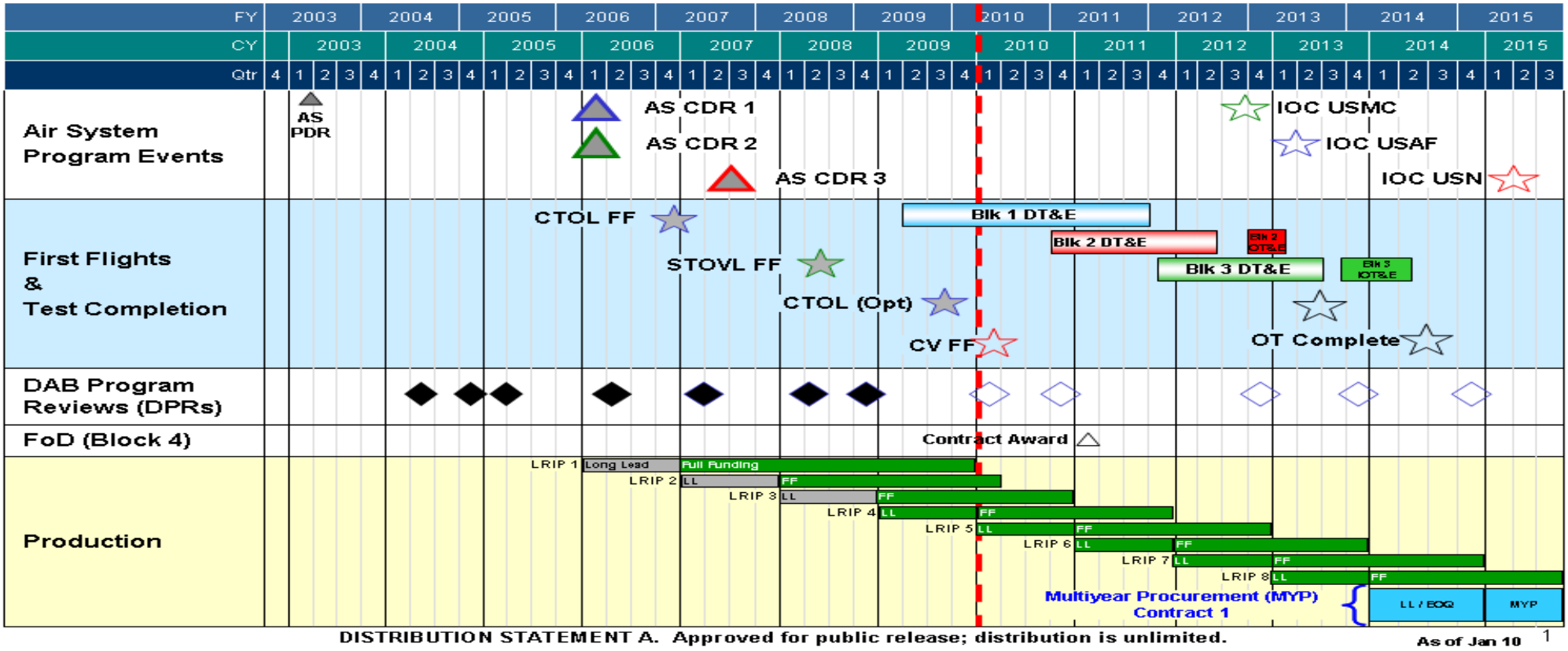
	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	33,121.257	4,100.823		2,470.826		0.000		2,470.826	6,493.552	46,186.458	37,765.161

Remarks

Subtotals and total 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

JSF Top-Level Development Program Schedule



DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

As of Jan 10

1

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604800N: *JT Strike Fighter (JSF) - EMD*	**PROJECT** 2261: *Joint Strike Fighter EMD*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
DAB Program Review (DPR) - FY10	2	2010	2	2010
DAB Program Review (DPR) - FY11	1	2011	1	2011
DAB Program Review (DPR) - FY13	1	2013	1	2013
DAB Program Review (DPR) - FY14	1	2014	1	2014
DAB Program Review (DPR) - FY15	1	2015	1	2015
CTOL Optimized Flight	4	2009	4	2009
CV First Flight	2	2010	2	2010
Block 1, DT&E	3	2009	4	2011
Block 2, DT&E	1	2011	3	2012
Block 3, DT&E	1	2012	3	2013
Block 2, OT&E	1	2013	2	2013
Block 3, OT&E	1	2014	3	2014
DT Complete	3	2013	3	2013
OT Complete	3	2014	3	2014
Follow-on Development Contract Award	2	2011	2	2011
LRIP I (CT0L)	1	2009	1	2010
LRIP II (CTOL, STOVL)	1	2009	2	2010
LRIP III (CTOL, STOVL, CV, UK)	1	2009	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 2261: *Joint Strike Fighter EMD*

	Start		End	
Event	Quarter	Year	Quarter	Year
LRIP IV (CTOL, STOVL, CV, UK)	2	2009	1	2012
LRIP V (CTOL, STOVL, CV, UK)	2	2010	1	2013
LRIP VI (CTOL, STOVL, CV, UK)	2	2011	1	2014
LRIP VII (CTOL, STOVL, CV, UK)	2	2012	1	2015
LRIP VIII (CTOL, STOVL, CV, UK)	2	2013	4	2015
Initial Operational Capability (IOC Thresold) USMC	4	2012	4	2012
Initial Operational Capability (IOC) USAF	2	2013	2	2013
Initial Operational Capability (IOC) USN	2	2015	2	2015
DAB Program Review (DPR) - FY09	1	2009	1	2009
Long Lead/EOQ	2	2014	1	2015
MYP	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 3194: *Joint Reprogramming Center*	

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
3194: *Joint Reprogramming Center*	28.816	31.813	39.876	0.000	39.876	27.028	19.792	0.000	0.000	0.000	152.703
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The United States Research Laboratory (USRL)/Capability Concept project, previously referred to as the JSF Joint Reprogramming Center (JRC)/Capability Concept is required to adequately develop and maintain Operation Sensor Engineering F-35(V) Mission Data to support USN, USMC, and USAF multi-mission objectives. USRL will allow rapid operational response to threat changes. Funding for this project unit (3194) is provided specifically for:

- Aircraft sensor function and combat identification
- Conducting Offensive Identification/Jamming of potential threats
- Providing self defense against surface threats, air, and missile threats.
- Detecting and identifying targets, to include moving land, air, and missile targets
- Providing mission planning to ensure aircraft survivability
- Conducting offensive operations against surface threats;
- Conducting sensor management and information processing.
- Software development for this requirement is funded through the F-35 Joint Strike Fighter SDD baseline.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
USRL Build Up	28.816	25.938	28.706	0.000	28.706
FY 2009 Accomplishments: Funds provided to Lockheed Martin Aero in support of reprogramming techniques, development and verification capacity required to adjust to emergent threats, and validate system effectiveness to increase survivability of the weapon system.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 3194: *Joint Reprogramming Center*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Provide funds to Lockheed Martin Aero in support of reprogramming techniques, development and verification capacity required to adjust to emergent threats, and validate system effectiveness to increase survivability of the weapon system. *FY 2011 Base Plans:* Provide funds to Lockheed Martin Aero in support of reprogramming techniques, development and verification capacity required to adjust to emergent threats, and validate system effectiveness to increase survivability of the weapon system.					
Development Support *FY 2010 Plans:* Continue SDD Systems Engineering (SE) including systems operations requirements analysis, program integration, requirements integration, and interoperability support of the United States Reprogramming Laboratory (previously called the Joint Reprogramming Center). *FY 2011 Base Plans:* Continue SDD Systems Engineering (SE) including systems operations requirements analysis, program integration, requirements integration, and interoperability support of the United States Reprogramming Laboratory (previously called the Joint Reprogramming Center).	0.000	5.875	11.170	0.000	11.170
Accomplishments/Planned Programs Subtotals	28.816	31.813	39.876	0.000	39.876

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 3194: *Joint Reprogramming Center*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The Joint Reprogramming Capability is a subset of the JSF Program and falls within the JSF acquisition strategy. JRC is needed to support scheduled Initial Operational Capability dates (and supporting test activity) for the three JSF variants. To that end, a concept of operations (CONOPS) is being developed for JRC to address Mission Data (MD) development and verification/validation/testing and to merge service unique requirements into Joint processes/procedures. Previously envisaged as a single facility, JRC now is comprised of two distinct facilities under the JRC concept. The United States Reprogramming Laboratory (USRL) will support U.S. Joint Service reprogramming requirements; the Partner Reprogramming Laboratory will focus on International Partner areas of interest.

Inter-Service collaboration is ongoing to formalize the USRL requirements planning process and will eliminate duplication of effort, will maximize technology to improve configuration control, will employ advance networks, and will ensure the implementation of an enterprise (single shared database) solution. By capitalizing on legacy platform synergy, operational mission data intellect, proven processes, and existing reprogramming center resources, this approach also will improve efficiencies. A Joint Command reprogramming authority will determine/manage reprogramming priorities and implementation authority.

USRL Mission data development strategy is based upon an assessment of legacy systems, F-22 data, corporate expertise of Eglin/Pt Mugu personnel, adjusted cost and schedule projections keyed to complexity of multi-variant and multi-mission aircraft, JSF-specific utilization of multiple sources of non-sustained disparate, raw, intelligence data, development of threat assessment - metrics and build-up of real-world scenarios for systems verification and validation. These efforts support JSF operational requirements, interoperability, and fratricide mitigation.

Although the F-35 JSF SDD Program has contracted with Lockheed Martin and Pratt & Whitney for the SDD of the JSF, LM does not have the laboratory space availability or expertise to perform operational evaluation of lab and flight test data and support field recommendations to the level needed. The complexity and magnitude of JSF mission data loads drives the decision to utilize government and contractor resources to design and develop a joint-Service reprogramming facility at Eglin AFB.

E. Performance Metrics

USRL Stand-up - 1st Quarter FY2011

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 3194: *Joint Reprogramming Center*

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 H/W Development	C/CPAF	Lockheed Martin Texas	30.506	25.938	Oct 2009	28.706	Oct 2010	0.000		28.706	18.581	103.731	57.775
		Subtotal	30.506	25.938		28.706		0.000		28.706	18.581	103.731	57.775

Remarks

Target Value of Contract differs from Total cost because Lockheed martin contract has not been modified to reflect planned funding allocation.

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	NAWCWD China Lake California	3.000	5.875	Oct 2009	11.170	Oct 2010	0.000		11.170	28.239	48.284	Continuing
		Subtotal	3.000	5.875		11.170		0.000		11.170	28.239	48.284	

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	33.506	31.813		39.876		0.000		39.876	46.820	152.015	57.775

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 3194: *Joint Reprogramming Center*	

	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604800N: *JT Strike Fighter (JSF) - EMD*	**PROJECT** 3194: *Joint Reprogramming Center*

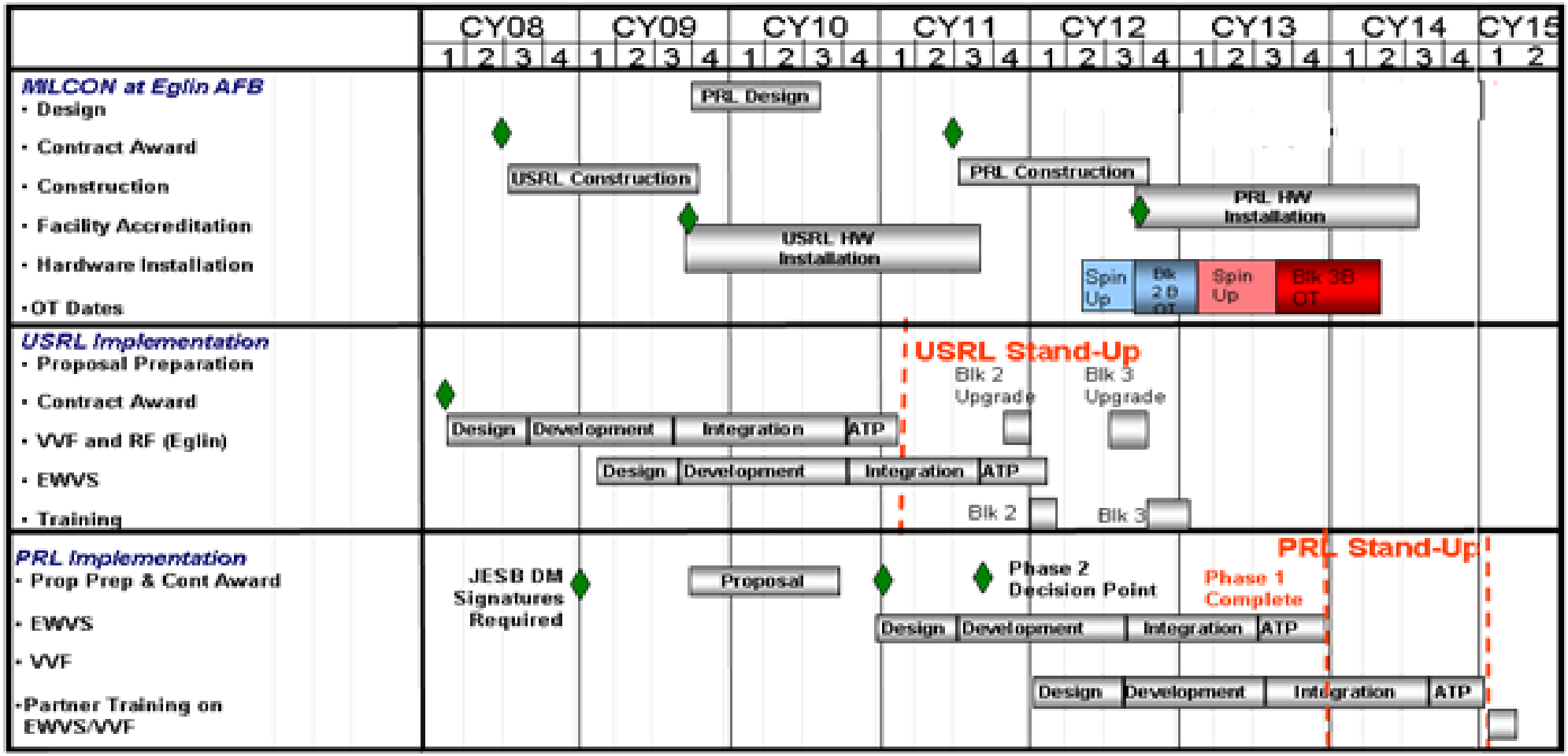


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604800N: *JT Strike Fighter (JSF) - EMD*	**PROJECT** 3194: *Joint Reprogramming Center*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
USRL Design Verification and Validation Facility (WF) and Reprogramming Facility (RF) Work station development, integration, and ready to standup	1	2009	2	2011
Eletronic Warfare Verification Station (EWVS) Design, Development Inegration, and acceptance test	2	2009	2	2012
USRL Standup	2	2011	2	2011
Blk 2 Upgrade (WF and RF)	1	2012	1	2012
Blk 3 Upgrade (WF and RF)	4	2012	4	2012
Blk 2 Training	2	2012	2	2012
Blk 3 Training	1	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	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*	216.014	214.108	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	932.868
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: MAINTAIN DEV OF 2ND SOURCE FOR ENGINE *FY 2009 Accomplishments:* Maintained Development of 2nd source for F-35 Lightning II engine General Electric/Fighter Engine Team (GE/FET). Funding continues the Fighter Engineering Team (General Electirc Rolls Royce) F136 development for a second, interchangeable, JSF engine for competition in production (previously begun in associated Program Elements 0603800F). Efforts include technical technology maturation, engine testing, autonomic logistics and integration. *FY 2010 Plans:* Continue development of 2nd source for F-35 Lightning II engine General Electric/Fighter Engine Team (GE/FET). Funding continues the Fighter Engineering Team (General Electirc Rolls Royce) F136 development for a second, interchangeable, JSF engine for competition in production (previously begun in associated Program Elements 0603800F). Efforts include technical technology maturation, engine testing, autonomic logistics and integration.	214.418	214.108
Congressional Add: F-35B Lift Fan Component Manurfacturing	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604800N: *JT Strike Fighter (JSF) - EMD*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: Continued design, develop, fabricate test, manage and qualify the F135 Propulsion System and Engine Interchangeability common hardware for theF-35 Aircraft U.S. Navy FY09 Funding		
Congressional Adds Subtotals	216.014	214.108

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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013M: *Marine Corps IT Dev/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
Total Program Element	33.088	9.827	22.783	0.000	22.783	25.948	17.514	15.491	13.742	Continuing	Continuing
2906: *Marine Corps IT*	33.088	9.827	22.783	0.000	22.783	25.948	17.514	15.491	13.742	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program establishes, sustains and continuously refines computing platforms and Information Technology (IT) services as tested, certified and reusable components of a Marine Corps IT framework that spans the range of military operations.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	30.156	9.868	0.000	0.000	0.000
Current President's Budget	33.088	9.827	22.783	0.000	22.783
Total Adjustments	2.932	-0.041	22.783	0.000	22.783
• Congressional General Reductions		-0.041			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	3.819	0.000			
• SBIR/STTR Transfer	-0.887	0.000			
• Program Adjustments	0.000	0.000	22.783	0.000	22.783

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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*				PROJECT 2906: *Marine Corps IT*			
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**
2906: *Marine Corps IT*	33.088	9.827	22.783	0.000	22.783	25.948	17.514	15.491	13.742	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

During FY11 several programs within PE 0605013M will increase development and testing on overlapping incremental efforts resulting in the reflected $13.474M increase from FY10. Individual program specific plans are outlined in Section B (Accomplishments/Planned Program)

A. Mission Description and Budget Item Justification

INSENSITIVE MUNITIONS (IM) funding supports two programs: Insensitive Munitions (IM) and Marine Ammunition Knowledge Enterprise (MAKE). IM RDT&E 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. This effort is being executed to directly improve the IM responses for the 120mm Expeditionary Fire Support System (EFSS) XM1103 Smoke and Precision Extended Range Munition cartridges in the areas of Fast/Slow Cook-Off, Fragment Impact and Sympathetic Reaction. 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. MAKE is a force multiplier and critical enabler in support of the Life Cycle Management of the Marine Corps $4 billion plus Class V(W) stockpile.

DEFENSE MESSAGE SYSTEM (DMS) and follow-on/replacement systems directed by the Joint Staff and HQMC C4 meet the organizational messaging requirement for all classification levels from GENSER through Top Secret/Sensitive Compartmented Information (TS/SCI). Telos Automated Message Handling System (AMHS) is the current implementation that provides Web-interface for system administration and for user messaging (including readers). Organizational messages are used to direct and commit resources, provide user authentication, non-repudiation, confidentiality, and integrity. It also maintains an archive and retrospective search capability to the warfighter and requires security at the Class 4 level (currently implemented with Fortezza and Certificate Authority Workstations. The Defense Information Systems Agency (DISA) is the lead agency and Global System Manager (GSM) for DMS products. The Department of Defense Intelligence Information System (DODIIS) is the Operations Manager for the Intelligence Community (IC) to support TS/SCI messaging. Within the Marine Corps, there are two distinct acquisition efforts to field DMS to strategic and tactical communication centers to all classification levels. Additionally ongoing efforts at the service and DISA level to transition from the DMS system to alternative mechanisms for the transfer of organizational information. Authorized Acquisition Objective (AAO) 100.

MARINE CORPS TRAINING INFORMATION MANAGEMENT SYSTEM (MCTIMS) replaced the mainframe program By Name Assignment, which managed all Marine Corps school seats and interfaced with other service's school seat management programs. MCTIMS is the Marine Corps' official program of record for training and education management and is the single sourcing which the Training and Education Command relies on to manage training personnel, training seats, students, and other training resources. MCTIMS is the enterprise application upon which "standards base" instruction, education and training is built, delivered, tracked,

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*	PROJECT 2906: *Marine Corps IT*

and evaluated. MCTIMS will be establishing the unit training management module for all ground forces. This module will provide commanders an enterprise level application which brings standardization in planning and scheduling training, recording of training against units and individual Marines, provides training assessments and reports combat readiness to Department of Defense (DOD) systems.

MANPOWER OPERATIONS SYSTEMS (MOS) is a portfolio of enterprise IT systems and modules that support manpower business operations for the Total Force (active and reserve). The investment in the portfolio improves dataflow and increases reliability, functionality, and accuracy of data while reducing the manpower required to operate and maintain these systems/operations. Development is partially driven by regulatory and policy changes mandated by Congress, DOD, Department of the Navy (DON), and United States Marine Corps (USMC). These systems support all five-tiers of Manpower: 1) Individual Marine, 2) Small Unit Leader; 3) Unit, 4) Installation Personnel Administration Center (IPAC)/Disbursing Echelon, and 5) Headquarters Marine Corp (HQMC) Manpower and Reserve Affairs (M&RA)/ Defense Finance and Accounting Service. The MOS portfolio provides support in functional areas such as permanent change of station assignments, retention, mobilization, manpower planning, line of duty determination, personnel accountability, individual augmentation, personnel records management and maintenance, management of case incidents, civilian professional development planning, pay entitlement determinations, promotion and performance evaluations and self service/ visibility of personnel data. MOS interfaces with other systems to provide manpower data and web services functionality for pay and personnel transactions between systems. Systems in the portfolio include Manpower Assignment Support System (MASS), Performance Evaluation System, Total Force Retention System, Optical Digital Imaging - Records Management System,

Class I/II/III (composed of Child and Spouse Abuse, Sexual Assault Incident Reporting Database, and Rape and Sexual Assault), Marine Corps Medical Entitlements Data System, Civilian Workforce Development Application, Manpower Mobilization Assignment System, and the Total Force Administration System (TFAS) (composed of Marine On-Line, the Secure Personnel Accountability (SPA) Module, the Drill Management Module (DMM), the Case Management Module (CMM) and Marine Reserve Order Writing System Web-enabled).

MARINE CORPS ENTERPRISE INFORMATION TECHNOLOGY SERVICES (MCEITS) will provide an overarching portfolio of capabilities to deliver "Power to the Edge" for the Marine Corps. Born from an effort to establish a Continuity of Operations Plan of HQMC Automated Information Systems, MCEITS will realign the existing USMC environment of applications, databases, networks, and facilities into an integrated architecture of programs to deliver new information technology capabilities based on a common infrastructure and shared services. MCEITS is a unifying framework of both the Net-Centric Enterprise Services (NCES) to be delivered, and the infrastructure and systems which must be deployed to enable delivery of those services. Initially it will encompass the Operational, Technical and Systems architectures of the garrison environment. However, ultimately it will extend to transform Command and Control (C2) both in garrison and in the deployed environment. Combined with policy, procedure and standards provided by HQMC Command, Control, Communications and Computers (C4), MCEITS will allow for architectural standardization, consolidated management, and seamless interoperability of and access to the data residing in currently fielded applications (business and tactical). Testing efforts will be focused on MCEITS Portal and MCEITS provided services operating within a Service Oriented Architecture environment. MCEITS will ensure the ability to host services and applications in a Web Services enabled environment. MCEITS will also ensure NCES services are able to be federated throughout the Marine Corps to include Content Discover and Delivery, Collaboration and Text Chat, between the service consumer and provider.

PAPERLESS ACQUISITION (PA) is an end-to-end contracting and procurement suite of applications and interface that meets the 2001 DOD mandate for a paperless procurement and logistics process and is an integral part of our vested Business Enterprise Architecture compliant solution to business modernization mandates 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*	PROJECT 2906: *Marine Corps IT*

Business Transformation Agency. The PA end-to-end architecture includes Purchase Request Builder (PR Builder), Standard Procurement System (SPS), Wide Area Work Flow, Electronic Document Access-Next Generation, and Federal Procurement Data System-Next Generation.

MANPOWER PLANNING SYSTEMS (MPS) is a portfolio consisting of three systems; the legacy Manpower Models, the Total Force Data Warehouse, and the replacement effort of the legacy Manpower Models, the Total Force Manpower Models Re-engineering effort (TFMMR). This portfolio provides the tools and data to support the creation of active and reserve modeling of accession, recruiting, training, classification, retention, promotion, mobilization, distribution, and assignment plans. The funding in MPS will provide the technical solution for process improvement and will strategically align manpower systems/functional process with the C4 architecture. MPS interfaces with other systems to utilize manpower data in model analysis and future year planning efforts.

MARINE CORPS RECRUITING INFORMATION SUPPORT SYSTEM (MCRISS) is an enterprise level system to automate administrative procedures for the recruiting station operations. This customized automated System, centered on procedures in the Guidebook for Recruiters, Volume I, will dramatically improve efficiency and effectiveness in Marine Corps recruiting. Furthermore, Military Entrance Processing Command requires Marine Corps recruiting to provide information in electronic format only. MCRISS is the Marine Corps Recruiting Command's program to manage applicant processing from commitment to accession/commission into the Marine Corps and Marine Corps Reserve. This enterprise approach allows for efficient sharing of information about potential recruits and recruiter screening efforts, yielding a more cost effective process.

TOTAL FORCE STRUCTURE MANAGEMENT SYSTEM (TFSMS) is the Marine Corps' authoritative data source for force structure data and provider of the Marine Corps' Tables of Organization and Equipment. TFSMS defines present and future Marine Corps force structure, establishes the Marine Corps baseline for readiness reporting, justifies resource requirements and allocation and enables Marine Corps compliance with the Joint Staff and Office of the Secretary Defense initiative to standardize force structure representation by providing the Marine Corps Global Force Management Organizational Server. TFSMS Block 1 Full Operational Capability (FOC) is scheduled for FY10/FY11 and requires development, testing and fielding of a transactional user web-based training capability to replace the current interim Instructor-led training which consists of a two-day Equipment Class and a two-day Structure Class taught locally twice each month. Mobile Training Teams are used to provide periodic base and installation TFSMS training. TFSMS Increment II

Milestone B is scheduled for Sep 09 followed by award of the Systems Integration contract. The TFSMS Increment II Capability Development Document (CDD) defines the requirements and expectations for Initial and FOC. The first major Increment II software release is scheduled for FY11. FOC is schedule for FY15.

SECURE OPERATIONAL NETWORK INFRASTRUCTURE CAPABILITY (SONIC)will provide critical infrastructure and operational capabilities that are secure and reliable, enabling command and control from the headquarters to the lowest tactical edge. SONIC will update the current aging classified IT infrastructure and support full Marine Corps' control over its C2 operational network by providing continuity, high availability, disaster recovery, and enhanced secure access to services and data.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
INSENSITIVE MUNITIONS (IM)	1.012	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013M: *Marine Corps IT Dev/Mod*	**PROJECT** 2906: *Marine Corps IT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Development in FY09 focuses on IM compliant munitions inventory. Based on USMC IM Strategic Plan this RDT&E program focuses on addressing IM deficiencies for EFSS. The MAKE strategy is to conduct assessments of service life effects on availability and Course of Action (COA) development to optimize asset utilization. Continue future enhancements to the Ammunition Budget Management System (ABMS). Develop decision support tools, in support of, implementing actions identified in the Program Manager Ammunition Strategic Plan.					
DEFENSE MESSAGE SYSTEM (DMS) *FY 2009 Accomplishments:* During FY09 will test the virtualization of the Sensitive Compartmented Information (SCI) tactical messaging solution to reduce the hardware footprint required to be supported by the deployed forces. Integration of the VMWare virtual software and a variety of organizational information platforms will be vital to future deployments, infrastructure consolidation and transition. In FY09 DMS will conduct organizational messaging testing as well as develop materiel determination decisions for the next generation DMS. *FY 2010 Plans:* In FY10 DMS will continue to conduct organizational messaging testing as well as develop materiel determination decisions for the next generation DMS. *FY 2011 Base Plans:* In FY11 DMS will continue to conduct organizational messaging testing as well as develop materiel determination decisions for the next generation DMS.	0.525	0.177	0.476	0.000	0.476
MARINE CORPS TRAINING MANAGEMENT INFORMATION SYSTEM (MCTIMS)	0.000	0.905	0.851	0.000	0.851

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*	PROJECT 2906: *Marine Corps IT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Efforts planned for FY10 are Security Catalog Basic User Management Module upgrade, Student Evaluation - Computer Based Testing module ugrade, Individual Training Management module, Curriculum Library and MOS Manual Module Integration. *FY 2011 Base Plans:* Efforts planned for FY11 are Security Catalog Basic User Management Module upgrade, Student Evaluation - Computer Based Testing module ugrade, Individual Training Management module, Curriculum Library and MOS Manual Module Integration.					
MANPOWER OPERATIONS SYSTEMS (MOS) *FY 2009 Accomplishments:* FY09 development will focus on continued development of the TFAS CMM, specifically, the IPAC 2-4 increments. This automation of processes replaces the Marine administrator manpower reductions in the IPACs. During FY09, initial development of DMM and SPA Modules will be completed. *FY 2011 Base Plans:* FY11 efforts will focus on stabilization of MASS.	3.902	0.000	3.736	0.000	3.736
MARINE CORPS ENTERPRISE INFORMATION TECHNOLOGY SERVICES (MCEITS) *FY 2009 Accomplishments:* In FY09 MCEITS efforts were focused on continued Modeling & Simulation and Manpower Analysis, commencement of System Integration design, platform and application integration, testing, and correction of deficiencies. *FY 2010 Plans:* In FY10 MCEITS efforts are continued integration testing and finalization of the Capability Production Document in support of Milestone C as well as Increment I Initial Operational Capability (IOC) testing.	18.491	5.501	8.216	0.000	8.216

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013M: *Marine Corps IT Dev/Mod*	**PROJECT** 2906: *Marine Corps IT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY11 will focus on overlapping efforts including the continued Increment I IOC testing and completion, start of Increment I Operation Testing (OT) and the introduction of the P3I phase and the associated Developmental Test.					
PAPERLESS ACQUISITION (PA)	0.000	0.000	0.381	0.000	0.381
FY 2011 Base Plans: Development and enhancement of PR Builder which is the Marine Corps enterprise solution for the electronic generation of purchase requests and serves as the front-end system for feeding the DOD enterprise contracting writing system SPS. Development and enhancement of PR Builder is required to ensure financial and contracting functional requirements and Marine Corps business processes are developed, designed, tested and implemented within the system. PR Builder is also undergoing requirements definition and estimation for v4.4. Once these requirements are delivered to the PM from the service integrators, modifcations to the contract to support the requirements will be initiated. Future DOD, DON, and USMC initiatives that will need to be researched and developed include support or adherence to: Standard Financial Information Structure, Financial Data in Procurement, UCore, Business Enterprise Architecture, USMC Financial Improvement Initiative, Naval Facilities Engineering Command to USMC contract/obligation interface, Seaport-e to USMC contract/obligation interface.					
MARINE CORPS RECRUITING INFORMATION SUPPORT SYSTEM (MCRISS)	0.000	0.246	2.666	0.000	2.666
FY 2010 Plans: Starting in FY10, MCRISS will expand Joint Personnel Adjudication System (JPAS)/ Office of Personnel Management for electronic submission of SF-86 security forms to improve submission success. The development of the interface with JPAS will enable Military Entrance Processing Stations to begin clearance work so that students who require clearances do not have to wait at schools for their clearances to be approved..					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*	PROJECT 2906: *Marine Corps IT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: In FY11, begin development of MCRISS-RSS Increment 2 application. The intent of the development is to automate the recruiting process at the Senior Non-Commissioned Officer-in-Charge, recruiter, and Officer Selection Office level in order to reduce administrative redundancy and increase effectiveness. MCRISS-RSS is broken down into 11 separate distinct processes for recruiting enlisted personnel into the Marine Corps.					
TOTAL FORCE STRUCTURE MANAGEMENT SYSTEM (TFSMS) *FY 2009 Accomplishments:* FY09 efforts focused on developing the last major Block 1 software build (the scheduled deployment date is Oct 2009). This last build provides the Marine Corps with new capability such as the ability to identify and track local table of authorized materiel control numbers, restructuring Marine Corps capability around concepts of employment and new modeling/decision capabilities *FY 2010 Plans:* During FY10 efforts will focus on analysis, research and development of a comprehensive Block 1 web-based training capability. The web-based training will replace the two day equipment and two day structure Instructor-led training classes. These classes are conducted two times each month in the TFSMS Training Lab. In addition, Mobile Training Teams are periodically sent to Marine Corps Bases and Stations to provide the User training to those outside the local area. *FY 2011 Base Plans:* FY11 planned efforts include deployment and subsequent developmental and operational testing of the Block 1 web-based training module	7.709	2.604	2.690	0.000	2.690
SECURE OPERATIONAL NETWORK INFRASTRUCTURE CAPABILITY (SONIC)	0.582	0.394	0.587	0.000	0.587

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*	PROJECT 2906: *Marine Corps IT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 09 efforts included Software engineering and testing in support of SIPRNET (SONIC)refresh. *FY 2010 Plans:* SONIC infrastructure is currently undergoing refresh under Statement of Need authority to establish an "as is" baseline. In FY10, SONIC will build on the baseline under anticipated ACAT designation. *FY 2011 Base Plans:* SONIC infrastructure is currently undergoing refresh under Statement of Need authority to establish an "as is" baseline. In FY10, SONIC will build on the baseline under anticipated ACAT designation.					
Manpower Planning Systems (MPS) *FY 2009 Accomplishments:* Re-engineering of the legacy Models will provide long-term planning tools integral to the Human Resource Development Process (HRDP). The current portfolio of Manpower Models, in use in various form since 1960, are utilizing dated technology and algorithms. TFMMR will provide the technical integration of the Models with the core planning systems which utilize outputs of the models, and will include integration of Reserve requirements into MPS. TFMMR will reach Milestone C in 4th Qtr FY09. TFMMR's first increment will reach IOC in 1st Qtr FY10, retiring the legacy Models system. TFMMR's first increment will reach FOC in 3rd Qtr FY10. TFMMR's second increment will be completed in 2nd Qtr FY11. *FY 2011 Base Plans:* Re-engineering of the legacy Models will provide long-term planning tools integral to the Human Resource Development Process (HRDP). The current portfolio of Manpower Models, in use in various form since 1960, are utilizing dated technology and algorithms. TFMMR will provide the technical integration of the Models with the core planning systems which utilize outputs of the models, and will include integration of Reserve requirements into MPS. TFMMR will reach Milestone C in	0.867	0.000	3.180	0.000	3.180

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*	PROJECT 2906: *Marine Corps IT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
4th Qtr FY09. TFMMR's first increment will reach IOC in 1st Qtr FY10, retiring the legacy Models system. TFMMR's first increment will reach FOC in 3rd Qtr FY10. TFMMR's second increment will be completed in 2nd Qtr FY11.					
Accomplishments/Planned Programs Subtotals	33.088	9.827	22.783	0.000	22.783

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/46350002: *COMM & ELEC INFRA SPT: DMS*	0.000	0.525	0.464	0.000	0.464	0.476	0.489	0.501	0.515	0.000	2.970
• PMC/46170002: *COMBAT SPT SYS: MOS.*	0.617	0.841	0.547	0.000	0.547	0.634	0.651	0.669	0.687	0.000	4.646
• PMC/46300003: *COMMON COMPUTER RES: MCEITS*	4.156	3.473	9.143	0.000	9.143	9.731	15.039	27.814	11.684	0.000	81.040
• MC/46170004: *COMBAT SPT SYS: MPS*	0.275	0.288	0.280	0.000	0.280	0.289	0.295	0.295	0.312	0.000	2.034
• PMC/46300005: *COMMON COMPUTER RES: TFSMS*	0.323	0.000	0.108	0.000	0.108	0.016	0.010	0.570	0.000	0.000	1.027
• PMC/46300006: *COMMON COMPUTER RES: SI*	0.000	18.193	5.913	0.000	5.913	7.842	21.016	9.722	10.633	0.000	73.319
• PMC/46350001: *COMM & ELEC INFRA SPT: MCEITS*	5.949	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.949
• PMC/46170007: *COMBAT SPT SYS: TFSMS*	0.000	0.000	0.000	0.000	0.000	4.388	0.000	0.645	0.000	0.000	5.033

D. Acquisition Strategy

INSENSITIVE MUNITIONS (IM) within the Marine Corps has over 300 items currently in their inventory that are not IM compliant which are addressed annually in the USMC IM Strategic Plan. Through this annual plan the USMC is required to propose, focus and execute an IM strategy to yield maximum benefit to the Marine Corps

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*	PROJECT 2906: *Marine Corps IT*

with respect to achieving a more IM compliant munitions inventory. Based on USMC IM Strategic Plan this RDT&E program will focus on addressing IM deficiencies for EFSS in FY09. The MAKE strategy is to conduct assessments of service life effects on availability and COA development to optimize asset utilization. Continue future enhancements to the Ammunition Budget Management System (ABMS). Develop decision support tools, in support of implementing actions identified in the PM Ammunition Strategic
Plan FY09.
DEFENSE MESSAGE SYSTEM (DMS) is a Joint Acquisition Category (ACAT) IAM program. It is Assistant Secretary Defense Command, Control, Communication and Intelligence mandated. Each year the Joint Interoperability Test Command runs Operational Test (OT) assessments on DMS software versions and maintenance releases. Marine Corps participation is vital to ensuring that the implementation of DMS is interoperable with all DOD CINCs, services, and agencies.
MARINE CORPS TRAINING INFORMATION SYSTEM (MCTIMS) will utilize an evolutionary strategy with incremental development methodology. MCTIMS is structured in a module format that allows for phasing of development without having to re-engineer the entire system to add significant new capability. MCTIMS utilizes a firm-fixed price contracting strategy to reduce risk to the government. MCTIMS is fully integrated system, emphasizing code re-use between modules to reduce cost and improve program stability.
MANPOWER OPERATIONS SYSTEMS (MOS) within this portfolio follow an Evolutionary Acquisition (EA) approach: 1. Define, develop & deliver an initial or "core" capability based on mature technology. 2. "Core" capability will be incrementally improved over an extended period of time. Incremental Development Model: 1. Iterative cycles of requirements definition, design, build and evaluation. The contracting strategy across the portfolio is to utilize competitive firm-fixed price contracts.
MARINE CORPS ENTERPRISE INFORMATION TECHNOLOGY SERVICES (MCEITS) will be implemented using an EA strategy. Two blocks of capability will be fielded with each block providing an operationally effective and suitable capability in the shortest time possible. The program will deliver an initial capability and continue integration and production of the system to provide full capability over time. The objective is to balance needs with available commercial and government solutions and resources, and to put capability into the hands of the users quickly. This strategy is supported by an Indefinite Delivery Indefinite Quantity contracting vehicle which will allow the contractor to provide the full range of capabilities, services and solutions necessary to satisfy the requirements through incremental implementation of technology, processes and capabilities. Capabilities will be incrementally provided through the use of individual task orders to ensure technology and services are inserted according to the overall program goals, user requirements and program schedule.
PAPERLESS ACQUISITION (PA) will use an incremental development methodology utilizing short development periods. The contracting strategy is to use a firm-fixed price contract to reduce risk to government, with additional capabilities defined by a Marine Corps Configuration Control Board and delivered to the service integrator as a modification to the contract. The delivery of small functional capabilities allows for measurable enhancements to the base system while keeping Post Deployment System Support costs relatively low.
MANPOWER PLANNING SYSTEMS (MPS) will be developed with an open system architecture using incremental development methodology and maximize the use of Commercial Off-the-Shelf (COTS)/Government Off-the-Shelf (GOTS) solutions while supporting the current legacy manpower models until the full transition to TFMMR. Furthermore, the redesign supports the M&RA HRDP. The contracting strategy is competitive firm-fixed price.
MARINE CORPS RECRUITING INFORMATION SUPPORT SYSTEM (MCRISS) in addition to planned capability, development is strongly guided by DOD, DON, and USMC mandates. Changes in recruiting standards, policies for interoperability, security and standardization will be developed and implemented within the mandated

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*	PROJECT 2906: *Marine Corps IT*

time frame. MCRISS capitalizes on centrally located data with secure web and wireless web enabled entry. MCRISS utilizes a modular/incremental development to maintain system operability while providing continued development. Contracting strategy includes competitive firm-fixed price contracts.

TOTAL FORCE STRUCTURE MANAGEMENT SYSTEMS (TFSMS)is an EA program currently comprised of two blocks/increments. TFSMS is a web-based application built upon an Oracle/Cognos infrastructure and currently residing in the G-6 Data Center in Marine Corps Base, Quantico. TFSMS currently has over 14,000 Users. Block 1 is defined by a Capabilities Production Document (CPD) that was approved by the Marine Corps Requirements Oversight Council (MROC) 9 Apr 08. Block 1 FOC is dependent on the development of transaction User web-based training scheduled to begin development in FY10. Increment II CPD is being finalized for MROC approval. Increment II development begins in FY10 (based upon a successful Milestone B decision) with the first major software release of Increment II occurring in FY11. Increment II capabilities include interfaces to NAVAIR to incorporate Marine Corps Air and Air Support Equipment assets providing the Marine Corps with the ability to have a consolidated force structure picture. Increment II
FOC scheduled for FY15.

SECURE OPERATIONAL NETWORK INFRASTRUCTURE CAPABILITY (SONIC) infrastructure is currently undergoing refresh under Statement of Need authority to establish an "as is" baseline. In FY10, SONIC will build on the baseline under anticipated ACAT designation.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*	PROJECT 2906: *Marine Corps IT*

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
MCEITS PM TASK	C/FP	GD Needham, MA	6.700	1.300	Dec 2009	2.700	Dec 2010	0.000		2.700	Continuing	Continuing	Continuing
TFMS -Dev	C/FP	SAIC McLean, VA	11.762	2.650	Dec 2009	2.690	Dec 2010	0.000		2.690	Continuing	Continuing	Continuing
Various	Various/ Various	Various Various	53.920	2.870		6.992		0.000		6.992	Continuing	Continuing	Continuing
		Subtotal	72.382	6.820		12.382		0.000		12.382			

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
MCEITS RDT&E Management	C/FP	Jacobs Dumfries, VA	2.505	1.400	Apr 2010	1.250	Apr 2011	0.000		1.250	Continuing	Continuing	Continuing
Various	Various/ Various	Various Various	9.512	0.727		5.947		0.000		5.947	Continuing	Continuing	Continuing
		Subtotal	12.017	2.127		7.197		0.000		7.197			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*	PROJECT 2906: *Marine Corps IT*	

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
Various	Various/ Various	Various Not Specified	3.831	0.880		3.204		0.000		3.204	Continuing	Continuing	Continuing
		Subtotal	3.831	0.880		3.204		0.000		3.204			

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	88.230	9.827		22.783		0.000		22.783			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013M: *Marine Corps IT Dev/Mod*	PROJECT 2906: *Marine Corps IT*

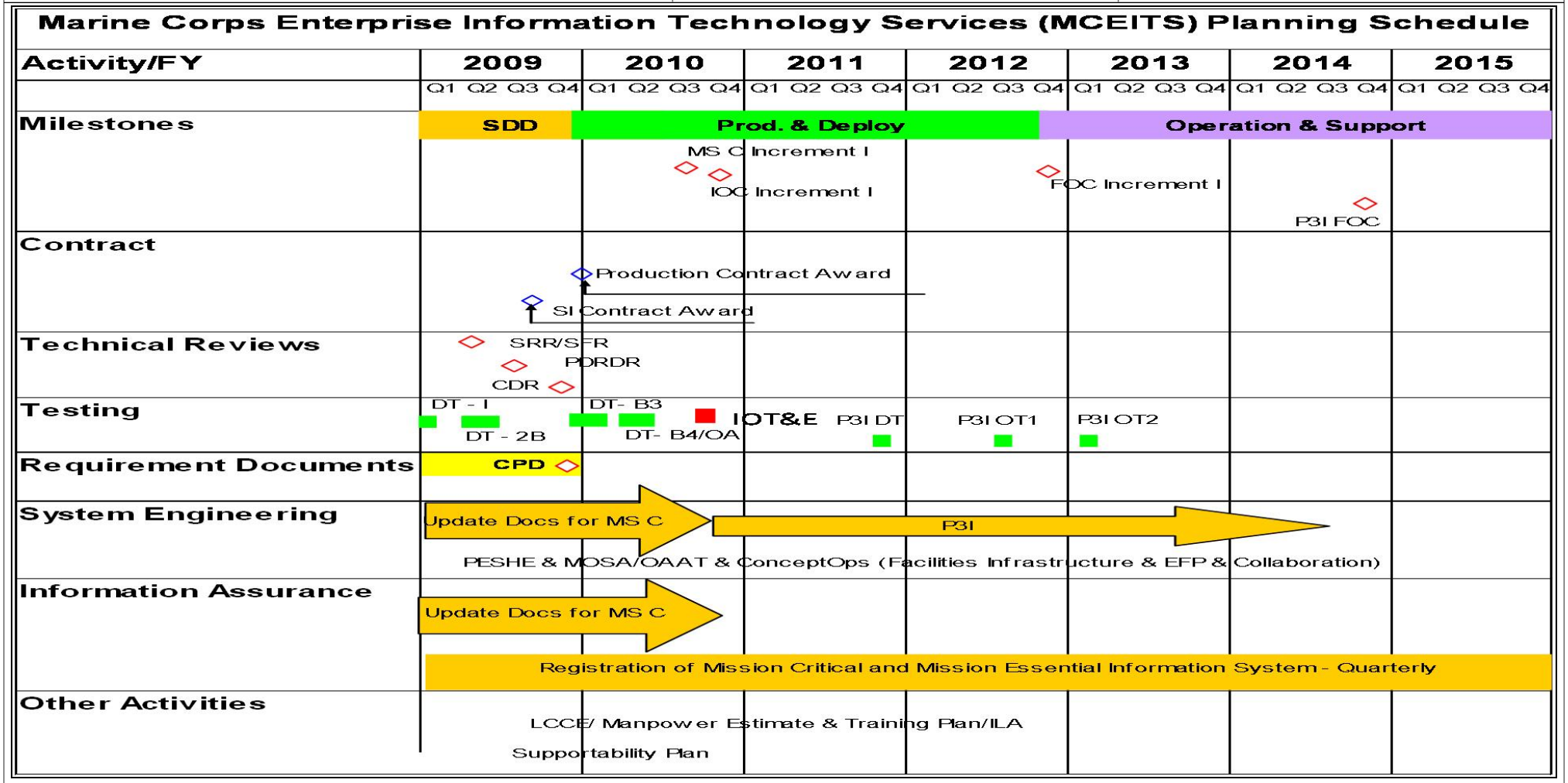


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013M: *Marine Corps IT Dev/Mod*	**PROJECT** 2906: *Marine Corps IT*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Increment 1 Development Test (DT)	1	2009	4	2009
Capability Production Document	4	2009	4	2009
Increment 1 Milestone C	3	2010	3	2010
Increment 1 Operational Test (OT)	4	2010	4	2010
Increment 1 Initial Operational Capability (IOC)	4	2010	4	2010
Increment 1 Full Operational Capability (FOC)	4	2012	4	2012
P3I Developmental Test	4	2011	1	2012
P3I Scale Up services	1	2012	1	2012
P3I Operational Test (OT)	3	2012	1	2013
P3I Full Operational Capability (FOC)	4	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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology 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	99.628	91.425	28.280	0.000	28.280	35.050	32.147	31.658	32.320	Continuing	Continuing
2901: *AAUSN IT*	3.868	0.972	2.800	0.000	2.800	2.546	0.112	0.000	0.000	0.000	44.464
2903: *NAVAIR IT*	0.684	0.772	0.723	0.000	0.723	0.857	0.855	0.841	0.858	Continuing	Continuing
2904: *NAVSEA IT*	22.842	26.073	22.501	0.000	22.501	26.276	25.754	25.383	25.930	Continuing	Continuing
2905: *BUPERS IT*	6.292	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	63.522
2907: *RESFOR IT*	3.352	3.485	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	28.824
3026: *ERP Convergence*	40.928	17.083	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	312.601
3034: *Future Pay and Personnel System*	0.000	18.398	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.398
3167: *Joint Technical Data Integration (JTDI)*	1.902	1.469	1.883	0.000	1.883	2.249	2.277	2.241	2.278	Continuing	Continuing
3185: *Joint Airlift Information System (JALIS)*	0.413	0.428	0.373	0.000	0.373	0.444	0.445	0.438	0.447	Continuing	Continuing
9406: *Maintenance Data Warehouse*	0.000	0.000	0.000	0.000	0.000	2.678	2.704	2.755	2.807	Continuing	Continuing
9999: *Congressional Adds*	19.347	22.745	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	128.843

A. Mission Description and Budget Item Justification

2901 AAUSN IT The NCIS Modernization Initiative includes multiple projects with RDT&E requirements : Multiple Threat Alert Center (MTAC), Data Modernization & Analytical Tools, and Knowledge Network (K-Net).

Multiple Threat Alert Center (MTAC): The Post-Cole Secretary of the Navy Anti-terrorism/Force Protection Task Force identified the need for NCIS to enhance the Multiple Threat Alert Center (MTAC). The MTAC provides key anti-terrorism/force protection products in response to Fleet tasking and is critical to Fleet protection during current Overseas Contingency Operations (OCO). This project provides funding for the development of an IT system to track the movement of NCIS special

agents deployed in advance of DoN in-transit units. The ability to track and communicate with these agents is necessary in order to forward threat data to those forward deployed agents and to task them to respond to emerging threats. Funding is required for equipment and contractor support to modify COTS software.

Data Modernization & Analytical Tools: NCIS data collection, filtering, and analysis infrastructure is unable to handle the increased flow of terrorism investigative and threat reporting of the Post 9/11 era. NCIS must revitalize its infrastructure and its data and investigation management capabilities to effectively counter current terrorist threats. The three main components of this portfolio investment are data modernization, knowledge management, and investigation management.
Knowledge Network (K-Net): K-Net is a Data Modernization & analytical tool being developed and soon deployed that greatly enhances NCIS's technological arsenal. K-Net implements an integrated NCIS approach for identifying, capturing, evaluating, retrieving, and sharing allof NCCIS's knowledge and expertise. To that end, K-Net is a knowledge management system that improves NCIS's ability to search, analyze, fuse, and distribute both national intelligence and law enforcement information. The envisioned end state for K-Net is a secure, intuitive, web environment that is the one stop shop where applications, data, and tools are easily accessible to all of NCIS users to effectively and securely fulfill their mission regardless of when and where they operate.

NCIS RECORDS DIGITIZATION: The Electronic Records Management System (ERMAS) is an on-going contractor supported effort to develop a system that will digitize all of the NCIS criminal and intelligence investigative records.

DEPARTMENT OF THE NAVY CRIMINAL JUSTICE INFORMATION SYSTEM (DONCJIS): The Naval Criminal Investigative Service (NCIS) is the Executive Agent (EA) for the Department of the Navy Criminal Justice Information System (DONCJIS). This system provides a cradle to grave criminal justice and law enforcement information system. The system enables multiple communities within the DON to share criminal justice and law enforcement information. Funding is required for contractor support to develop, test, train, deploy and implement this application.

THE SECRETARY OF THE NAVY'S COUNCIL OF REVIEW BOARDS (SCORB): A modular, integrated, web-based system designed to retrieve, process manage and track cases, replacing four existing client-server databases operating on a non-NMCI compliant platform for the Combat Related Special Compensation Board, Physical Evaluation Board, Naval Clemency and Parole Board, and Naval Discharge Board in Phase One of this project.

2903 NAVAIR IT - CMIS - The Configuration Management Information System (CMIS) Program is DoD's standard software system for complete and integrated configuration management (CM) of weapon systems from acquisition to disposal. CMIS efficiently manages all product structure data, including complex interrelationship between assemblies and subassemblies, technical documentation and the parts that comprise the item. CMIS is designed to manage and control configuration data to support the DoD business processes. Accurate, complete and accessible configuration data is critical to the successful operations of DoD weapon systems or tracked assets. Mission readiness, and operational capabilities are enhanced by CMIS, as instant consistent integrated configuration data is readily available to operators, maintainers and logistics personnel. This system is a CM tool available DoD wide to support all potential customers. CMIS provides users with a common database infrastructure to ensure compatibility, quality, and consistency of CM processes and provides configuration managers and analysts

the validated CM information necessary for accurate maintenance, spare procurements, reliability and safety analysis, and mission readiness. Funding is budgeted to support the services of rehosting and testing of COTS upgrades to ensure objective performance of CMIS is achieved.

2904 NAVSEA IT - This program includes the funding for Information Technology (IT) support at NAVSEA, managed by the SEA 04 Ship Maintenance and Logistics Information Systems (SMLIS) Program Management Office (PMO), for the support of maritime maintenance and includes multiple modernization efforts to insure effectiveness of Fleet maintenance systems. These efforts include retirement and/or replacement of costly legacy systems, transition planning and systems engineering for integration with national and enterprise interim and future solutions. It includes the technical refresh of Naval Shipyard maintenance, repair and overhaul (MRO) production tools. This includes modifications/enhancements to Shipyard IT systems, such as Advanced Industrial Management (AIM), AIM Express (Xp), Project Scheduling and Sequencing (PSS), Performance Measurement & Control (PMC), Navy Workload and Performance System (NWPS) and NAVSEA Forecaster (NSFC). This program also supports development and modernization of Shipyard HQ tools and other new start technologies/systems. The goal of this program is to provide modernization, migration, and consolidation of obsolete legacy systems to the next generation of centrally hosted tools supporting MRO of the fleet force assets. This funding also supports development and modification to existing software, hardware, contractual program management and technical support to modify/enhance the NAVSEA HQ systems and infrastructure.

2905 BUPERS IT - The John Warner NDAA FY 2007, Pub. I, No. 109-364, directed the SECNAV to prepare a report on the Marine Corp Total Force System (MCTFS), including an analysis of alternatives to MCTFS, which compared the costs of deploying and operating MCTFS within the Navy and the cost of including Navy in the Defense Integrated Military Human Resource System (DIMHRS) development. Based on the review, the Deputy Secretary of Defense (DEPSECDEF) concluded that it would be in the best interest of the Department of Defense (DOD) and the Department of Navy (DON) to join the other services in migrating to DIMHRS. In Jan 09, DEPSECDEF provided additional guidance for migration to a DIMHRS core, that allowed more flexibility on the technical approach. The Program Executive Office Enterprise Information Systems (PEO EIS) received funding in FY09 to identify DON requirements, provide a business case for transition options, establish a prototype process integrated with data management and data services tools to support bottom up data governance and data discovery efforts to inform authoritative data store development for future information technology system migration, and provide program management to support the Navy transition to a DIMHRS core product, NMCTFS, or future pay and personnel solutions.

2907 RESFOR IT - Sea Warrior (SW): Sea Warrior includes the Navy manpower management, career management, personnel distribution, recruiting and accessions, training and education information technology systems. The products produced by the Sea Warrior Program Management Office support the Navy mission by ensuring the best available fit of personnel to work. Funding is for (1) implementation of deferred or new engineering change proposals executed as block updates (CMS/ID MU1A-1, MU1A-2, MU1B, MU1B-2, MU1B-3 and MU1B-4) with new functionality; and (2) design and development of an enterprise training management and delivery capability to replace the current Navy e-learning delivery platform.

3026 Enterprise Resource Planning (ERP) Convergence: The Navy ERP solution is an integrated business management system that modernizes and standardizes Navy's business processes. Navy ERP utilizes best commercial practices software to provide real-time information exchange, unprecedented financial and asset

visibility, and improved reporting and decision-making capabilities across key acquisition, financial, and logistics operations. Navy ERP is the tool chosen to meet Congressional mandates to establish and maintain federal financially compliant management systems, federal accounting standards, and US Government Ledger procedures at the transaction level. The Navy ERP foundation to achieve enterprise-wide business transformation is accomplished through two releases; the Financial/ Acquisition Solution (Release 1.0) and the Single Supply Solution (Release 1.1). In October 2008, Assistant Secretary of the Navy, Financial Management & Comptroller designated Navy ERP the Navy's Financial System of Record. The current Program of Record is scheduled to deploy to approximately 64,000 users. Approximately 53% of the Navy's Total Obligation Authority will be managed by Navy ERP.

Deployment of Release 1.0 to Naval Aviation Systems Command (NAVAIR) and to Naval Supply Systems Command (NAVSUP) occurred in October 2007 and October 2008, respectively, as planned. Deployment of Release 1.0 to Space and Naval Warfare Systems Command is scheduled for October 2009. The Single Supply Solution (Release 1.1) development and testing are scheduled to complete 2nd quarter FY 2010 and planned to go live 2nd quarter FY2010 to NAVICP Philadelphia and Mechanicsburg. The Navy has committed to implementing the Navy ERP
capabilities across the full Navy enterprise in order to tie Navy business processes together in a single system, provide unprecedented financial transparency, and increase asset visibility.

3034 Future Pay and Personnel System - Funding supports Future Pay and Personnel System (FPPS) design, development and modernization efforts. Provides development, integration, and support of future pay and personnel system capabilities, including the modernization and consolidation of existing pay and personnel systems into the DIMHRS core and remaining Navy-unique development and modernization efforts for a fully integrated pay and personnel solution. Includes (1) development of specifications and design of solutions to integrate with DIMHRS core and/or othe selected pay and personnel products, (2) design and development of solutions to provide remaining Navy-unique capabilities defined by a Navy gap analysis; (3) staffing of the Navy program office, development and modernization support from the functional organization, (4) development and modernization of remaining legacy system interfaces; (5) development of the authoritative data store and interfaces with the DIMHRS core and other pay and personnel products; and Operational Test and Evaluation of the selected future pay and personnel solution.

3167 Joint Technical Data Integration (JTDI) Program - Funding supports the evaluation, testing and integration to develop a JTDI Commercial Off The Shelf (COTS) solution for installation on a Carrier (CV) and Amphibious Assault (L) class ships and up to 104 Navy/Marine Corp aviation activities. JTDI is a digital technical data access, delivery and local O&I level library management toolset and telemaintenance collaboration process enabler. It improves accuracy and timeliness of technical manual and other technical data delivery and minimizes the Fleet's library management burden. JTDI reduces maintenance workhours with saving Return on Investment (ROI) of 2.5:1. It facilitates the transition of the Joint Distance Support and Response (JDSR) Advanced Concept Technology Demonstration (ACTD) for telemaintenance and provides for process efficiencies to support ongoing Aviation Fleet Technical Representative reductions. Portable Electronic Maintenance Aids (PEMA): Funding supports the evaluation, testing and integration to develop PEMA Commercial Off The Shelf (COTS) solution for portable device deployments across the Naval Aviation Enterprise (NAE). PEMA is a portable device utilized by maintainers with the implementation of digital maintenance capabilities (digital publications, Integrated Electronic Technical Manuals(IETMs), IP based data uploads, BIT data downloads, automated diagnostics, and planeside NALCOMIS). PEMAs are a mandatory display device supporting modern day Automated Maintenance Environment (AME) implemented for weapon 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*

JTDI FY11 OCO: Integration of Distance Support Telemaintenance kit for forward deployed Naval Aviation weapon systems in support of GWOT Tactical Operations as validated by the Program Management Activities (PMAs). Increased OpTempos has necessitated rapid access to Subject Matter Experts (SME) to assess and recommend repair procedures for battle damage and other combat operations related discrepancies. Distance Support Telemaintenance Kits are utilized to access SMEs in near real time from across the globe and has demonstrated maintenance turn around time improvements. This procurement will establish a fully deployable telemaintenance capability to support the fleet maintainer level utilizing high resolution telemaintenance capabilities to collaborate with SMEs to maintain Ready For Tasking (RFT) aircraft. The purpose of this procurement is to integrate proven COTS components into a ruggedized deployable solution.

3185 Joint Air Logistics Information System (JALIS): JALIS: This system provides an airlift data collection and analysis system for the purpose of airlift and aircraft management. JALIS supports the objectives and strategies presented in the DoD Transportation Corporate Information Management (CIM) Strategic Plan and Enterprise Integration (EI) Implementation Strategy as directed for DoD transportation management responsibilities in the USTRANSCOM Joint transportation CIM Center (JTCC) Abbreviated Integration Decision Paper (IDP) for the JALIS.

9406 Maintenance Data Warehouse/NAVAIR DECKPLATE - The development of the Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE) program is the next generation data warehouse for aircraft maintenance, flight and usage data. It provides a web-based interface to a single source of information currently being stored in multiple NALDA systems. Through the use of analysis, query and reporting tools the user has the capabilities to effectively obtain readiness data in a near real-time environment, as well as historical data for trend analysis and records reconstruction. DECKPLATE supports the mission of the warfighter who requires a single source of near real-time aviation data in which to base critical readiness decisions. This requires collecting data from authoritative sources into a data warehouse. Because the warfighter only needs to access one database, the time consuming task of collecting various pieces of data form various sources will be reduced and ultimately eliminated. This improves data quality because it reduces the possibility of two systems providing identical data elements, but slightly different data. Data availability is improved through continuous near real-time feeds from the data sources, giving the warfighter the most current information to base decisions. In addition, this also accomplishes a reduction in legacy systems mandated by OPNAV.

9999 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	91.643	69.026	0.000	0.000	0.000
Current President's Budget	99.628	91.425	28.280	0.000	28.280
Total Adjustments	7.985	22.399	28.280	0.000	28.280
• Congressional General Reductions		-0.381			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.060			
• Congressional Adds		22.840			
• Congressional Directed Transfers		0.000			
• Reprogrammings	9.550	0.000			
• SBIR/STTR Transfer	-1.565	0.000			
• Program Adjustments	0.000	0.000	28.280	0.000	28.280
• Rate/Misc 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: *Instrumented Underwater Training Systems*	0.000	2.231
Congressional Add: *Integrated Manufacturing Systems 3D Simulation and Modeling Project*	0.000	1.992
Congressional Add: *Maintenance Planning and Assessment Technology Insertion*	0.000	1.195
Congressional Add: *METOC Integrated Network-Centric Technology Systems*	0.000	2.589
Congressional Add: *SPAWAR Systems Center/ITC New Orleans*	0.000	3.187
Congressional Add: *DIGITAL ACCESS OF NCIS RECORDS*	1.596	1.195
Congressional Add: *CONDITION-BASED MAINTENANCE ENABLING TECHNOLOGIES*	2.393	2.390
Congressional Add: *INTEGRATION OF LOGISTICS INFO FOR KNOWLEDGE PROJEC*	1.596	1.593
Congressional Add: *NATIONAL TERRORISM PREPAREDNESS INSTITUTE CCOUNTER*	2.992	0.000
Congressional Add: *Base Level Inventory Tracking System Enhancements*	2.792	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add: *Supply Chain Logistics Capability at the ABL NIROP*	7.978	6.373
Congressional Add Subtotals for Project: 9999	19.347	22.745
Congressional Add Totals for all Projects	19.347	22.745

Change Summary Explanation

Technical: Not applicable.

Schedule: 3167, Joint Technical Data Integration: The decrease in FY11 funding caused the Contract Award, Release 3.5 to shift two quarters to the right, impacting the remaining releases and events after Release 3.5.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2901: *AAUSN IT*	

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
2901: *AAUSN IT*	3.868	0.972	2.800	0.000	2.800	2.546	0.112	0.000	0.000	0.000	44.464
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

NCIS MODERZNIZATION INITIATIVE (includes multiple projects with RDT&E requirements: Multiple Threat Alert Center (MTAC), Data Modernization & Analytical Tools, and Knowledge Network (K-Net)):

MULTIPLE THREAT ALERT CENTER (MTAC): The Post-Cole Secretary of the Navy Antiterrorism/Force Protection Task Force identified the need for NCIS to enhance the Multiple Threat Alert Center (MTAC). The MTAC provides key anti-terrorism/force protection products in response to Fleet tasking and is critical to Fleet protection during the current Global War on Terrorism. This project provides funding for the development of an IT system to track the movement of NCIS special agents deployed in advance of DoN in-transit units. The ability to track and communicate with these agents is necessary in order to forward threat data to these forward deployed agents and to task them to respond to emerging threats. Funding is required for equipment and contractor support to modify COTS software.

DATA MODERNIZATION & ANALYTICAL TOOLS: NCIS data collection, filtering, and analysis infrastructure is unable to handle the increased flow of terrorism investigative and threat reporting of the Post 9/11-Global War on Terrorism era. NCIS must revitalize its infrastructure and its data and investigation management capabilities to effectively counter current terrorist threats. The three main components of this portfolio investment are data modernization, knowledge management, and investigation management.

KNOWLEDGE NETWORK (K-Net): K-Net is a Data Modernization & analytical tool being developed and soon deployed that greatly enhances NCIS's technological arsenal. K-Net implements an integrated NCIS approach for identifying, capturing, evaluating, retrieving, and sharing all of NCIS's knowledge and expertise. To that end, K-Net is a knowledge management system that improves NCIS's ability to search, analyze, fuse, and distribute both national intelligence and law enforcement information. The envisioned end state for K-Net is a secure, intuitive, web environment that is the one stop shop where applications, data, and tools are easily accessible to all of NCIS users to effectively and securely fulfill their mission regardless of when and where they operate.

NCIS RECORDS DIGITALIZATION: The Records Management Information System (RMIS) is an on-going contractor supported effort to develop a system that will digitalize all of the NCIS criminal and counterintelligence investigative records.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2901: *AAUSN IT*

DEPARTMENT OF THE NAVY CRIMINAL JUSTICE INFORMATION SYSTEM (DONCJIS): The Naval Criminal Investigative Service (NCIS) is the Executive Agent (EA) for the Department of the Navy Criminal Justice Information System (DONCJIS) formely (CLEOC). This system provides a cradle to grave criminal justice and law enforcement information system.

THE SECRETARY OF THE NAVY'S COUNCIL OF REVIEW BOARDS (SCORB): A modular, integrated, web-based system designed to retrieve, process manage and track cases, replacing four existing client-server databases operating on a non-NMCI compliant platform for the Combat Related Special Compensation Board, Physical Evaluation Board, Naval Clemency and Parole Board, and Naval Discharge Board in Phase One of this project.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Modernization	3.082	0.000	2.500	0.000	2.500
The NCIS Modernization Initiative includes multiple projects with RDT&E requirements : Multiple Threat Alert Center (MTAC), Data Modernization & Analytical Tools, and Knowledge Network (K-Net). *FY 2009 Accomplishments:* Prototype Phase completed the initiatial devlopment of "ThreatPlanner" (original Modernization portfolio) as well as subsequent spirals of K-Net capabilities, to include centralized database checks on individuals; and MTAC-related production and synthesis capabilities in support of Maritime Domain Awareness. *FY 2011 Base Plans:* Developmental efforts directed at emerging technologies in Data Collection and Knowledge Management with an emphasis on integrating them into the law enforcement and counter intelligence mission area of NCIS.					
DONCJIS	0.581	0.972	0.300	0.000	0.300
The Naval Criminal Investigative Service (NCIS) is the Executive Agent (EA) for the Department of the Navy Criminal Justice Information System (DONCJIS). This system provides a cradle to grave criminal justice and law enforcement information system. The system enables multiple communities within					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2901: *AAUSN IT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
the DON to share criminal justice and law enforcement information. Funding is required for contractor support to develop, test, train , deploy and implement this application. *FY 2009 Accomplishments:* The deployment of DONCJIS is being held in abeyance. Pre-deployment testing revealed signficant operability problems that significantly degraded the system. SPAWAR is conducting a baseline review of the system in order to determine whether or not corrective action can be taken or whether a new develpmental effort must be started. *FY 2010 Plans:* Contractor support for continual development of additional DONCJIS spirals/versions. *FY 2011 Base Plans:* Contractor support for continual development of additional DONCJIS spirals/versions.					
SCORB *FY 2009 Accomplishments:* THE SECRETARY OF THE NAVY'S COUNCIL OF REVIEW BOARDS (SCORB): A modular, integrated, web-based system designed to retrieve, process manage and track cases, replacing four existing client-server databases operating on a non-NMCI compliant platform for the Combat Related Special Compensation Board, Physical Evaluation Board, Naval Clemency and Parole Board, and Naval Discharge Board in Phase One of this project.	0.205	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	3.868	0.972	2.800	0.000	2.800

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 2901: *AAUSN IT*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

DONCJIS has a requirement for a contractor to provide full life-cycle software development services (requirements analysis, project management and planning, design, development, testing, documentation , training, implementation, and post-implemenation support). The selected contractor has knowledge of the existing DoD Law Enforcement information systems pertinent to the task and has the corporate experience and a staff of knowledgeable personnel to provide the required services. The task is monitored by the Contracting Officer Representative (COR), who reviews technical data submissions, system deliverables, and invoices to ensure acceptable contractor performance and scheduled deliveries.

E. Performance Metrics

"Program cost, schedule and peformance are measured using a systematic approach with approved programs and methods. The results of these measurements are presented to NCIS
management through a governance review board process on a regular basis to determine program effectiveness and to provide new direction as needed to ensure the efficient use of
resources. To monitor and manage the execution of projects in addition to other IT investments, management and governance boards review metrics and key performance indicators
that are outlined in various plans. Some of the plans that expound on the data captured to attribute to performance measures include: Project Manatgement Plan, Risk Mitigation Plan, Communication Plan, Procurement Plan, and a Certification & Accrediitation PLan.
Other specific performance measurements include:
1. Actual versus planned project scope
2. Actual versus planned time schedule
3. Actual versus planned costs
4. Actual versus planned risks and the mitigation of those risks
"

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2901: *AAUSN IT*

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 (Modernization)	C/FP	Northrop Grumman Not Specified	0.000	0.000		2.500		0.000		2.500	2.546	5.046	Continuing
Contractor Engineering Support (DONCJIS)	TM	Interimage Inc. Manassas, VA	0.581	0.972	Oct 2009	0.300	Oct 2010	0.000		0.300	0.000	1.853	Continuing
Contractor Engineering Support (SCORB)	C/FP	Telophase Inc VA	1.671	0.000		0.000		0.000		0.000	0.000	1.671	Continuing
		Subtotal	2.252	0.972		2.800		0.000		2.800	2.546	8.570	

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	2.252	0.972		2.800		0.000		2.800	2.546	8.570	

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 2901: *AAUSN IT*

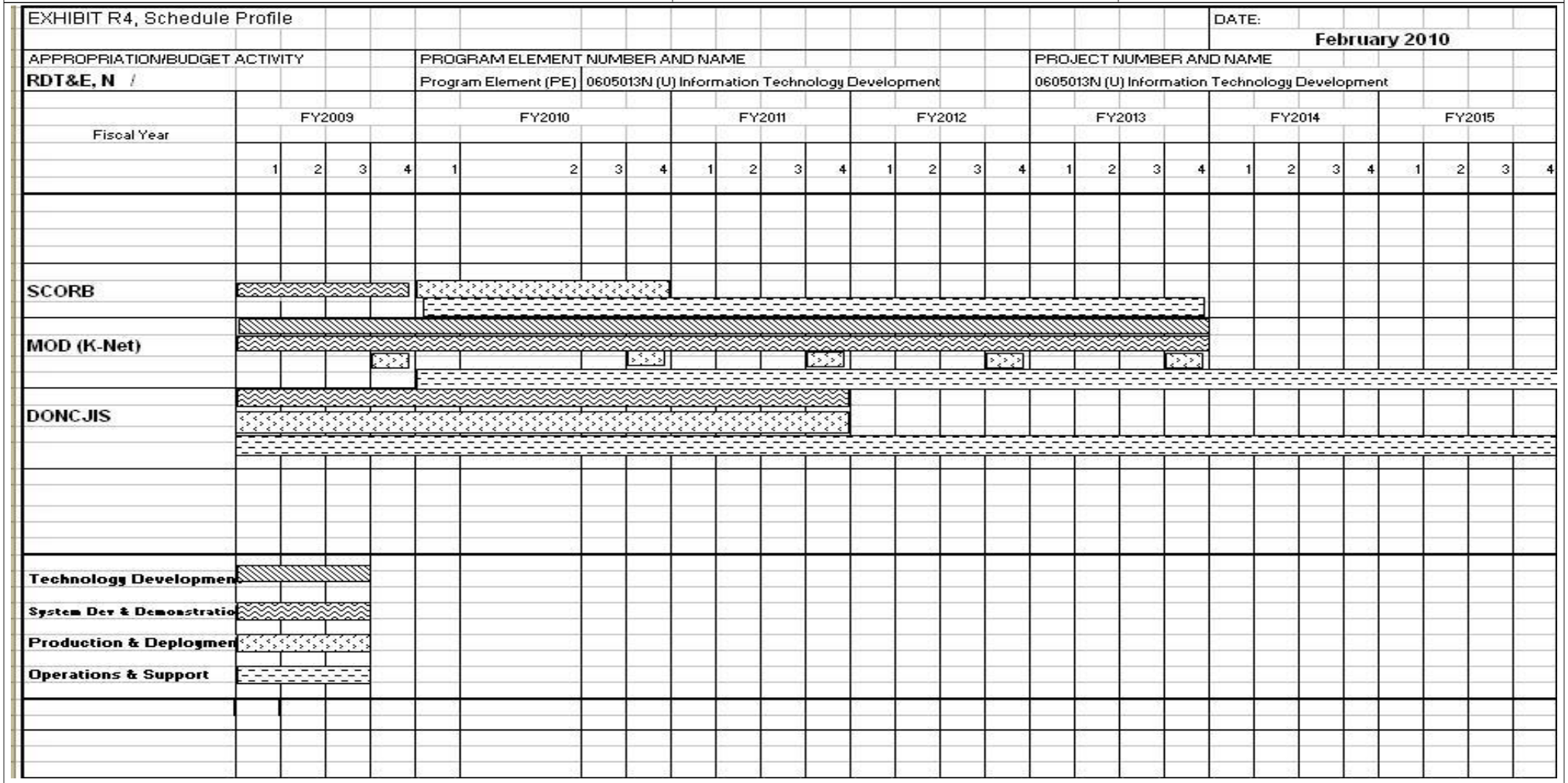


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 2901: *AAUSN IT*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Technology Development (Modernization)	1	2009	4	2013
System Development & Demonstration (Modernization)	1	2009	4	2013
Production & Deployment (Modernization)	4	2009	4	2015
Operations & Support (Modernization)	1	2010	4	2015
System Development & Demonstration (DONCJIS)	1	2009	4	2011
Production & Deployment (DONCJIS)	1	2009	4	2011
Operations & Support (DONCJIS)	1	2009	4	2015
System Development & Demonstration (SCORB)	1	2009	4	2009
Production & Deployment (SCORB)	1	2010	4	2010
Operations & Support (SCORB)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2903: *NAVAIR IT*	

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
2903: *NAVAIR IT*	0.684	0.772	0.723	0.000	0.723	0.857	0.855	0.841	0.858	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

CMIS - The Configuration Management Information System (CMIS) Program is DoD's standard software system for complete and integrated configuration management (CM) of weapon systems from acquisition to disposal. CMIS efficiently manages all product structure data, including complex interrelationship between assemblies and subassemblies, technical documentation and the parts that comprise the item. CMIS is designed to manage and control configuration data to support the DoD business processes. Accurate, complete and accessible configuration data is critical to the successful operations of DoD weapon systems or tracked assets. Mission readiness and operational capabilities are enhanced by CMIS, as instant consistent integrated configuration data is readily available to operators, maintainers and logistics personnel. This system is a CM tool available DoD wide to support all potential customers. CMIS provides users with a common database infrastructure to ensure compatibility, quality, and consistency of CM processes and provides configuration managers and analysts the validated CM information necessary for accurate maintenance, spare procurements, reliability and safety analysis, and mission readiness. Funding is budgeted to support the services of rehosting and testing of COTS upgrades to ensure objective performance of CMIS is achieved.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
CMIS Annual Software Release	0.684	0.772	0.723	0.000	0.723
FY 2009 Accomplishments: Re-baseline CMIS Software to upgrade to latest version of Oracle, incorporate development efforts associated with COTS obsolescence, and evolve an open standard interface to other systems.					
FY 2010 Plans: Re-baseline CMIS Software to upgrade to latest version of Oracle, incorporate development efforts associated with COTS obsolescence, and evolve an open standard interface to other systems.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2903: *NAVAIR IT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Re-baseline CMIS Software to upgrade to latest version of Oracle, incorporate development efforts associated with COTS obsolescence, and evolve an open standard interface to other systems.					
Accomplishments/Planned Programs Subtotals	0.684	0.772	0.723	0.000	0.723

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

CMIS - The CMIS Program used Joint Logistics Systems Center (JLSC) funds to evolve CMIS to Software Release 5.0. In June 1998 CMIS was transferred to the Navy as executive agent and NAVAIR as program manager. Program Budget Decision 401 transferred joint funding from JLSC to NAVAIR to continue evolving CMIS. The CMIS Program Manager continues to evolve the program to keep pace with cost, Military Standards, and evolving commercial standards. Various contractors using competitively awarded contracts have supported the program. Currently, Intergraph Corporation is the CMIS integration contractor selected through a GSA contract.

E. Performance Metrics

CMIS - Milestone C Spiral Development:

1. Release 8.0.12 within 270 days of FY10 start.
2. Security - Currently operating under Interim Authority to Operate (IATO); will receive Authority to Operate (ATO) by 16 March 2010.
3. During the life of the contract verify conformance with agency specific information processing standards and functional requirements. Prior to delivery of enhanced software, demonstrate the operational capability of the system software. Functionality of the software must meet required systems architecture and processing capabilities. All requirements mandated by law or regulation must be 100% compliant. Independent verification and validation (IV&V) will be used for testing new releases of software to determine that previous functionality is maintained. Customer satisfaction will be measured through limited validated customer complaints, feedback, and surveys.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2904: *NAVSEA IT*	

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
2904: *NAVSEA IT*	22.842	26.073	22.501	0.000	22.501	26.276	25.754	25.383	25.930	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 includes the funding for Information Technology (IT) support at NAVSEA managed by the NAVSEA 04 Ship Maintenance and Logistics Information Systems (SMLIS) Program Management Office (PMO) for the support of maritime maintenance and includes multiple modernization efforts to insure effectiveness of Fleet maintenance systems. These efforts include retirement and/or replacement of costly legacy systems, transition planning and systems engineering for integration with national and enterprise interim and future solutions. It includes the technical refresh of Naval Shipyard maintenance, repair and overhaul (MRO) production tools. This includes modifications/enhancements to Shipyard IT systems, such as Advanced Industrial Management (AIM); AIM Express (Xp), Project Scheduling and Sequencing (PSS), Performance Measurement & Control (PMC), Navy Workload and Performance System (NWPS) and NAVSEA Forecaster (NSFC). This program also supports development and modernization of the NAVSEA HQ tool Capital Asset Tracking System (CATS) and other new start technologies/systems. The goal of this program is to provide modernization, migration, and consolidation of obsolete legacy systems to the next generation of centrally hosted tools supporting MRO of the fleet force assets. This funding also support development and modification to existing software, hardware changes, contractual program management and technical support to modify/enhance the NAVSEA HQ systems and infrastructure

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
DAWDF	0.112	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Acquisition Workforce					
NAVSEA IT	22.730	26.073	22.501	0.000	22.501
2904 This program includes the funding for Information Technology (IT) support at NAVSEA managed by the NAVSEA 04 Ship Maintenance and Logistics Information Systems (SMLIS) Program Management Office (PMO) for the support of maritime maintenance and includes multiple					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2904: *NAVSEA IT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
modernization efforts to insure effectiveness of FLEET maintenance systems; including the technical refresh of Naval Shipyard and Regional Maintenance Center (RMC) maintenance, repair and overhaul (MRO) production tools. This project will allow Navy to realign functionality, consolidate systems and applications, and re-platform operations to facilitate a centrally hosted, net-centric maintenance solution suite. *FY 2009 Accomplishments:* Completed design and began development for Mobile Workforce Enablement (MWE) and SHIPS-3M modernizations. Completed analysis and planning for legacy systems retirement - seeking IRB approval in FY10 Q1. *FY 2010 Plans:* Planning major systems security upgrade. Planning and designing major legacy system retirement pending IRB approval. *FY 2011 Base Plans:* Expecting to deploy systems security upgrade planned in FY10. Expecting to complete testing of solution planned for deployment to facilitate retirement of legacy maintenance system.					
Accomplishments/Planned Programs Subtotals	22.842	26.073	22.501	0.000	22.501

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Navy information technology (IT) products have been supported by a variety of activities and have been developed and deployed and maintained using numerous tools and techniques. This "stovepipe" approach to development has made integration difficult and as a result, has reduced the functional benefits and cost savings that could be realized from common system standards; common processes; shared resources and infrastructure. Furthermore, the lack of standard development methodology and tool sets has increased the corporate support costs of automated solutions. Consolidation of the management of the NAVSEA 04 IT operations at a

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2904: *NAVSEA IT*

corporate level will facilitate IT system consolidation and support the further reduction in information technology toolsets as identified within the Navy Functional Area Manager (FAM) endeavors. Two key aspects of such a consolidation would be improved system performance at less cost and consistent formal processes. NAVSEA 04 has established the CDA (Central Design Activity) PMO (Program Management Office) to oversee all IT development efforts and to acquire and manage IT services.

E. Performance Metrics

FY10 - Complete planning and design for Advanced Industrial Management (AIM) Suite transition for Navy Regional Maintenance Centers (RMCs) and Ship Repair Facility (SRF) to support approximately 2200 users.

FY11 - Complete unit and integrated testing for AIM Suite for Navy RMCs and SRF to support approximately 2200 users.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2904: *NAVSEA IT*	

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/CPFF	NAVSEA WNY, D.C.	27.867	26.073	Feb 2010	22.501	Oct 2011	0.000		22.501	96.140	172.581	172.581
Software Development	WR	FISC Philadelphia, PA	5.000	0.000		0.000		0.000		0.000	0.000	5.000	5.000
		Subtotal	32.867	26.073		22.501		0.000		22.501	96.140	177.581	177.581

Remarks

The NAVSEA 04 Program Office for Information Technology plans to execute all contract awards through the NAVSEA SEAPORT vehicle (started in FY09).

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
DAWDF	Various/ TBD	Not Specified Not Specified	0.112	0.000		0.000		0.000		0.000	0.000	0.112	0.112
		Subtotal	0.112	0.000		0.000		0.000		0.000	0.000	0.112	0.112

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2904: *NAVSEA IT*	

	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	32.979	26.073		22.501		0.000		22.501	96.140	177.693	177.693

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 2904: *NAVSEA IT*

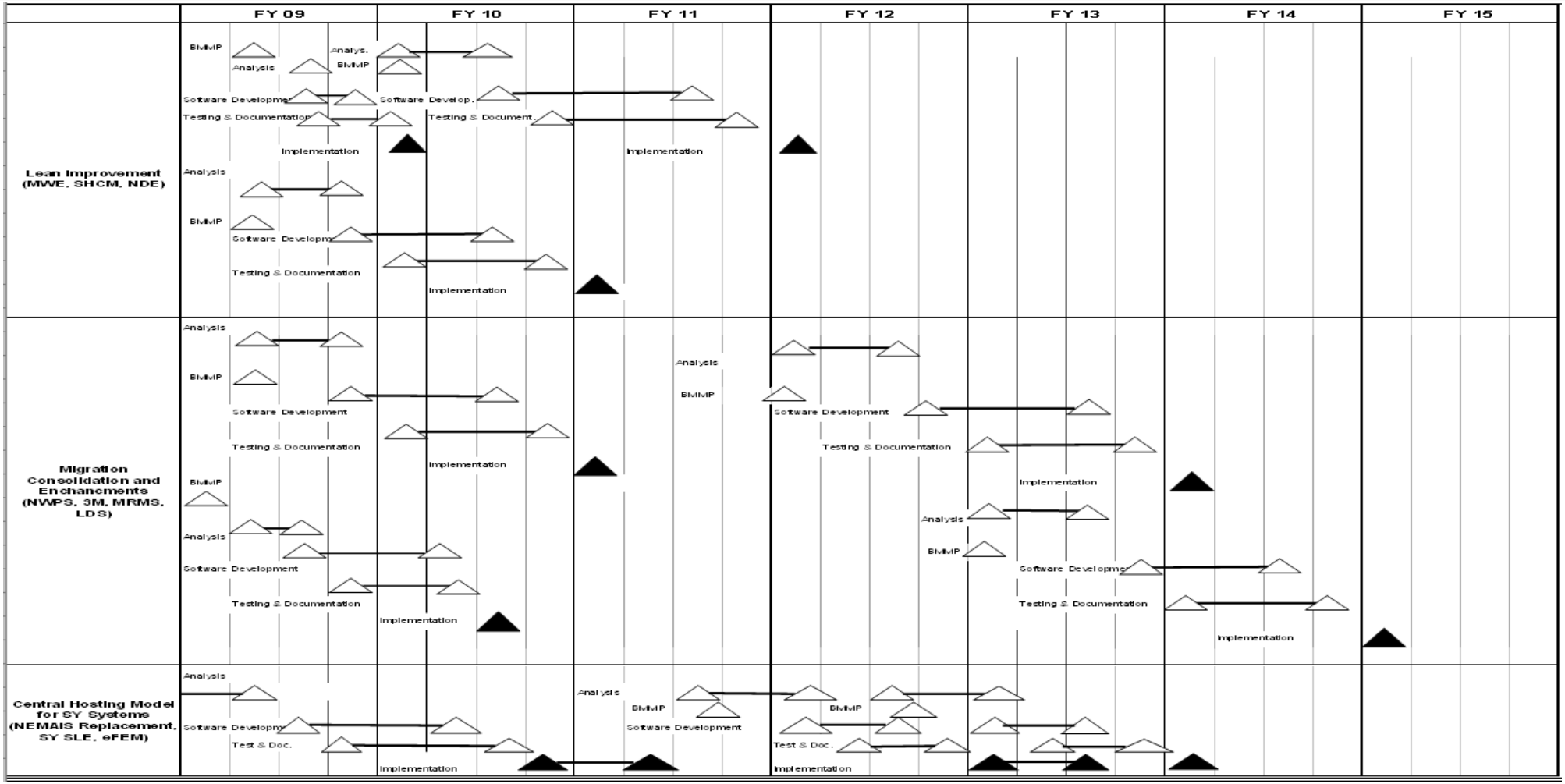


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2904: *NAVSEA IT*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
Lean Systems Improvement - Analysis and design (1)	2	2009	3	2010
Lean Systems Improvement - Analysis and design (2)	4	2011	3	2012
Lean Systems Improvement - Analysis and design (3)	4	2013	3	2014
Lean Systems Improvement -BMMP Approval (1)	2	2009	2	2009
Lean Systems Improvement -BMMP Approval (2)	1	2010	1	2010
Lean Systems Improvement -BMMP Approval (3)	4	2011	4	2011
Lean Systems Improvement -BMMP Approval (4)	4	2013	4	2013
Lean Systems Improvement - Software development (1)	3	2009	3	2010
Lean Systems Improvement - Software development (2)	1	2011	3	2011
Lean Systems Improvement - Software development (3)	3	2012	2	2013
Lean Systems Improvement - Software development (4)	2	2014	2	2015
Lean Systems Improvement - Testing and documentation (1)	3	2009	4	2011
Lean Systems Improvement - Testing and documentation (2)	4	2012	4	2012
Lean Systems Improvement - Testing and documentation (3)	1	2013	3	2013
Lean Systems Improvement - Testing and documentation (4)	4	2014	3	2015
Lean Systems Improvement - Implementation (1)	1	2010	1	2010
Lean Systems Improvement - Implementation (2)	1	2011	1	2011
Lean Systems Improvement - Implementation (3)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2904: *NAVSEA IT*

	Start		End	
Event	Quarter	Year	Quarter	Year
Lean Systems Improvement - Implementation (4)	3	2013	3	2013
Lean Systems Improvement - Implementation (5)	4	2015	4	2015
Migration Consolidation and Enhancements - Analysis (1)	2	2009	4	2009
Migration Consolidation and Enhancements - Analysis (2)	4	2011	3	2012
Migration Consolidation and Enhancements - Analysis (3)	1	2013	3	2013
Migration Consolidation and Enhancements - BMMP Approval (1)	1	2009	2	2009
Migration Consolidation and Enhancements - BMMP Approval (2)	4	2011	4	2011
Migration Consolidation and Enhancements - BMMP Approval (3)	3	2012	3	2012
Migration Consolidation and Enhancements - BMMP Approval (4)	1	2013	3	2013
Migration Consolidation and Enhancements - Software development (1)	3	2009	4	2010
Migration Consolidation and Enhancements - Software development (2)	3	2012	3	2014
Migration Consolidation and Enhancements - Testing and Documentation (1)	4	2009	1	2011
Migration Consolidation and Enhancements - Testing and Documentation (2)	1	2013	4	2014
Migration Consolidation and Enhancements - Implementation (1)	2	2011	2	2011
Migration Consolidation and Enhancements - Implementation (2)	1	2014	1	2014
Migration Consolidation and Enhancements - Implementation (3)	1	2015	1	2015
Central Hosting Model for SYD Systems - Analysis (1)	1	2009	2	2009
Central Hosting Model for SYD Systems - Analysis (2)	2	2010	3	2010
Central Hosting Model for SYD Systems - Analysis (3)	3	2011	1	2012
Central Hosting Model for SYD Systems - Analysis (4)	3	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 2904: *NAVSEA IT*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Central Hosting Model for SYD Systems - Analysis (5)	4	2013	4	2014
Central Hosting Model for SYD Systems - BMMP Approval (1)	1	2010	1	2010
Central Hosting Model for SYD Systems - BMMP Approval (2)	3	2011	3	2011
Central Hosting Model for SYD Systems - BMMP Approval (3)	3	2012	3	2012
Central Hosting Model for SYD Systems - BMMP Approval (4)	4	2013	4	2013
Central Hosting Model for SYD Systems - Software development (1)	3	2009	4	2010
Central Hosting Model for SYD Systems - Software development (2)	1	2012	3	2012
Central Hosting Model for SYD Systems - Software development (3)	1	2013	3	2013
Central Hosting Model for SYD Systems - Software development (4)	2	2014	3	2015
Central Hosting Model for SYD Systems - Testing and Documentation (1)	2	2010	2	2011
Central Hosting Model for SYD Systems - Testing and Documentation (2)	2	2012	4	2012
Central Hosting Model for SYD Systems - Testing and Documentation (3)	2	2013	4	2013
Central Hosting Model for SYD Systems - Testing and Documentation (4)	3	2015	4	2015
Central Hosting Model for SYD Systems - Implementation (1)	3	2011	1	2012
Central Hosting Model for SYD Systems - Implementation (2)	1	2013	3	2013
Central Hosting Model for SYD Systems - Implementation (3)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2905: *BUPERS IT*	

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
2905: *BUPERS IT*	6.292	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	63.522
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The John Warner NDAA FY 2007, Pub. I, No. 109-364, directed the SECNAV to prepare a report on the Marine Corp Total Force System (MCTFS), including an analysis of alternatives to MCTFS, which compared the costs of deploying and operating MCTFS within the Navy and the cost of including Navy in the Defense Integrated Military Human Resource System (DIMHRS) development. Based on the review, the Deputy Secretary of Defense (DEPSECDEF) concluded that it would be in the best interest of the Department of Defense (DOD) and the Department of Navy (DON) to join the other services in migrating to DIMHRS. In Jan 09, DEPSECDEF provided additional guidance for migration to a DIMHRS core, that allowed more flexibility on the technical approach. The Program Executive Office Enterprise Information Systems (PEO EIS) received funding in FY09 to identify DON requirements, provide a business case for transition options, establish a prototype process integrated with data management and data services tools to support bottom up data governance and data discovery efforts to inform authoritative data store development for future information technology system migration, and provide program management to support the Navy transition to a DIMHRS core product, NMCTFS, or future pay and personnel solutions.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
BUPERS IT	6.292	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: (U) Performed a business case analysis study based on the Courses of Action (COA) from the January 09 Defense Integrated Military Human Resources System (DIMHRS) Workshop conducted by DBSMC - The purpose of the Budget Case Analysis (BCA) was to provide a risk mitigation strategy for the Navy in the event the DIMHRS Enterprise Program could not deliver a core pay and personnel capability for the Department. The study was a detailed alternatives analysis that considered the DIMHRS core, Navy Marine Corps Total Force System (NMCTFS), along with other COAs.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2905: *BUPERS IT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(U) Established a prototype/test bed authoritative data source (ADS) process and toolset for the Manpower, Personnel, Training and Education (MPT&E) Domain - This was a phased effort including: requirements definition and concept refinement, integration of automated tools, and execution of the integrated processes and tools with test data. The ADS effort provided a technical foundation to inform future IT dev/mod efforts on how best to define, analyze, cleanse, and standardize the core data required to develop authoritative data stores to support Business Enterprise Priorities (BEPS) of the DOD Enterprise Architecture. (U) Provided programmatic oversight for the business case analysis, information management framework for ADS efforts and engineering, requirements, cost analysis/engineering support - These were the Program Office activities required to ensure that acquisition discipline and rigor were applied in order to achieve cost, performance, and schedule objectives for the Navy's future pay and personnel solution implementation effort.					
Accomplishments/Planned Programs Subtotals	6.292	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Contracting will be accomplished using existing contract vehicles within Team SPAWAR and use of Federally Funded Research and Development Centers (FFRDCs)

E. Performance Metrics

1. Completed the eight sections of the Budget Case Analysis (BCA) Problem Statement, conducted an engineering life-cycle cost, and schedule analysis of each alternative and
provided a recommendation for the most feasible alternative, and provided a logical and defendable argument as to why the recommended material solution is the preferred
course of action.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 2905: *BUPERS IT*

2. Implemented a prototype authoritative data store process and tools for recruiting and accessions departmental data store. Project 2 FTE savings in effort required to standardize, cleanse, tag, and provide reports.
3. Fully staffed project office as measured by percent of billets filled.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2905: *BUPERS IT*	

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/FP	SSC New Orleans New Orleans, LA	2.260	0.000		0.000		0.000		0.000	0.000	2.260	Continuing
Development Support	C/FP	NAVAIR Orlando Orlando, FL	1.000	0.000		0.000		0.000		0.000	0.000	1.000	Continuing
		Subtotal	3.260	0.000		0.000		0.000		0.000	0.000	3.260	

Remarks

Prototype information management framework and authoritative data store for transition to future pay and personnel solution.

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 Services	C/FP	CNA Washington DC	0.380	0.000		0.000		0.000		0.000	0.000	0.380	Continuing
Managment Services	C/FP	NSLC Mechanicsburg Mechanicburg, PA	2.652	0.000		0.000		0.000		0.000	0.000	2.652	Continuing
		Subtotal	3.032	0.000		0.000		0.000		0.000	0.000	3.032	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2905: *BUPERS IT*	

	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	6.292	0.000		0.000		0.000		0.000	0.000	6.292	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2905: *BUPERS IT*	

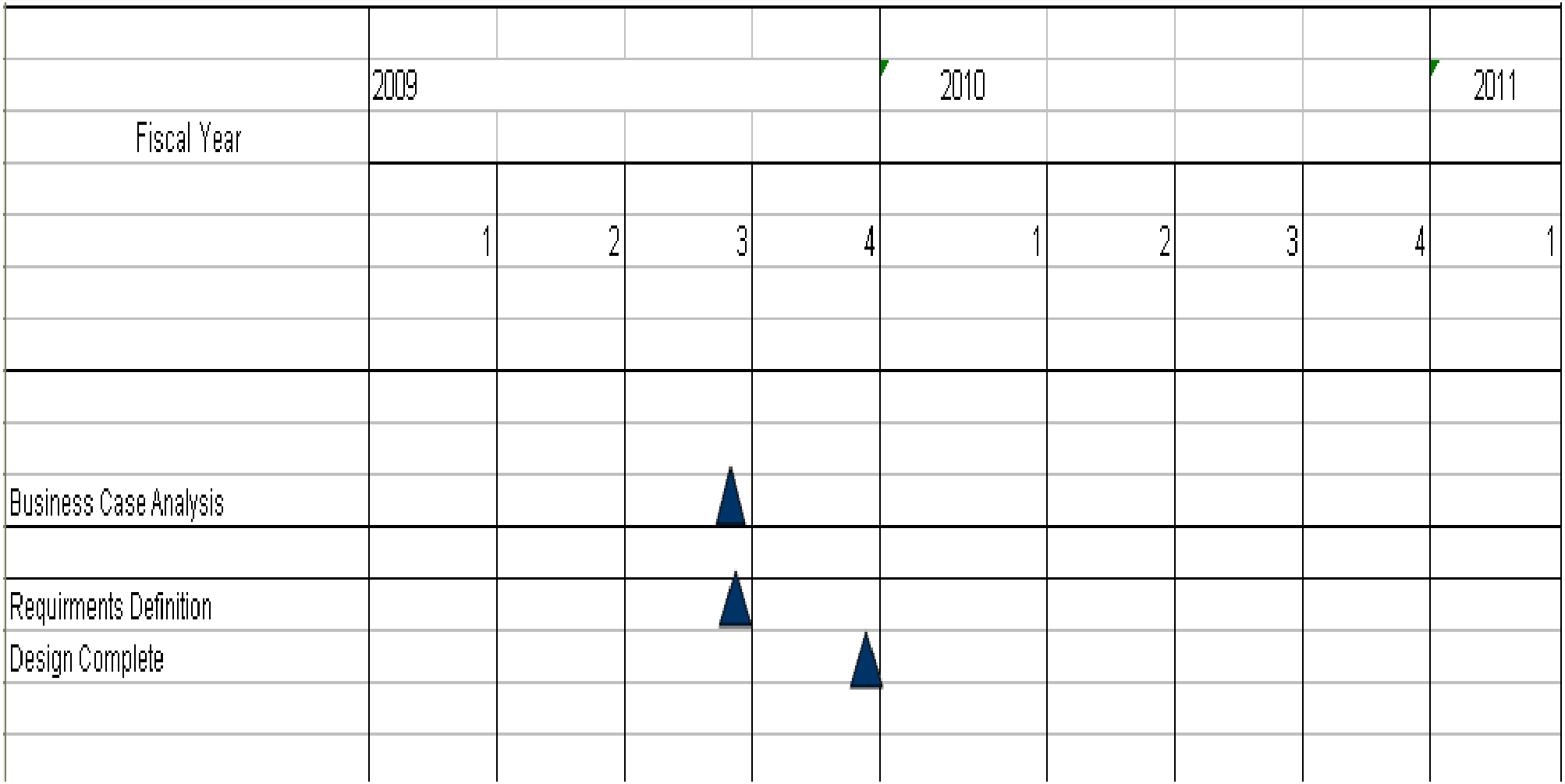


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 2905: *BUPERS IT*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Business Case Analysis	3	2009	3	2009
Requirement Definitions	3	2009	3	2009
Design	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2907: *RESFOR IT*	

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
2907: *RESFOR IT*	3.352	3.485	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	28.824
Quantity of RDT&E Articles	3	3	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

2907 RESFOR IT - Sea Warrior (SW): Sea Warrior includes the Navy manpower management, career management, personnel distribution, recruiting and accessions, training and education information technology systems. The products produced by the Sea Warrior Program Management Office support the Navy mission by ensuring the best available fit of personnel to work. Funding is for (1) implementation of deferred or new engineering change proposals executed as block updates (CMS/ID MU1B, MU1B-2, MU1B-3 and MU1B-4) with new functionality; (2) design and development of an enterprise training management and delivery capability to replace the current Navy elearning delivery platform, and (3) interface and design decomposition work on legacy manpower and personnel systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Sea Warrior Command Management System/Interactive Detailing Development/Modernization	2.331	1.000	0.000	0.000	0.000
FY 2009 Accomplishments: (U) FY09 - Career Management System/Interactive Detailing. Completed block updates for MU1B-1/ MU1B-2. These upgrades included Sailors applying for their own applications and GSA jobs. *FY 2010 Plans:* (U) FY10 - Career Management System/Interactive Detailing, complete block updates for MU1B-3, MU1B-4. These upgrades include active and reserve force capability integration.					
Sea Warrior Enterprise Training Management and Delivery System (ETMDS)	0.700	2.000	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 2907: *RESFOR IT*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: (U) FY09 - Enterprise Training Management and Delivery System to replace the Learning Management System - Distributed Learning (LMS-DL). Initial contract award and system design began in FY09. *FY 2010 Plans:* (U) FY10 - Enterprise Training Management and Delivery System to replace the Learning Management System - Distributed Learning (LMS-DL). Complete system design and development and begin testing.					
Legacy IT Systems Interface/Design Decomposition *FY 2009 Accomplishments:* (U) FY09 - Completed decomposition of interface and design specifications for NAVACTSTAT. *FY 2010 Plans:* (U) FY10 - Begin decomposition of interface and design specifications for Officer Assignment Information System.	0.321	0.485	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	3.352	3.485	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Sea Warrior PMO will follow an incremental development approach to develop future capability. Each increment will be established and approved by OPNAV. Each increment will follow an annual cycle with one major release within the year.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2907: *RESFOR IT*

SW CMS/ID Development Modernization - existing Service System Center New Orleans (SSC NOLA) Systems Engineering and Technical Assistance (SETA) contract will be used for this effort.

SW ETMDS - this will be a competitive contract either under SeaPort or via the open market.

SW Modifications to Legacy IT Systems to implement Billet Based Distribution - existing Service System Center New Orleans (SSC NOLA) Systems Engineering and Technical Assistance (SETA) contract will be used for this effort.

E. Performance Metrics

1. System design development and review will be completed to meet Spiral 1 Increment One milestones in 3rd quarter of FY10.
2. ETMDS Test Readiness Review will be completed before the end of 2010 and development and operational testing completed in FY11 to meet IOC scheduled before 31 October 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2907: *RESFOR IT*

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
Plans/System Decomposition	C/FP	Various New Orleans, LA	1.027	0.000		0.000		0.000		0.000	0.000	1.027	Continuing
System Engineering	C/FP	Various New Orleans, LA	0.248	0.225	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Licenses	C/FP	Various New Orleans, LA	0.145	0.080	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering2	C/FP	Various New Orleans, LA	0.917	0.100	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	2.337	0.405		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
Development Support	C/FP	Various New Orleans, LA	0.226	0.071	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Software Development	C/FP	Various New Orleans, LA	1.174	0.368	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Training Development	C/FP	Various New Orleans, LA	0.282	0.089	Nov 2009	0.000		0.000		0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2907: *RESFOR IT*	

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/FP	Various New Orleans, LA	0.226	0.071	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Configuration Management	C/FP	Various New Orleans, LA	0.125	0.028	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Technical Data	C/FP	Various New Orleans, LA	0.174	0.053	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
GFE	C/FP	Various New Orleans, LA	0.000	0.000		0.000		0.000		0.000	0.000	0.000	Continuing
Software Development	C/FP	Various Various	0.000	0.813	Jan 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Training Development	C/FP	Various Various	0.000	0.195	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support	C/FP	Various Various	0.000	0.156	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Configuration Management	C/FP	Various Various	0.000	0.063	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Technical Data	C/FP	Various Various	0.000	0.117	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Software Development3	C/FP	Various Various	0.000	0.400	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Interface Development	C/FP	Various Various	0.200	0.000		0.000		0.000		0.000	0.000	0.200	Continuing
		Subtotal	2.407	2.424		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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2907: *RESFOR IT*	

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
Acquisition, final design	C/FP	Various Various	0.420	0.000		0.000		0.000		0.000	0.000	0.420	Continuing
		Subtotal	0.420	0.000		0.000		0.000		0.000	0.000	0.420	

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
Development Support	C/FP	Various Various	0.000	0.156	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	C/FP	Various Various	0.402	0.500	Nov 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	0.402	0.656		0.000		0.000		0.000			

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	5.566	3.485		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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2907: *RESFOR IT*	

	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 2907: *RESFOR IT*

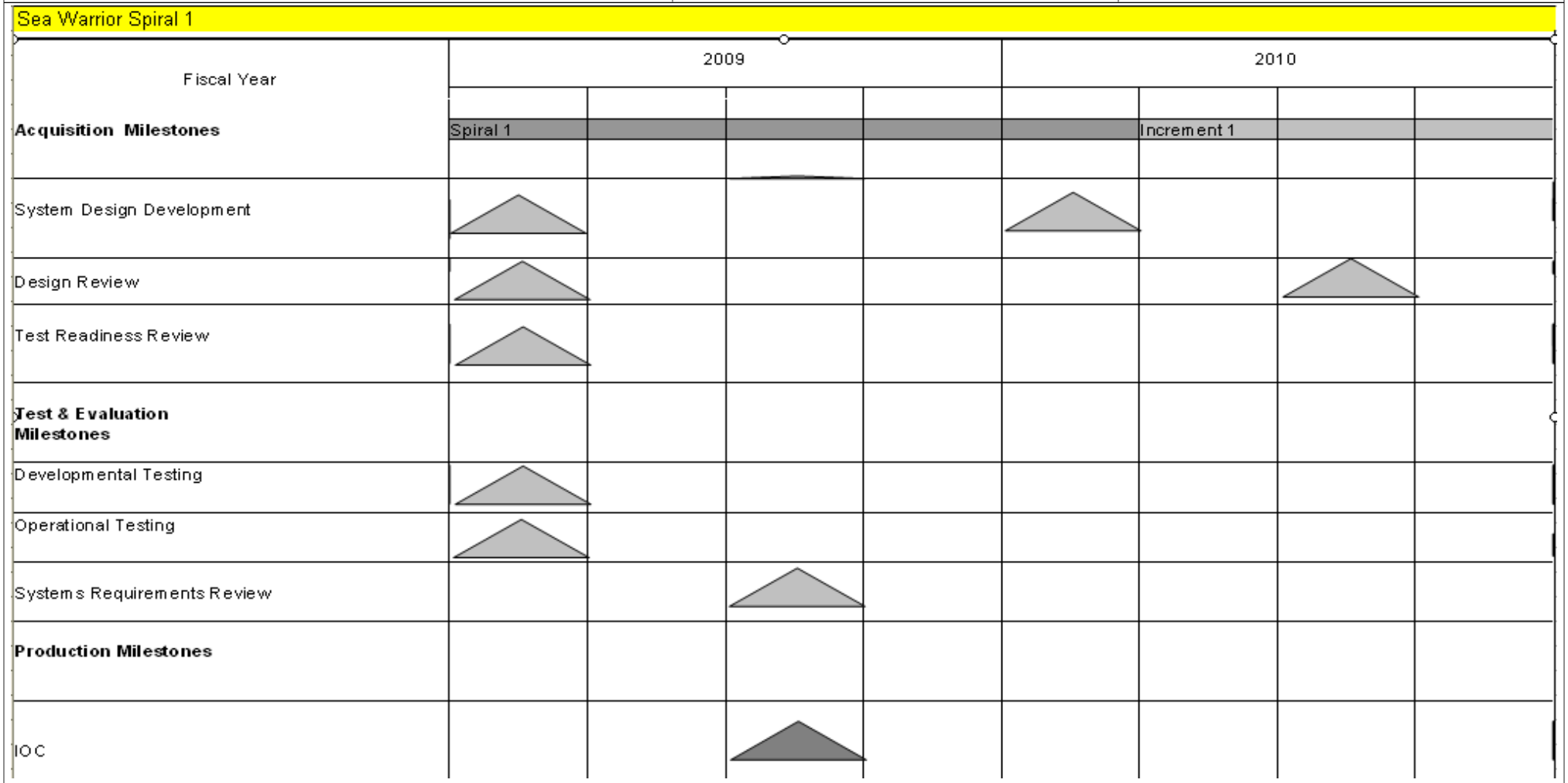


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 2907: *RESFOR IT*

ETMDS

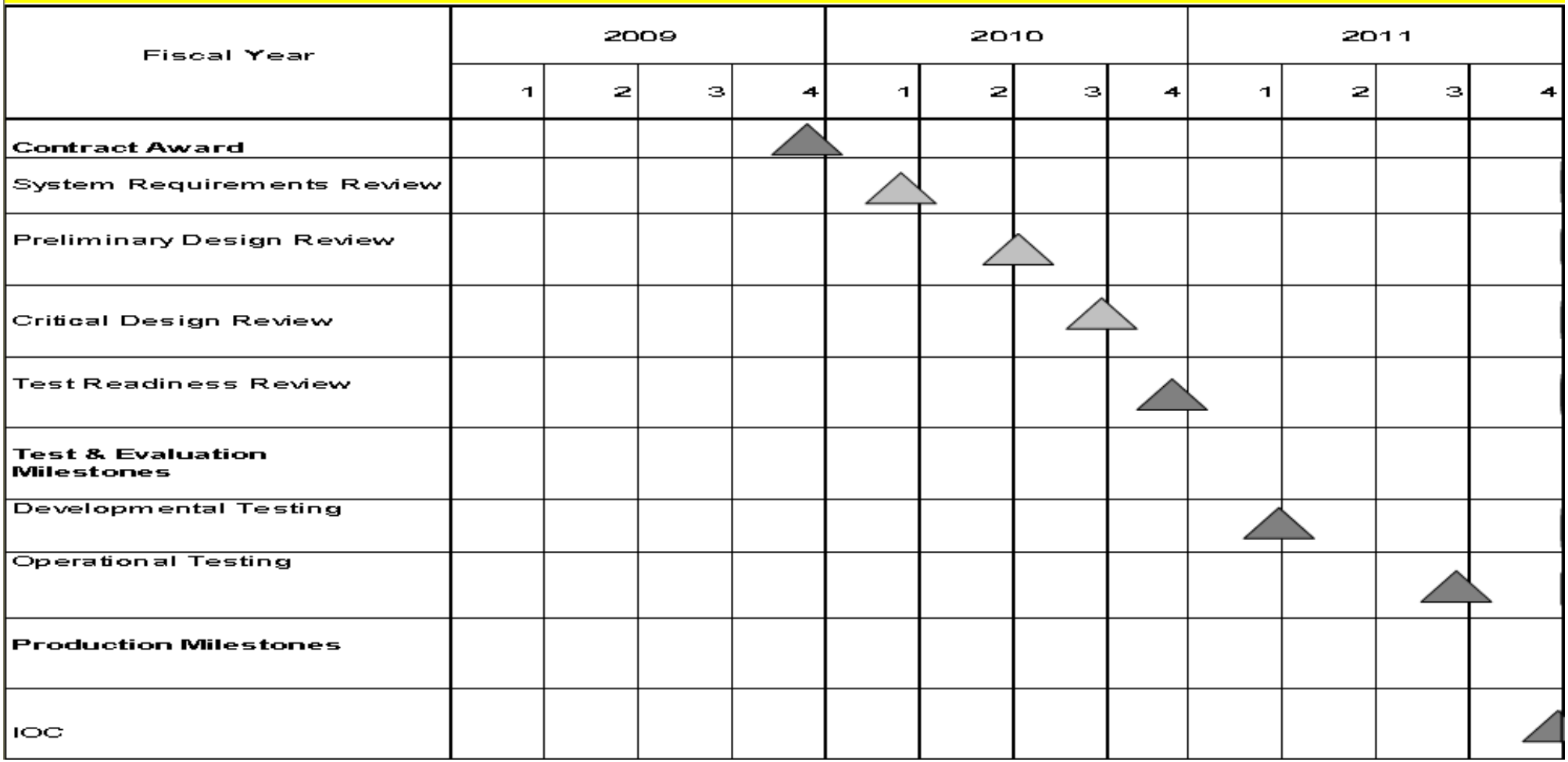


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 2907: *RESFOR IT*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Sea Warrior Spiral 1 System Design Development	1	2010	2	2010
Sea Warrior Spiral 1 Design Review	3	2010	4	2010
Sea Warrior Spiral 1 Operational Testing	1	2009	1	2009
Sea Warrior Spiral 1 System Requirements Review	3	2009	3	2009
Sea Warrior Spiral 1 IOC	3	2009	3	2009
ETMDS System Requirements Review	1	2010	1	2010
ETMDS Preliminary Design Review	2	2010	3	2010
ETMDS Critical Design Review	3	2010	3	2010
ETMDS Test Readiness Review	4	2010	4	2010
ETMDS Developmental Testing	1	2011	1	2011
ETMDS Operational Testing	3	2011	3	2011
ETMDS IOC	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3026: *ERP Convergence*	

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
3026: *ERP Convergence*	40.928	17.083	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	312.601
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Converged Enterprise Resource Planning (ERP) Program: The Navy ERP solution is an integrated business management system that modernizes and standardizes Navy's business processes. Navy ERP utilizes best commercial practices to provide real-time information exchange, unprecedented financial and asset visibility, and improved reporting and decision-making capabilities across key acquisition, financial, and logistics operations.

Navy ERP is the tool chosen to meet Congressional mandates to establish and maintain federal financially compliant management systems, federal accounting standards, and US Government General Ledger procedures at the transaction level. The Navy ERP foundation to achieve enterprise-wide business transformation is accomplished through two releases: the Financial/Acquisition Solution (Release 1.0) and the Single Supply Solution (Release 1.1). In October 2008, ASN FM&C designated Navy ERP the Navy's Financial System of Record. The current Program of Record is scheduled to deploy to approximately 65,000 users. Approximately 53% of the Navy's TOA will be managed by Navy ERP. Deployment of Release 1.0 to Naval Aviation Systems Command (NAVAIR) and to Naval Supply Systems Command (NAVSUP) occurred in October 2007 and October 2008, respectively, as planned. Successful deployment of Release 1.0 to Space and Naval Warfare Systems Command occurred October 2009, reaching full operational tempo in December 2009. The Single Supply Solution (Release 1.1) development and integrated testing is complete 2nd quarter FY 2010 and deployment to Naval Inventory Control Point (NAVICP) Philadelphia and Mechanicsburg is on track for second quarter FY 2010. Future deployments within Navy ERP's Program of Record (POR) include:
- Release 1.0 to Naval Sea Systems Command (NAVSEA) (General Fund) is scheduled for October 2010
- Release 1.0 to NAVSEA (Working Capital Fund) is scheduled for October 2011
- Release 1.0 to the Office of Naval Research (ONR) and Strategic Systems Programs (SSP) for October 2012

The Navy has committed to implementing the Navy ERP capabilities across the full Navy enterprise in order to tie Navy business processes together in a single system, provide unprecedented financial transparency, and increase asset visibility. The Navy will deploy the existing Financial Management functionality to 13 Navy organizations beyond the current Program of Record. Completion of this extension will increase the percentage of Navy TOA managed within the ERP system from 53% to near 100% and will increase the number of users from approximately 65,000 to approximately 143,000. The first deployments are scheduled to begin in October 2012. The FY 2010 funding for this effort was certified at an Investment Review Board in June 2009 to conduct preliminary activities, such as site surveys, refining the product baseline, producing updated training materials and developing Navy ERP Workshops that will provide users an overview of Navy ERP functionality. In FY 2011, the Program intends to add enhancements to the system and continue preparations for the future deployments.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3026: *ERP Convergence*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Primary Development *FY 2009 Accomplishments:* Funding provided continued system development of ERP Program functional solutions to support Wholesale and Retail Supply development. *FY 2010 Plans:* Funding completes the development of the Single Supply Solution.	32.623	15.033	0.000	0.000	0.000
Development Support *FY 2009 Accomplishments:* Provided program technical support, technical engineering services, and training development. *FY 2010 Plans:* Funding completes support of the development of the Single Supply Solution.	3.226	0.949	0.000	0.000	0.000
Test /Quality Assurance *FY 2009 Accomplishments:* Established and managed Quality Assurance (QA) plans and system quality demonstrations. Began Developmental and Operational Testing (DT/OT) of Release 1.1 in FY09 and resolved any deficiencies identified. *FY 2010 Plans:* Supports User Acceptance Testing and Operational Testing required for the February 2010 Release 1.1 Go Live to the NAVICP Philadelphia and Mechanicsburg.	5.079	1.101	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	40.928	17.083	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3026: *ERP Convergence*

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: *8106 Command Support Equipment*	7.351	4.046	5.009	0.000	5.009	2.031	0.156	0.000	4.475	0.000	23.068

D. Acquisition Strategy

A competitive contract award for wholesale and retail supply functionality was awarded June 2007.

E. Performance Metrics

FY 09 Navy ERP's Financial/Acquisition Solution (Release 1.0) was deployed to approximately 12,000 users at the Naval Supply Systems Command (NAVSUP).

FY 10 Single Supply Solution development and test to be completed 2nd quarter of FY10. Development of the Single Supply Solution as outlined in the Program of Record to NAVICP Philadelphia and Mechanicsberg in 2nd quarter of FY10 to approximately 2,600 users

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3026: *ERP Convergence*

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 Development	C/CPAF	IBM Annapolis, MD	0.000	15.033	Nov 2009	0.000		0.000		0.000	0.000	15.033	Continuing
		Subtotal	0.000	15.033		0.000		0.000		0.000	0.000	15.033	

Remarks

To date, no award fees have been awarded; contract is not yet eligible for award fees.

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	GDIT Fairfax, VA	0.000	0.949	Oct 2009	0.000		0.000		0.000	0.000	0.949	Continuing
		Subtotal	0.000	0.949		0.000		0.000		0.000	0.000	0.949	

Remarks

To date, no award fees have been awarded; contract is not yet eligible for award fees.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3026: *ERP Convergence*	

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
Operational Test and Evaluation	Various/ Various	Not Specified Not Specified	0.000	1.101	Nov 2009	0.000		0.000		0.000	0.000	1.101	Continuing
		Subtotal	0.000	1.101		0.000		0.000		0.000	0.000	1.101	

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	17.083		0.000		0.000		0.000	0.000	17.083	

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3034: *Future Pay and Personnel 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
3034: *Future Pay and Personnel System*	0.000	18.398	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.398
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Funding for project 3034 has moved from PE 0605013N to 0PE 0605018N beginning FY11.

A. Mission Description and Budget Item Justification

Funding supports Future Pay and Personnel System (FPPS) design, development and modernization efforts. Provides development, integration, engineering, and test support of future pay and personnel system capabilities, including the modernization and consolidation of existing pay and personnel systems re-using the DIMHRS core software to the maximum extent practical. Includes (1) development of specifications and design of solutions to consolidate Navy legacy personnel systems, development of a single operational data store of personnel data, and development and modernization of legacy interfaces that must remain beyond the consolidation effort, (2) replace the pay capability provided by the Defense Joint Military Pay System (DJMS), providing for Navy specific requirements for pay and personnel management, and develop external interfaces as required to support pay management for the Navy, (3) development and modernization support from the functional organization, (4) Operational Test and Evaluation support for the selected future pay and personnel solution.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Future Pay and Personnel System	0.000	18.398	0.000	0.000	0.000
FY 2010 Plans: Risk Reduction Phase: Conduct analysis of the software maturity and capabilities provided in the DIMHRS core software baseline. Conduct legacy system analysis for NES, OPINS, IMAPMIS, RHS, NPDB and NSIPS, including business rules, logic, data and interface considerations for data migration, and modernization of interfaces. Conduct a Technology Demonstration of a proposed system architecture for the FPPS.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3034: *Future Pay and Personnel System*

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	18.398	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
• 0808712N/OPN/8106: *OPN Procurement*	0.000	0.983	1.911	0.000	1.911	1.963	4.892	4.883	1.955	0.000	16.587
• 0808712N/OMN/4A4M: *Enter Other Funding Description.*	0.000	11.730	18.038	0.000	18.038	31.583	27.698	31.719	31.781	0.000	152.549

D. Acquisition Strategy

The Navy will begin the transition to a Future Pay and Personnel System (FPPS) in FY 2012. The requirements analysis and the Navy unique capabilities will be designed and implemented into the DIHMRS core to the extent practical. Remaining Navy unique functionality will be designed into current systems to the maximum extent possible. New capability will be procured via open market methods.

E. Performance Metrics

1. Demonstrate the feasibility of at least one technical architecture approach for FPPS.
2. Provide validated requirements for an integrated Navy pay/personnel system.
3. Reduction in the number of redundant transactional systems for personnel and pay.
4. Documented plan and preliminary design for the consolidation of legacy personnel 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3034: *Future Pay and Personnel System*

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
Customization and Gap Development	C/FP	Not Specified Not Specified	0.000	9.000	Jul 2010	0.000		0.000		0.000	0.000	9.000	Continuing
Interface Development	C/FP	Not Specified Not Specified	0.000	9.398	Jul 2010	0.000		0.000		0.000	0.000	9.398	Continuing
		Subtotal	0.000	18.398		0.000		0.000		0.000	0.000	18.398	

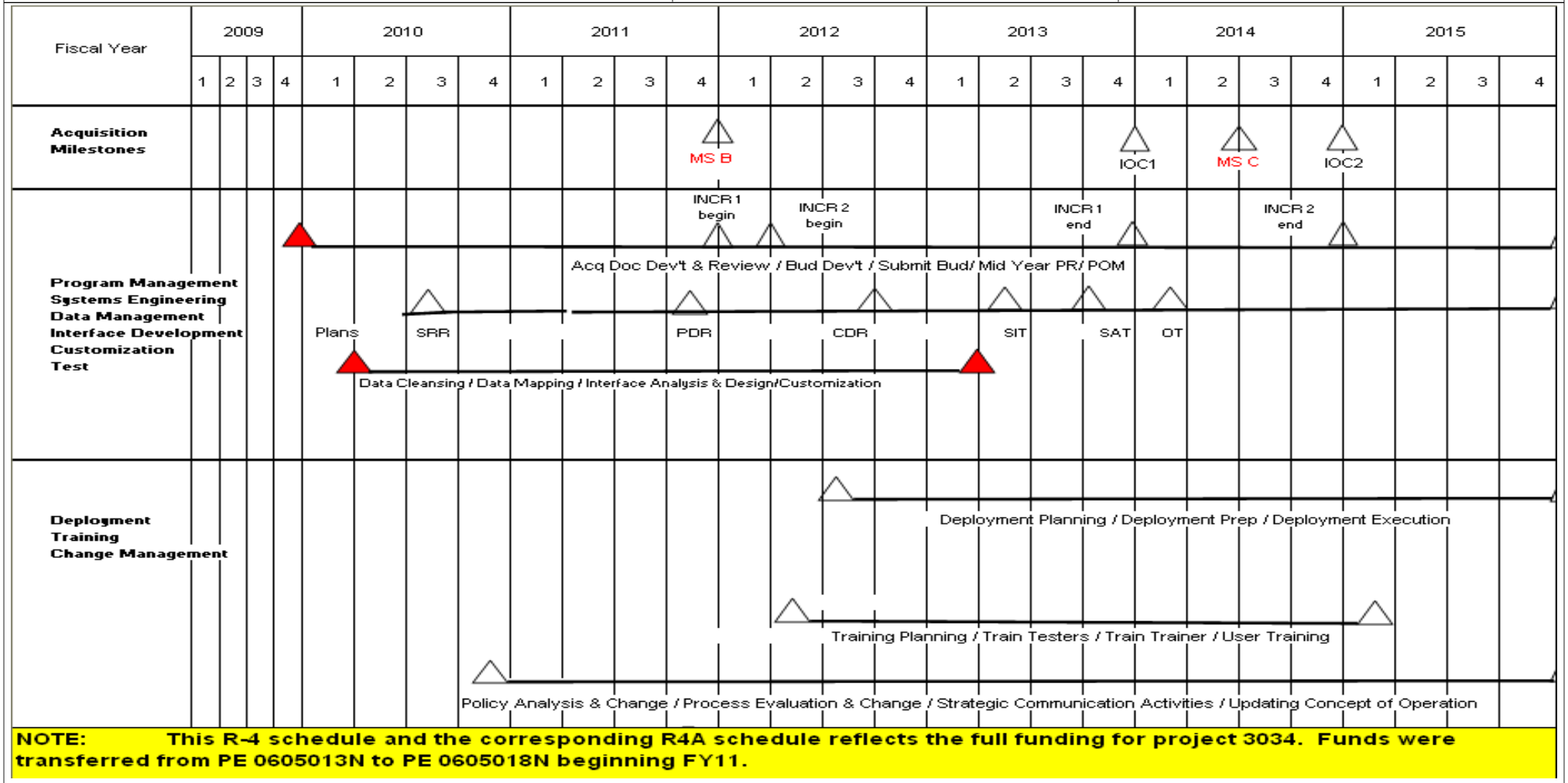
Remarks

Funding transferred to from PE 0605013N to PE 0605018N beginning FY11.

	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	18.398		0.000		0.000		0.000	0.000	18.398	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 3034: *Future Pay and Personnel System*



NOTE: This R-4 schedule and the corresponding R4A schedule reflects the full funding for project 3034. Funds were transferred from PE 0605013N to PE 0605018N beginning FY11.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 3034: *Future Pay and Personnel System*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestone B	4	2011	4	2011
IOC 1	4	2013	4	2013
IOC 2	4	2014	4	2014
Acq Doc Development & Review/Bud Dev & Submission/MId Year/POM	4	2009	4	2015
Systems Requirements Review	3	2010	3	2010
Preliminary Design Review	4	2011	4	2011
Critical Design Review	3	2012	3	2012
System Integration Test	2	2013	2	2013
System Acceptance Test	4	2013	4	2013
Operational Test	1	2014	1	2014
Deployment Planning, Pep, and Execution	3	2012	4	2015
Training Planning, Train Testers, Train Trainer, User Training	2	2012	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3167: *Joint Technical Data Integration (JTDI)*	

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
3167: *Joint Technical Data Integration (JTDI)*	1.902	1.469	1.883	0.000	1.883	2.249	2.277	2.241	2.278	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Joint Technical Data Integration (JTDI) Program - Funding supports the evaluation, testing and integration to develop a JTDI Commercial Off The Shelf (COTS) solution for installation on a Carrier (CV) and Amphibious Assault (L) class ships and up to 104 Navy/Marine Corp aviation activities. JTDI is a digital technical data access, delivery and local O&I level library management toolset and telemaintenance collaboration process enabler. It improves accuracy and timeliness of technical manual and other technical data delivery and minimizes the Fleet's library management burden. JTDI reduces maintenance workhours with saving Return on Investment (ROI) of 2.5:1. It facilitates the transition of the Joint Distance Support and Response (JDSR) Advanced Concept Technology Demonstration (ACTD) for telemaintenance and provides for process efficiencies to support ongoing Aviation Fleet Technical Representative reductions.

Portable Electronic Maintenance Aids (PEMA): Funding supports the evaluation, testing and integration to develop PEMA Commercial Off The Shelf (COTS) solution for portable device deployments across the Naval Aviation Enterprise (NAE). PEMA is a portable device utilized by maintainers with the implementation of digital maintenance capabilities (digital publications, Integrated Electronic Technical Manuals(IETMs), IP based data uploads, BIT data downloads, automated diagnostics, and planeside NALCOMIS). PEMAs are a mandatory display device supporting modern day Automated Maintenance Environment (AME) implemented for weapon systems.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Joint Technical Data Integration (JTDI)	1.902	0.978	1.437	0.000	1.437
FY 2009 Accomplishments: Conduct development efforts associated with a major release of fully deployed COTS intensive JTDI system. Conduct COTS requirements definition, evaluation, integration, and testing of annual baseline releases. Conduct technology insertion of the JTDI system.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3167: *Joint Technical Data Integration (JTDI)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Conduct development efforts associated with a major release of fully deployed COTS intensive JTDI system. Conduct COTS requirements definition, evaluation, integration, and testing of annual baseline releases. Conduct technology insertion of the JTDI system. *FY 2011 Base Plans:* Conduct development efforts associated with a major release of fully deployed COTS intensive JTDI system. Conduct COTS requirements definition, evaluation, integration, and testing of annual baseline releases. Conduct technology insertion of the JTDI system.					
Portable Electronic Maintenance Aids (PEMA) *FY 2010 Plans:* Evaluate, test and integrate evolving COTS solutions. Conduct test & evaluation of T/M/S peculiar software/hardware requirements and network connectivity compliance across the GIG prior to deployment to the fleet by a yearly release cycle. *FY 2011 Base Plans:* Evaluate, test and integrate evolving COTS solutions. Conduct test & evaluation of T/M/S peculiar software/hardware requirements and network connectivity compliance across the GIG prior to deployment to the fleet by a yearly release cycle.	0.000	0.491	0.446	0.000	0.446
Accomplishments/Planned Programs Subtotals	1.902	1.469	1.883	0.000	1.883

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, 4265: *Other Aviation Support Equipment*	5.250	3.642	1.134	0.000	1.134	3.742	3.834	1.458	1.484	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3167: *Joint Technical Data Integration (JTDI)*

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, 4264: *Portable Electronic Maint Aids*	0.000	4.895	12.812	0.000	12.812	7.952	8.148	5.752	4.469	Continuing	Continuing

D. Acquisition Strategy

JTDI Program - The Management Approach includes the Program Management Office residing in the Naval Air Systems Command (NAVAIR) with Milestone Decision Authority (MDA) delegated to the NAVAIR Command Information Officer (CIO). The evolutionary development approach will be used to execute requirements. Contracting for the prime integrator will be via competitively awarded Indefinite Delivery - Indefinite Quantity (IDIQ) contracts.

PEMA Program - The Management Approach includes the Program Management Office residing in the Naval Air Systems Command (NAVAIR) with Milestone Decision Authority (MDA) delegated to the NAVAIR Command Information Officer (CIO). The evolutionary development approach will be used to execute requirements. Contracting for the prime integrator will be via competitively awarded Indefinite Delivery - Indefinite Quantity (IDIQ) contracts.

E. Performance Metrics

JTDI & PEMA Program - Successfully achieve government testing of annual software release.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3167: *Joint Technical Data Integration (JTDI)*

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/FFP	ARANEA MADISON, AL	1.389	0.000		0.000		0.000		0.000	0.000	1.389	1.389
Software Development	C/FFP	VARIOUS Not Specified	2.980	0.978	Dec 2009	1.437	Nov 2010	0.000		1.437	Continuing	Continuing	Continuing
		Subtotal	4.369	0.978		1.437		0.000		1.437			

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/FFP	VARIOUS Not Specified	0.000	0.491	Dec 2009	0.000		0.000		0.000	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	NAWCAD Pax River	0.000	0.000		0.103	Nov 2010	0.000		0.103	Continuing	Continuing	Continuing
		Subtotal	0.000	0.491		0.103		0.000		0.103			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3167: *Joint Technical Data Integration (JTDI)*

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/FFP	ARANEA MADISON, AL	0.000	0.000		0.343	Nov 2010	0.000		0.343	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCAD Pax River, MD	0.165	0.000		0.000		0.000		0.000	0.000	0.165	0.165
Program Management Support	WR	DTIC Fort Belvior, VA	0.010	0.000		0.000		0.000		0.000	0.000	0.010	0.010
		Subtotal	0.175	0.000		0.343		0.000		0.343			

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	4.544	1.469		1.883		0.000		1.883			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3167: *Joint Technical Data Integration (JTDI)*

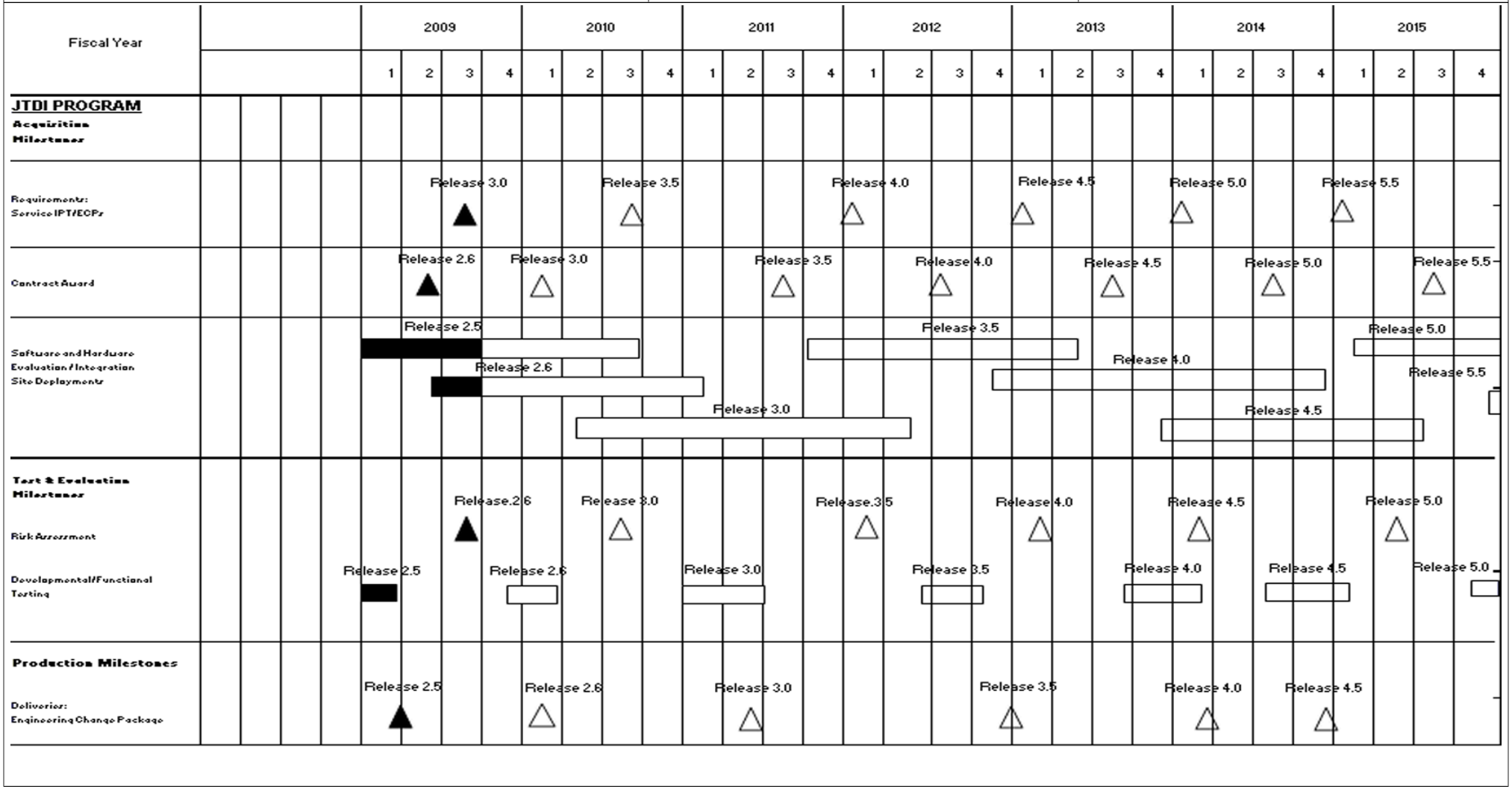


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3167: *Joint Technical Data Integration (JTDI)*

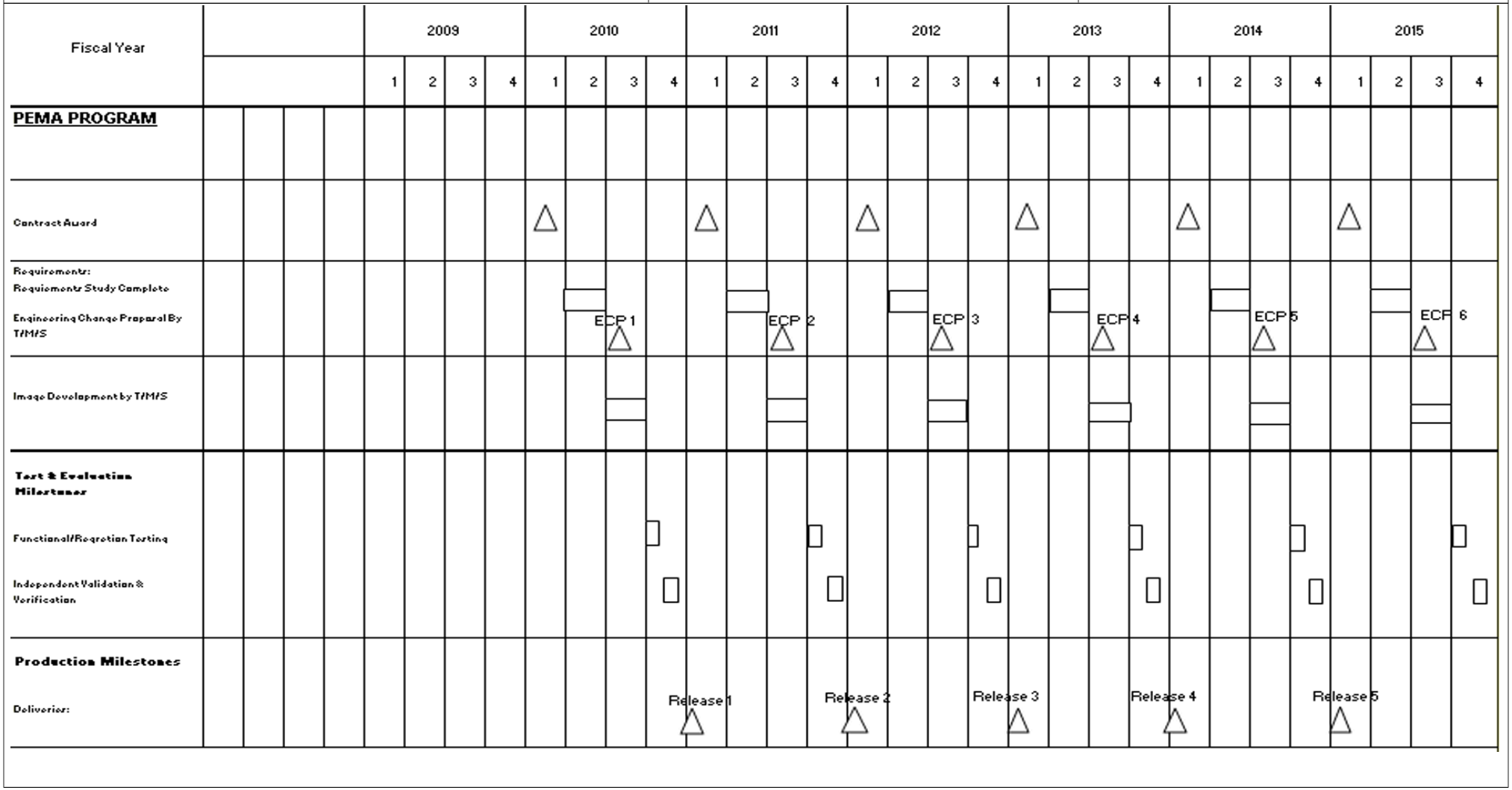


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3167: *Joint Technical Data Integration (JTDI)*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
JTDI - Software Hardware Int, Release 2.5	1	2009	3	2010
JTDI - Development/Functional Testing ,Release 2.5	1	2009	1	2009
JTDI - Deliveries: Engineering Change Package, Release 2.5	1	2009	2	2009
JTDI - Contract Award, Release 2.6	2	2009	2	2009
JTDI - Software Hardware Int, Release 2.6	2	2009	1	2011
JTDI - Risk Assessment, Release 2.6	3	2009	3	2009
JTDI - Development/Functional Testing, Release 2.6	4	2009	1	2010
JTDI - Engineering Change Package, Release 2.6	1	2010	1	2010
JTDI - Service IPT/ECPs, Release 3.0	3	2009	3	2009
JTDI - Contract Award, Release 3.0	1	2010	1	2010
JTDI - Software Hardware Int, Release 3.0	2	2010	2	2012
JTDI - Risk Assessment, Release 3.0	3	2010	3	2010
JTDI - Development/Functional Testing, Release 3.0	1	2011	2	2011
JTDI - Engineering Change Package, Release 3.0	2	2011	2	2011
JTDI - Service IPT/ECPs, Release 3.5	3	2010	3	2010
JTDI - Contract Award, Release 3.5	3	2011	3	2011
JTDI - Software Hardware Int, Release 3.5	4	2011	2	2013
JTDI - Risk Assessment, Release 3.5	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 3167: *Joint Technical Data Integration (JTDI)*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
JTDI - Development/Functional Testing, Release 3.5	2	2012	4	2012
JTDI - Engineering Change Package, Release 3.5	4	2012	1	2013
JTDI - Service IPT/ECPs, Release 4.0	1	2012	1	2012
JTDI - Contract Award, Release 4.0	3	2012	3	2012
JTDI - Software Hardware Int, Release 4.0	4	2012	4	2014
JTDI - Risk Assessment, Release 4.0	1	2013	1	2013
JTDI - Development/Functional Testing, Release 4.0	3	2013	1	2014
JTDI - Engineering Change Package, Release 4.0	1	2014	1	2014
JTDI - Service IPT/ECPs, Release 4.5	1	2013	1	2013
JTDI - Contract Award, Release 4.5	3	2013	3	2013
JTDI - Software Hardware Int, Release 4.5	4	2013	3	2015
JTDI - Risk Assessment, Release 4.5	1	2014	1	2014
JTDI - Development/Functional Testing, Release 4.5	3	2014	1	2015
JTDI - Engineering Change Package, Release 4.5	4	2014	1	2015
JTDI - Service IPT/ECPs, Release 5.0	1	2014	1	2014
JTDI - Contract Award, Release 5.0	3	2014	3	2014
JTDI - Software Hardware Int, Release 5.0	1	2015	4	2015
JTDI - Risk Assessment, Release 5.0	2	2015	2	2015
JTDI - Development/Functional Testing, Release 5.0	4	2015	4	2015
JTDI - Service IPT/ECPs, Release 5.5	1	2015	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3167: *Joint Technical Data Integration (JTDI)*

	Start		End	
Event	Quarter	Year	Quarter	Year
JTDI - Contract Award, Release 5.5	3	2015	3	2015
JTDI - Software Hardware Int, Release 5.5	4	2015	4	2015
PEMA - Contract Award (1)	1	2010	1	2010
PEMA - Requirements Study Complete (1)	2	2010	2	2010
PEMA - Engineering Change Proposal By T/M/S, ECP 1	3	2010	3	2010
PEMA - Image Development By T/M/S (1)	2	2010	2	2010
PEMA - Functional/Regretion Testing (1)	4	2010	4	2010
PEMA - Independent Validation & Verification Testing (1)	4	2010	4	2010
PEMA - Production Delivery, Release 1	1	2011	1	2011
PEMA - Contract Award (2)	1	2011	1	2011
PEMA - Requirements Study Complete (2)	2	2011	2	2011
PEMA - Engineering Change Proposal By T/M/S, ECP 2	3	2011	3	2011
PEMA - Image Development By T/M/S (2)	3	2011	3	2011
PEMA - Functional/Regretion Testing (2)	4	2011	4	2011
PEMA - Independent Validation & Verification Testing (2)	4	2011	4	2011
PEMA - Production Delivery, Release 2	1	2012	1	2012
PEMA - Contract Award (3)	1	2012	1	2012
PEMA - Requirements Study Complete (3)	2	2012	2	2012
PEMA - Engineering Change Proposal By T/M/S, ECP 3	3	2012	3	2012
PEMA - Image Development By T/M/S (3)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3167: *Joint Technical Data Integration (JTDI)*

	Start		End	
Event	Quarter	Year	Quarter	Year
PEMA - Functional/Regretion Testing (3)	4	2012	4	2012
PEMA - Independent Validation & Verification Testing (3)	4	2012	4	2012
PEMA - Production Delivery, Release 3	1	2013	1	2013
PEMA - Contract Award (4)	1	2013	1	2013
PEMA - Requirements Study Complete (4)	2	2013	2	2013
PEMA - Engineering Change Proposal By T/M/S, ECP 4	3	2013	3	2013
PEMA - Image Development By T/M/S (4)	3	2013	3	2013
PEMA - Functional/Regretion Testing (4)	4	2013	4	2013
PEMA - Independent Validation & Verification Testing (4)	4	2013	4	2013
PEMA - Production Delivery, Release 4	1	2014	1	2014
PEMA - Contract Award (5)	1	2014	1	2014
PEMA - Requirements Study Complete (5)	2	2014	2	2014
PEMA - Engineering Change Proposal By T/M/S, ECP 5	3	2014	3	2014
PEMA - Image Development By T/M/S (5)	3	2014	3	2014
PEMA - Functional/Regretion Testing (5)	4	2014	4	2014
PEMA - Independent Validation & Verification Testing (5)	4	2014	4	2014
PEMA - Production Delivery, Release 5	1	2015	1	2015
PEMA - Contract Award (6)	1	2015	1	2015
PEMA - Requirements Study Complete (6)	2	2015	2	2015
PEMA - Engineering Change Proposal By T/M/S, ECP 6	3	2015	3	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 3167: *Joint Technical Data Integration (JTDI)*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
PEMA - Image Development By T/M/S (6)	3	2015	3	2015
PEMA - Functional/Regretion Testing (6)	4	2015	4	2015
PEMA - Independent Validation & Verification Testing (6)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3185: *Joint Airlift Information System (JALIS)*	

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
3185: *Joint Airlift Information System (JALIS)*	0.413	0.428	0.373	0.000	0.373	0.444	0.445	0.438	0.447	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

JALIS: This system provides an airlift data collection and analysis system for the purpose of airlift and aircraft management. JALIS supports the objectives and strategies presented in the DoD Transportation Corporate Information Management (CIM) Strategic Plan and Enterprise Integration (EI) Implementation Strategy as directed for DoD transportation management responsibilities in the USTRANSCOM Joint transportation CIM Center (JTCC) Abbreviated Integration Decision Paper (IDP) for the JALIS. Current and future RDT&E funding supports improvements to the current JALIS application and database by continuing to implement approved Joint Configuration Control Board enhancements, complying with DoD security requirements and mandates, and upgrading the application to utilize vender supported development software tools.

Reduction in line item for FY10: $2,000 was a result of the Section 8097: Revised Economic Assumptions Issue No. 75472.

Reduction in line items for FY11: $40,000 was a result of INV-001, RMD 700 Part II Issue No. 70278; $22,000 was a result of PR 11 Program Review: RDT&E 5% Reduction (non-MDAP) Issue No. 50311; $2,000 was a result of EA-08 Non-Pay, Non-Fuel Purchases, RMD 702 Issue No. 70363.

Reduction in line item for FY12: 3,000 was a result of EA-08 Non-Pay, Non-Fuel Purchases, RMD 702 Issue No. 70363; $22,000 was a result of PR 11 Program Review: RDT&E 5% Reduction (non-MDAP) Issue No. 50311.
Addition in line item for FY12: 24,000 was a result of PR 11 Program Review: RDT&E 5% Reduction (non-MDAP) Issue No. 50311.

Reduction in line item for FY13: 3,000 was a result of EA-08 Non-Pay, Non-Fuel Purchases, RMD 702 Issue No. 70363; $22,000 was a result of PR 11 Program Review: RDT&E 5% Reduction (non-MDAP) Issue No. 50311.
Addition in line item for FY13: 16,000 was a result of PR 11 Program Review: RDT&E 5% Reduction (non-MDAP) Issue No. 50311.

Reduction in line item for FY14: 4,000 was a result of EA-08 Non-Pay, Non-Fuel Purchases, RMD 702 Issue No. 70363; $23,000 was a result of PR 11 Program Review: RDT&E 5% Reduction (non-MDAP) Issue No. 50311.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3185: *Joint Airlift Information System (JALIS)*

Reduction in line item for FY15: 4,000 was a result of EA-08 Non-Pay, Non-Fuel Purchases, RMD 702 Issue No. 70363; $23,000 was a result of PR 11 Program Review: RDT&E 5% Reduction (non-MDAP) Issue No. 50311.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Joint Airlift Information System (JALIS)	0.413	0.428	0.373	0.000	0.373

FY 2009 Accomplishments:

In FY09, the amount of $200,000 supported the Joint Air Logistics Information System (JALIS) Next Generation (NG) initiative to satisfy a Deputy Secretary of Defense objective of replacing the current system with a common platform to be used across the Department of Defense (DOD) for scheduling airlift requests, tracking asset availability, monitoring mission execution and providing real time and post mission reports. Additionally, the system would be utilized in a classified and unclassified environment to provide total visibility of all assets, airlift requests, and missions world wide. The scope of this effort included maintaining current capabilities, providing real time analysis, integrating new management views, developing a single database to consolidate all Services' data with ability to restrict access to data via user roles and permissions, and establishing interfaces with other essential DOD Systems.

As a result of a health assessment that was conducted by PEO-EIS, the JALIS NG effort was terminated. PEO-EIS reassessed the program objectives and tasked SPAWAR Systems Center Atlantic to conduct a detailed requirements review and re-validation with all stakeholders to achieve approval of the program requirements baseline. In addition, SPAWAR initiated the effort to identify viable program alternatives with associated costs, schedules, and required resources including Commercial-Off-The-Shelf products that could meet operational, technical, and security requirements. The amount of $209,000 supported this preliminary effort.

FY 2010 Plans:

In FY10 due to the result of a health assessment that was conducted by PEO-EIS, the JALIS NG has been terminated. PEO-EIS reassessed the program objectives and tasked SPAWAR Systems

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 3185: *Joint Airlift Information System (JALIS)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Center Atlantic to conduct a detailed requirements review and re-validation with all stakeholders to achieve approval of the program requirements baseline. In addition, SPAWAR initiated the effort to identify viable program alternatives with associated costs, schedules, and required resources including Commercial-Off-The-Shelf products that could meet operational, technical, and security requirements. The amount of $85,000 has been obligated to continue this effort in FY10. The remaining $343,000 will support the implementation of PEO-EIS' recommendation. *FY 2011 Base Plans:* In FY11, the amount of $373,000 will support the continuation of FY10 efforts					
Accomplishments/Planned Programs Subtotals	0.413	0.428	0.373	0.000	0.373

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Acquisition plan is to adhere to the PEO-EIS health assessment program objectives which will be tasked by SPAWAR Systems Center Atlantic to provide. Contracts will be cut accordingly throughout FY10 and FY11 in support of the following areas:

1. Assign PEO-EIS contractors for acquisition management and oversight of further related work under formal acquisition leadership.
2. Continue to operate and support the current JALIS system which is fully funded and in sustainment today.
3. Perform a detailed requirements review and revalidation with stakeholders to achieve approval of the program baseline by OPNAV N88.
4. Develop viable program alternatives with associated costs, schedules and required resources.
5. Generate an RFI immediately to assess viability of a cost-wise COTS alternative that could meet operational, technical and security requirements.
6. Investigate the potential for pursuing this requirement as a Rapid Acquisition Program.

E. Performance Metrics

Performance metrics for the JALIS program:

1. Increase aircraft utilization to a sustained efficiency of 90%

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 3185: *Joint Airlift Information System (JALIS)*

2. Increase objectivity in assigning Priority Justification Codes to a sustained efficiency of 85%
3. Increase and sustain aircraft workload efficiency at 90%
4. Achieve real-time aircraft status visibility
5. Increase the efficiency of modifying aircraft status by 80%
6. Eliminate training requirements for Requesters
7. Increase mission creation efficiency by an average of 20%
8. Enhance input, validation, and verification of airlift requests efficiency by 50%
9. Improve the accurate data collection time for post mission data by 65%
10. Enhance overall reporting and metrics collection

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 9406: *Maintenance Data Warehouse*	

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
9406: *Maintenance Data Warehouse*	0.000	0.000	0.000	0.000	0.000	2.678	2.704	2.755	2.807	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Maintenance Data Warehouse/NAVAIR DECKPLATE - The development of the Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE) program is the next generation data warehouse for aircraft maintenance, flight, and usage data. It provides a web-based interface to a single source of information currently being stored in multiple NALDA systems. Through the use of analysis, query, and reporting tools the user has the capabilities to effectively obtain readiness data in a near real-time environment, as well as historical data for trend analysis and records reconstruction. DECKPLATE supports the mission of the warfighter who requires a single source of near real-time aviation data in which to base critical readiness decisions. This requires collecting data from authoritative sources into a data warehouse. Because the warfighter only needs to access one database, the time consuming task of collecting various pieces of data from various sources will be reduced and ultimately eliminated. This improves data quality because it reduces the possibility of two systems providing identical data elements, but slightly different data. Data availability is improved through continuous near real-time feeds from the data sources, giving the warfighter the most current information to base decisions. In addition, this also accomplishes a reduction in legacy systems mandated by OPNAV.

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Maintenance Data Warehouse/NAVAIR DECKPLATE

RDT&E funding to begin in FY12. Development services will be awarded using a competitively awarded contract under the Seaport Contract System containing a matrix of tasks and required levels of performance. Follow on Contract will utilize the same competitive system. The Services provided under the contract support acquisition will not encompass tasks inherently Governmental in nature. The Statement of Work will include a matrix that establishes the minimum acceptable performance standards.

E. Performance Metrics

Maintenance Data Warehouse/NAVAIR DECKPLATE

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 9406: *Maintenance Data Warehouse*

1. Metric - During the life of the contract verify conformance with agency specific information processing standards and functional requirements. Prior to delivery of enhanced software, demonstrate the operational capability of the system software. Standard - Functionality of the software to meet required systems architecture and processing capabilities. Max Deviation Allowed - All requirements mandated by law or regulation must be 100% compliant. Quality Assurance - Independent verification and validation (IV&V) for testing new releases of software to determine that previous functionality is maintained. Customer satisfaction as measured through limited validated customer complaints, feedback, and surveys.
2. Metric - Interfaces must maintain compatibility among system components in the operational environment. Standard - Service Levels for software: Throughput in terms of processing response time, number of transactions processed per second; volume of data processed over time. Compatibility with particular hardware and software within the existing processing environment. Functionality of software to meet required systems architecture and processing capabilities. Max Deviation Allowed - None. Quality Assurance - Customer satisfaction as measured through limited validated customer complaints, feedback and surveys. Operational monitoring by use of system statistics and logs. Independent verification and validation (IV&V) for testing new software, including verifying results to determine that requirements and specifications are met.
3. Metric - Documentation for deliverables must match the agency specific system processing and operational procedures. Standard - Documentation meets agency specific formats for accuracy and completeness. Max Deviation Allowed - 100% of deviation. Quality Assurance - Independent verification and validation (IV&V) for determining that documentation delivered by the contractor matches the system processing and operational procedures.
4. Metric - Meet delivery dates/milestones. Period of Performance will be 12 months from the date of award. Standard - Delivery dates are met, or exceeded. Max Deviation Allowed - 100% of deviation. Quality Assurance - 100% inspection.
5. Metric - Security. Standard - Meet all Government and agency specific requirements. Max Deviation Allowed - None. Quality Assurance - 100% inspection to ensure that all Government and Agency specific requirements have been met. Independent verification of security procedures defined by agency (could be performed by a third party, or another agency according to current security regulations and measures).
6. Metric - Enhancement to software shall not adversely affect system performance. Standard - Standards affecting system performance include but are not limited to: response time for resolving problems; CPU busy; response time; memory utilization; storage utilization. Max Deviation Allowed - Base line functionality is met at 100%. Non critical functionality is met at 95%. Quality Assurance - Operational monitoring by use of system statistics and logs.
7. Metric - New releases of software must maintain previously provided functionality, while providing enhanced capabilities, or systems corrections. Standard - Software adds value and improves existing functionality without negatively impacting the existing operational environment. Max Deviation Allowed - Base line functionality is met at 100%. Non critical functionality is met at 95%. Quality Assurance - Independent Verification and Validation (IV&V) for testing new releases of software to determine that previous functionality is improved. Customer satisfaction is measured through validated customer complaints and surveys.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	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*	19.347	22.745	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	128.843
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: Instrumented Underwater Training Systems *FY 2010 Plans:* Instrumented Underwater Training Systems	0.000	2.231
Congressional Add: Integrated Manufacturing Systems 3D Simulation and Modeling Project *FY 2010 Plans:* Integrated Manufacturing Systems 3D Simulation and Modeling Project	0.000	1.992
Congressional Add: Maintenance Planning and Assessment Technology Insertion *FY 2010 Plans:* Maintenance Planning and Assessment Technology Insertion	0.000	1.195
Congressional Add: METOC Integrated Network-Centric Technology Systems	0.000	2.589

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605013N: *Information Technology Development*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2010 Plans: METOC Integrated Network-Centric Technology Systems		
Congressional Add: SPAWAR Systems Center/ITC New Orleans *FY 2010 Plans:* Provide critical joint Naval/University information systems research, development and technology transfer, in partnership with the University of New Orleans. The Information Technology Center (ITC) or SPAWAR System Center Atlantic New Orleans Office was established through a unique cost sharing arrangement between the State of Louisiana and the federal government to provide state-of-the-art facilities to develop and maintain technology-based enterprise solutions for managing information within the Department of Navy and Department of Defense (DoD). This includes development of enterprise solutions for managing/migrating DoD/Naval personnel systems and to conduct joint Naval/local university information systems research, development of security/disaster preparedness tools, and for central design, migration, and integration activities for Naval Manpower and Personnel (M&P) systems at the SPAWAR Systems Center New Orleans.	0.000	3.187
Congressional Add: DIGITAL ACCESS OF NCIS RECORDS *FY 2009 Accomplishments:* NCIS RECORDS DIGITIZATION: The Electronic Records Management System (ERMAS) is an on-going contractor supported effort to develop a system that will digitize all of the NCIS criminal and counterintelligence investigative records. *FY 2010 Plans:* Continuation of project work.	1.596	1.195
	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: CONDITION-BASED MAINTENANCE ENABLING TECHNOLOGIES *FY 2009 Accomplishments:* Condition Based Maintenance Enabling Technologies For Distance Support - is a continuation of the work begun to address the current capabilities and add new capabilities to the Navy's Distance Support (DS) program and Fleet maintenance transformation initiatives. *FY 2010 Plans:* Continuation of project work.		
Congressional Add: INTEGRATION OF LOGISTICS INFO FOR KNOWLEDGE PROJEC *FY 2009 Accomplishments:* Integrated the data flow between MRAS/AWN/ATM and MFOM. Developed system capabilities to facilitate passing data files between MRAS/AWN/ATM and MFOM. Connected MRAS/AWN/ATM data elements to MFOM. Developed system capabilities to assist interface between MRAS/AWN/ATM and MFOM. Transfer data between unclassified and classified domains between MRAS/AWN/ATM and MFOM. *FY 2010 Plans:* Continue the Integration and developemnt of Logistics Info for Knowledge Projection & Readiness program.	1.596	1.593
Congressional Add: NATIONAL TERRORISM PREPAREDNESS INSTITUTE CCOUNTER *FY 2009 Accomplishments:* Funding was used to support critical Area Security Operations Command and Control (ASOCC) information system research/development, prototyping and training activities.	2.992	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Additionally these funds were used to further enhance and improve the C2 capabilities, providing a configurable Service Oriented Architecture (SOA) platform for cross utilization and information dissemination between Federal, State and local entities. As part of the prototype and development efforts, Space and Naval Warfare (SPAWAR) Systems Center Atlantic New Orleans Office will work with key domains, including the Maritime Domain Awareness (MDA) community for effectiveness and proof-of-concept testing that include integration, testing and training. SSC Atlantic New Orleans Office, National Terrorism Preparedness Institute (NTPI) and the Navy share the same view that the safety and economic security of the United States depends upon the secure use of the world's oceans.		
Congressional Add: Base Level Inventory Tracking System Enhancements *FY 2009 Accomplishments:* BLITS : This system utilizes Unique Identification (UID) technologies to improve the tracking of items within and across Navy Reserve bases. The BLITS system allows site logistics personnel to track items at any point from initial receipt through final delivery. The system uses UID technology including bar code scanning, RFID, CAC card readers, and mobile data collection devices to fully automate this process. As items are received at the site-loading doc they are scanned (using mobile bar-code reading collection devices or RFID tags) which automatically enters into a centralized BLITS database via the Internet and tags them as received by the collection devices signed in user. Site personnel digitally "sign" for items by simply inserting their CAC card into a mobile device. Reduction in line item for FY09 of $8,000 was a result of the Sec 8101 Revised Economic Assumptions Issue No. 74124	2.792	0.000
Congressional Add: Supply Chain Logistics Capability at the ABL NIROP	7.978	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605013N: *Information Technology Development*	**PROJECT** 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: This program supports the integration, development and testing of information technology associated with energetic operations at Naval Industrial Reserve Ordnance Plants. *FY 2010 Plans:* Continuation of project work.		
Congressional Adds Subtotals	19.347	22.745

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Interest.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605018N: *Navy Integrated Mil Human Res Sys(N-IMHRS)*

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	27.444	0.000	27.444	90.239	78.381	45.618	23.951	Continuing	Continuing
3034: *Future Pay and Personnel System*	0.000	0.000	27.444	0.000	27.444	90.239	78.381	45.618	23.951	Continuing	Continuing

Note

The PE for project 3034 was changed from PE 0605013N to PE 0605018N beginning in FY11.

A. Mission Description and Budget Item Justification

Funding supports Future Pay and Personnel System (FPPS) design, development and modernization efforts. Provides development, integration, engineering, and test support of future pay and personnel system capabilities, including the modernization and consolidation of existing pay and personnel systems re-using the DIMHRS core software to the maximum extent practical. Includes (1) development of specifications and design of solutions to consolidate Navy legacy personnel systems, development of a single operational data store of personnel data, and development and modernization of legacy interfaces that must remain beyond the consolidation effort, (2) replace the pay capability provided by the Defense Joint Military Pay System (DJMS), providing for Navy specific requirements for pay and personnel management, and develop external interfaces as required to support pay management for the Navy, (3) development and modernization support from the functional organization, (4) Operational Test and Evaluation support for the selected future pay and personnel 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605018N: *Navy Integrated Mil Human Res Sys(N-IMHRS)*

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	27.444	0.000	27.444
Total Adjustments	0.000	0.000	27.444	0.000	27.444
• 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	27.444	0.000	27.444

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605018N: *Navy Integrated Mil Human Res Sys(N-IMHRS)*	PROJECT 3034: *Future Pay and Personnel 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
3034: *Future Pay and Personnel System*	0.000	0.000	27.444	0.000	27.444	90.239	78.381	45.618	23.951	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

RDT&E Funds for project 3034 were transferred from PE 0605013N in FY10 to this PE 0605018N in FY11 and outyears.

A. Mission Description and Budget Item Justification

Funding supports Future Pay and Personnel System (FPPS) design, development and modernization efforts. Provides development, integration, engineering, and test support of future pay and personnel system capabilities, including the modernization and consolidation of existing pay and personnel systems re-using the DIMHRS core software to the maximum extent practical. Includes (1) development of specifications and design of solutions to consolidate Navy legacy personnel systems, development of a single operational data store of personnel data, and development and modernization of legacy interfaces that must remain beyond the consolidation effort, (2) replace the pay capability provided by the Defense Joint Military Pay System (DJMS), providing for Navy specific requirements for pay and personnel management, and develop external interfaces as required to support pay management for the Navy, (3) development and modernization support from the functional organization, (4) Operational Test and Evaluation support for the selected future pay and personnel solution.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Future Pay and Personnel System	0.000	0.000	27.444	0.000	27.444
FY 2011 Base Plans: Risk Reduction Phase: Conduct analysis of the software maturity and capabilities provided in the DIMHRS core software baseline. Conduct legacy system analysis for NES, OPINS, IMAPMIS, RHS, NPDB and NSIPS, including business rules, logic, data and interface considerations for data migration, and modernization of interfaces. Conduct a Technology Demonstration of a proposed system architecture for the FPPS.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605018N: *Navy Integrated Mil Human Res Sys(N-IMHRS)*	PROJECT 3034: *Future Pay and Personnel System*

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	27.444	0.000	27.444

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
• 0805712N/OPN/8106: *FPPS*	0.000	0.983	1.911	0.000	1.911	1.963	4.892	4.883	1.955	0.000	16.587
• 0808712N/OMN/4A4M: *FPPS*	0.000	11.730	18.038	0.000	18.038	31.583	27.698	31.719	31.781	0.000	152.549

D. Acquisition Strategy

Navy will begin transition to a Future Pay and Personnel System (FPPS) in FY 2010. A phased approach will be used beginning with a Risk Reduction Phase in FY2010 and FY2011 followed by Incremental Development Phases in 2012-2014, and Operational Testing and Deployment in 2014-2017.

E. Performance Metrics

1. Demonstrate the feasibility of at least one technical architecture approach for FPPS.
2.Provide validated requirements for an integrated Navy pay/personnel system.
3. Reduction in the number of redundant transactional systems for personnel and pay.
4. Documented plan and preliminary design for the consolidation of legacy personnel 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605018N: *Navy Integrated Mil Human Res Sys(N-IMHRS)*	PROJECT 3034: *Future Pay and Personnel 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
Preliminary Design & Artifacts	C/FP	Various TBD	0.000	0.000		4.707	Mar 2011	0.000		4.707	0.000	4.707	Continuing
		Subtotal	0.000	0.000		4.707		0.000		4.707	0.000	4.707	

Remarks

Increment 1.

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
Customization and Gap Development	C/FP	Various TBD	0.000	0.000		10.000	Jul 2011	0.000		10.000	0.000	10.000	Continuing
Interface Development	C/FP	Various TBD	0.000	0.000		12.737	Jul 2011	0.000		12.737	0.000	12.737	Continuing
		Subtotal	0.000	0.000		22.737		0.000		22.737	0.000	22.737	

Remarks

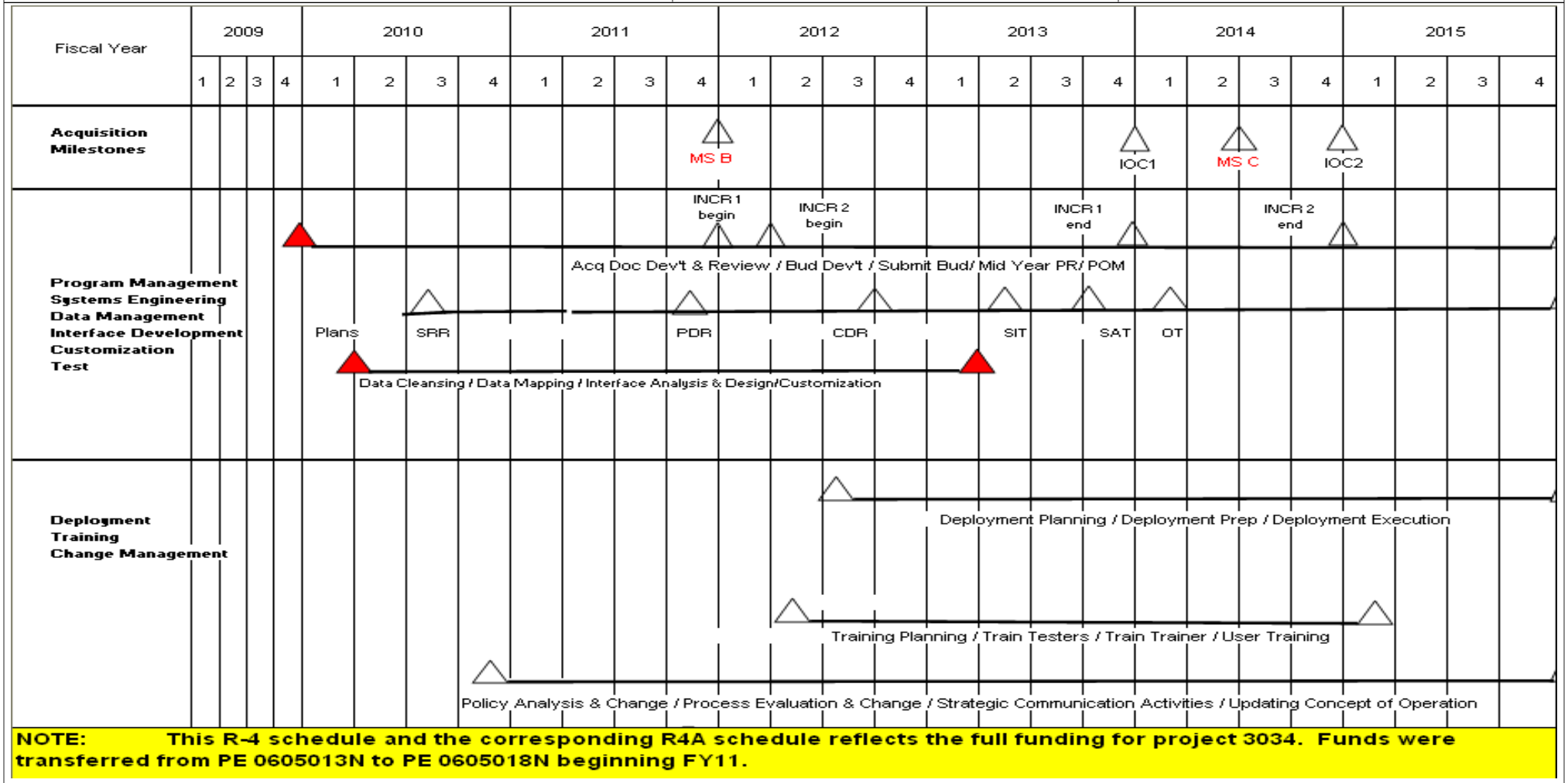
In process of determining contract vehicle.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605018N: *Navy Integrated Mil Human Res Sys(N-IMHRS)*	PROJECT 3034: *Future Pay and Personnel 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	0.000	0.000		27.444		0.000		27.444	0.000	27.444	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605018N: *Navy Integrated Mil Human Res Sys(N-IMHRS)*	**PROJECT** 3034: *Future Pay and Personnel System*



NOTE: This R-4 schedule and the corresponding R4A schedule reflects the full funding for project 3034. Funds were transferred from PE 0605013N to PE 0605018N beginning FY11.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605018N: *Navy Integrated Mil Human Res Sys(N-IMHRS)*	**PROJECT** 3034: *Future Pay and Personnel System*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestone B	4	2011	1	2012
IOC 1	4	2013	4	2013
IOC 2	4	2014	4	2014
Acq Doc Development & Review/ Bud Dev & Submission/Mid Year/POM	4	2009	4	2015
Systems Requirements Review	3	2010	3	2010
Preliminary Design Review	4	2011	4	2011
Critical Design Review	3	2012	4	2012
System Integration Test	2	2013	2	2013
System Acceptance Test	4	2013	4	2013
Operational Test	1	2014	1	2014
Deployment Planning, Prep, and Execution	3	2012	4	2015
Training Planning, Train Testers, Train Trainer, User Training	2	2012	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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0605212N: *CH-53K*							
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	543.858	522.268	577.435	0.000	577.435	659.989	641.884	538.458	488.165	Continuing	Continuing
3059: *CH-53K Development*	543.858	522.268	577.435	0.000	577.435	659.989	641.884	538.458	488.165	Continuing	Continuing

A. Mission Description and Budget Item Justification

The CH-53 is the only marinized heavy-lift helicopter in the world and is the Marine Corps only heavy-lift helicopter. The CH-53 mission is the conduct of expeditionary heavy-lift assault transport of armored vehicles, equipment and personnel to support distributed operations deep inland from a sea-based center of operations. The CH-53E "Super Stallion" was introduced into operations in 1980 as an upgrade version of the CH-53D. The CH-53E has developed performance degradation, fatigue life, interoperability, maintenance supportability, and other operational concerns. An improved CH-53 is needed to support Marine Air-Ground Task Force heavy-lift requirements in the 21st century joint environment. The CH-53K will provide improvements in range and payload, performance, cargo handling and turn-around times, reliability and maintainability, interoperability, and survivability. The CH-53K program is required to provide full system capability, including shipboard compatibilities, at Initial Operational Capability (IOC).

Total aircraft quantities for the CH-53K program are 205 helicopters. This includes one Ground Test Vehicle (GTV) and four Engineering Development Models (EDMs) for SDD, to be purchased with RDT&E funds. Of the remaining 200 Production-representative and Production aircraft, the first six will be procured as Low Rate Initial Production (LRIP) Lot 1 aircraft with RDT&E and APN funds, with the four RDT&E aircraft to be used for Initial Operational Test and Evaluation (IOT&E) and the two APN aircraft establishing the IOC production base.

FY11 RDT&E efforts focus on CH-53K System Development and Demonstration (SDD) activities that includes fabrication and assembly in preparation for ground and flight test.

This program element includes $1.950M for the Defense Acquisition Workforce Development (DAWDF) Fund in FY09.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605212N: *CH-53K*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	564.774	554.827	0.000	0.000	0.000
Current President's Budget	543.858	522.268	577.435	0.000	577.435
Total Adjustments	-20.916	-32.559	577.435	0.000	577.435
• Congressional General Reductions		-2.175			
• Congressional Directed Reductions		-30.384			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-3.900	0.000			
• SBIR/STTR Transfer	-17.016	0.000			
• Program Adjustments	0.000	0.000	577.435	0.000	577.435

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605212N: *CH-53K*	PROJECT 3059: *CH-53K 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
3059: *CH-53K Development*	543.858	522.268	577.435	0.000	577.435	659.989	641.884	538.458	488.165	Continuing	Continuing
Quantity of RDT&E Articles	2	2	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The CH-53 is the only marinized heavy-lift helicopter in the world and is the Marine Corps only heavy-lift helicopter. The CH-53 mission is the conduct of expeditionary heavy-lift assault transport of armored vehicles, equipment and personnel to support distributed operations deep inland from a sea-based center of operations. The CH-53E "Super Stallion" was introduced into operations in 1980 as an upgrade version of the CH-53D. The CH-53E has developed performance degradation, fatigue life, interoperability, maintenance supportability, and other operational concerns. An improved CH-53 is needed to support Marine Air-Ground Task Force heavy-lift requirements in the 21st century joint environment. The CH-53K will provide improvements in range and payload, performance, cargo handling and turn-around times, reliability and maintainability, interoperability, and survivability. The CH-53K program is required to provide full system capability, including shipboard compatibilities, at Initial Operational Capability (IOC).

Total aircraft quantities for the CH-53K program are 205 helicopters. This includes one Ground Test Vehicle (GTV) and four Engineering Development Models (EDMs) for SDD, to be purchased with RDT&E funds. Of the remaining 200 Production-representative and Production aircraft, the first six will be procured as Low Rate Initial Production (LRIP) Lot 1 aircraft with RDT&E and APN funds, with the four RDT&E aircraft to be used for Initial Operational Test and Evaluation (IOT&E) and the two APN aircraft establishing the IOC production base.

FY11 RDT&E efforts focus on CH-53K System Development and Demonstration (SDD) activities that includes fabrication and assembly in preparation for ground and flight test.

This program element includes $1.950M for the Defense Acquisition Workforce Development (DAWDF) Fund in FY09.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Air Vehicle Development	488.348	463.319	511.260	0.000	511.260

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605212N: *CH-53K*	PROJECT 3059: *CH-53K Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Performed System Development and Demonstration (SDD) activities for the CH-53K air vehicle and its associated subsystems and components, Government Furnished Equipment (GFE) and CH-53K ancillary systems. *FY 2010 Plans:* Perform System Development and Demonstration (SDD) activities for the CH-53K air vehicle and its associated subsystems and components, Government Furnished Equipment (GFE) and CH-53K ancillary systems *FY 2011 Base Plans:* Perform System Development and Demonstration (SDD) activities for the CH-53K air vehicle and its associated subsystems and components, Government Furnished Equipment (GFE) and CH-53K ancillary systems					
Integrated Logistics Support *FY 2009 Accomplishments:* Performed in-house, field activity, and contractor support of Integrated Logistic support and Test & Evaluation activities, including but not limited to planning, preparations, and management of data, support equipment, Studies & Analysis, training elements of CH-53K development, and program Test & Evaluation efforts. *FY 2010 Plans:* Perform in-house, field activity and contractor support of Integrated Logistic support and Test & Evaluation activities, including but not limited to planning, preparations, and management of data, support equipment, Studies & Analysis, training elements of CH-53K development, and program Test & Evaluation efforts.	11.495	13.444	15.090	0.000	15.090

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605212N: *CH-53K*	PROJECT 3059: *CH-53K Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Perform in-house, field activity, and contractor support of Integrated Logistic support and Test & Evaluation activities, including but not limited to planning, preparations, and management of data, support equipment, Studies & Analysis, training elements of CH-53K development, and program Test & Evaluation efforts.					
Systems Engineering & Project Management	42.065	45.505	51.085	0.000	51.085
FY 2009 Accomplishments: In-house, field activities, and contractors support of Integrated Product Teams (IPTs) to allow for the preparation of acquisition strategy, examination of equipment and avionics for the CH-53K, and development of acquisition documentation. Efforts include, but are not limited to, government development support, engineering support, program management support, systems engineering support, and travel for the CH-53K program.					
FY 2010 Plans: In-house, field activities, and contractors support of Integrated Product Teams (IPTs) to allow for the preparation of acquisition strategy, examination of equipment and avionics for the CH-53K, and development of acquisition documentation. Efforts include, but are not limited to, government development support, engineering support, program management support, systems engineering support, and travel for the CH-53K program.					
FY 2011 Base Plans: In-house, field activities, and contractors support of Integrated Product Teams (IPTs) to allow for the preparation of acquisition strategy, examination of equipment and avionics for the CH-53K, and development of acquisition documentation. Efforts include, but are not limited to, government development support, engineering support, program management support, systems engineering support, and travel for the CH-53K program.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605212N: *CH-53K*	PROJECT 3059: *CH-53K Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition Workforce Fund	1.950	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Funded DoD Acquisition Workforce Fund.					
Accomplishments/Planned Programs Subtotals	543.858	522.268	577.435	0.000	577.435

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/0158: *CH-53K (Heavy Lift)*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.000	14,866.010	14,900.010

D. Acquisition Strategy

On 31 October 2005, the Defense Acquisition Board reviewed the CH-53K program for a Milestone (MS) B decision on entry to System Development and Demonstration (SDD). The Under Secretary of the Defense (Acquisition, Technology and Logistics) (USD(AT&L)) signed the Acquisition Decision Memorandum (ADM) allowing the program to proceed with SDD on 22 December 2005. The CH-53K program was initiated as an Acquisition Category (ACAT) ID program, based on total estimated costs for Research, Development, Test and Evaluation (RDT&E), and Aircraft Procurement, Navy (APN).

E. Performance Metrics

Successfully completed Preliminary Design Reveiw (PDR) in September 2008. As of December 15th, 2009, 45 of 75 Critical Design Reviews (CDRs) have been completed. This includes vendor CDRs, sub-system CDRs and the System level CDR.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605212N: *CH-53K*	PROJECT 3059: *CH-53K 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
Primary Hardware Development	SS/CPAF	Sikorsky Stratford, CT	1,330.109	432.447	Dec 2009	475.678	Dec 2010	0.000		475.678	2,441.802	4,680.036	4,680.036
GFE	Various/ Various	Various Not Specified	28.831	0.847	Dec 2009	2.229	Dec 2010	0.000		2.229	93.790	125.697	Continuing
Award Fees	SS/CPAF	Sikorsky Stratford, CT	45.747	30.025	Dec 2010	33.353	Dec 2011	0.000		33.353	122.458	231.583	231.583
		Subtotal	1,404.687	463.319		511.260		0.000		511.260	2,658.050	5,037.316	4,911.619

Remarks

Award Fee earned in FY 2006 by Sikorsky Aircraft Corporation equaled sixty-three percent of available award fee pool.
Award Fee earned in FY 2007 by Sikorsky Aircraft Corporation equaled thirty-five percent of available award fee pool.
Award Fee earned in FY 2008 by Sikorsky Aircraft Corporation equaled fifty-six percent of available award fee pool.
Award Fee earned in FY 2009 by Sikorsky Aircraft Corporation equaled sixty-one percent of available award fee pool.
Primary Hardware Development Target Value of Contract includes FY14 LRIP 1 RDT&E contract not yet negotiated.

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 Not Specified	0.000	0.000	Dec 2009	0.000	Dec 2010	0.000		0.000	27.717	27.717	Continuing
Integrated Logistics Support	WR	Various Not Specified	26.048	6.999	Dec 2009	7.857	Dec 2010	0.000		7.857	68.721	109.625	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605212N: *CH-53K*	PROJECT 3059: *CH-53K 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
Studies & Analyses	Various/ Various	Various Not Specified	17.047	4.580	Dec 2009	5.142	Dec 2010	0.000		5.142	44.975	71.744	Continuing
		Subtotal	43.095	11.579		12.999		0.000		12.999	141.413	209.086	

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 Not Specified	7.797	1.305	Dec 2009	1.137	Dec 2010	0.000		1.137	62.794	73.033	Continuing
Operational Test & Evaluation	WR	TBD Not Specified	0.095	0.500	Dec 2009	0.500	Dec 2010	0.000		0.500	34.500	35.595	Continuing
Live Fire Test & Evaluation	WR	NAWCWD China Lake, CA	2.020	0.060	Jan 2010	0.454	Jan 2011	0.000		0.454	10.664	13.198	Continuing
		Subtotal	9.912	1.865		2.091		0.000		2.091	107.958	121.826	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605212N: *CH-53K*	PROJECT 3059: *CH-53K Development*

Management Services ($ in Millions)

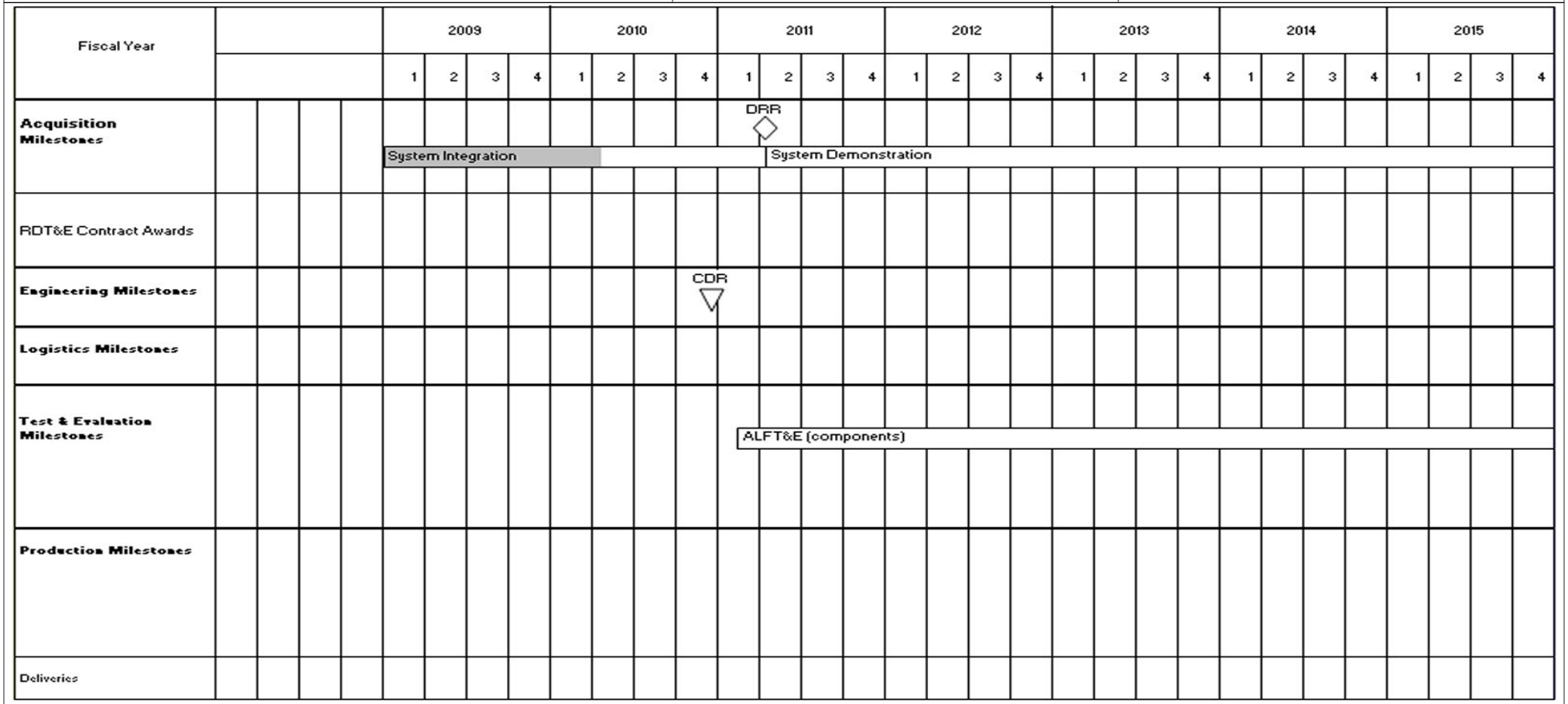
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various/ Various	Various Not Specified	7.830	2.104	Dec 2009	2.362	Dec 2010	0.000		2.362	20.657	32.953	Continuing
Government Engineering Support	WR	NAWCAD Pax River, MD	114.893	30.871	Dec 2009	34.656	Dec 2010	0.000		34.656	303.126	483.546	Continuing
Program Management Support	Various/ Various	Various Not Specified	44.350	11.917	Dec 2009	13.378	Dec 2010	0.000		13.378	117.010	186.655	Continuing
Travel	WR	NAWCAD Pax River, MD	2.283	0.613	Dec 2009	0.689	Dec 2010	0.000		0.689	6.022	9.607	Continuing
Acquisition Workforce Fund	Various/ Various	Various Not Specified	1.950	0.000	Dec 2009	0.000	Dec 2010	0.000		0.000	0.000	1.950	Continuing
		Subtotal	171.306	45.505		51.085		0.000		51.085	446.815	714.711	

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	1,629.000	522.268		577.435		0.000		577.435	3,354.236	6,082.939	4,911.619

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605212N: *CH-53K*	**PROJECT** 3059: *CH-53K Development*



As a result of the recent changes to the CH-53K funding profile to address program performance issues and schedule delays, the Navy is working with the System Development and Demonstration prime contractor on a schedule that supports an FY 2018 IOC.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605212N: *CH-53K*	**PROJECT** 3059: *CH-53K Development*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
System Integration phase	1	2009	2	2011
Critical Design Review (CDR)	4	2010	4	2010
USD(AT&L) Design Readiness Review (DRR)	2	2011	2	2011
System Demonstration phase	2	2011	4	2015
Alternative Live Fire T&E (ALT&E) (Comp.)	1	2011	4	2015

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy											DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0605430N: *C/KC-130 Avionics Modernization Program (AMP)*							
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	18.922	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.922
3199: *Avionics Modernization Program*	18.922	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.922

A. Mission Description and Budget Item Justification

Avionics Modernization - Due to programmatic delays of the Avionics Modernization Program and USMC decision to pursue an all KC-130J model fleet, the program is being restructured.

Harvest HAWK - The objective of this effort is to integrate an ISR (Intelligence, Surveillance & Reconnaissance) Weapon System Kit into the KC-130J aircraft which provides an armed capability to provide intra-theater suppressive fire support for ground troops as well as intelligence and reconnaissance capability for theater commanders. The new KC-130J is a force multiplier. The J tanker is capable of refueling both fixed wing and rotary wing aircraft, as well as conducting rapid ground refueling. KC-130Js have been continuously deployed in support of world-wide combat operations providing multi-mission, tactical aerial refueling, and fixed-wing assault support. This added capability will provide the Marine Air Group Task Force (MAGTF) commander increased capability for real time intelligence gathering and an armed capability for targets of opportunity and suppressive fire-support. The ISR/Weapon System Kit will consist of a target sight sensor, wing mounted air-to-ground missiles, air-to-ground precision guided munition delivery via the aft cargo door, and a rapid fire 30mm cannon. The system will be configured as a Roll-On/Roll-Off capability to allow for rapid deployment. The program will leverage off of current technology/fielded systems to provide rapid integration of this new capability. Future capabilities will include door modifications to allow the 30mm cannon to be able to fire with the door in the closed position, capability to launch precision guided munitions from within the aircraft while pressurized and moving the Hellfire launch rack from the 330 wing-station to the 430 wing-station.

This program element includes $5.809 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605430N: *C/KC-130 Avionics Modernization Program (AMP)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	24.291	0.000	0.000	0.000	0.000
Current President's Budget	18.922	0.000	0.000	0.000	0.000
Total Adjustments	-5.369	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	-4.742	0.000			
• SBIR/STTR Transfer	-0.627	0.000			

Change Summary Explanation

Technical: Not applicable.

Schedule: Due to Developmental delays, DT/QRA will not be completed until April 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605430N: *C/KC-130 Avionics Modernization Program (AMP)*	PROJECT 3199: *Avionics Modernization 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
3199: *Avionics Modernization Program*	18.922	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.922
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Avionics Modernization - Due to programmatic delays of the Avionics Modernization Program and USMC decision to pursue an all KC-130J model fleet, the program is being restructured.

Harvest HAWK - The objective of this effort is to integrate an ISR (Intelligence, Surveillance & Reconnaissance) Weapon System Kit into the KC-130J aircraft which provides an armed capability to provide intra-theater suppressive fire support for ground troops as well as intelligence and reconnaissance capability for theater commanders. The new KC-130J is a force multiplier. The J tanker is capable of refueling both fixed wing and rotary wing aircraft, as well as conducting rapid ground refueling. KC-130Js have been continuously deployed in support of world-wide combat operations providing multi-mission, tactical aerial refueling, and fixed-wing assault support. This added capability will provide the Marine Air Group Task Force (MAGTF) commander increased capability for real time intelligence gathering and an armed capability for targets of opportunity and suppressive fire-support. The ISR/Weapon System Kit will consist of a target sight sensor, wing mounted air-to-ground missiles, air-to-ground precision guided munition delivery via the aft cargo door, and a rapid fire 30mm cannon. The system will be configured as a Roll-On/Roll-Off capability to allow for rapid deployment. The program will leverage off of current technology/fielded systems to provide rapid integration of this new capability. Future capabilities will include door modifications to allow the 30mm cannon to be able to fire with the door in the closed position, capability to launch precision guided munitions from within the aircraft while pressurized and moving the Hellfire launch rack from the 330 wing-station to the 430 wing-station.

This program element includes $5.809 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
Avionics Modernization Program	13.113	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605430N: *C/KC-130 Avionics Modernization Program (AMP)*	PROJECT 3199: *Avionics Modernization Program*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: Avionics Modernization - Due to Programmatic Delays of the Avionics Modernization Program and USMC decision to pursue an all KC-130J model fleet, the program is being restructured. FY09: Harvest HAWK - Technical Interchange Meeting (TIM) completed 3/09. System Design Review (SDR) completed 7/09.					
DAWDF *FY 2009 Accomplishments:* DAWDF Realignment.	5.809	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	18.922	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
• APN/0560: *C-130 Series (OSIP 022-07)*	2.000	52.324	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	83.224

D. Acquisition Strategy

Avionics Modernization - Due to Programmatic Delays of the Avionics Modernization Program and USMC decision to pursue an all KC-130J model fleet, the program is being restructured.

Harvest HAWK - The Harvest HAWK Program has awarded a FFP contract with Lockheed Martin Marietta / Lockheed Martin Skunkworks to perform system integration and engineering of the Harvest HAWK capability. The strategy is to use one contract to perform both system integration and production.

E. Performance Metrics

Successful completion of Developmental Testing/Quick Assessment Review to suppport OCONUS deployment NLT April 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605430N: *C/KC-130 Avionics Modernization Program (AMP)*	PROJECT 3199: *Avionics Modernization 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
Aircraft Integration	SS/FFP	Lockheed Martin Marietta, GA	22.800	0.000		0.000		0.000		0.000	0.000	22.800	22.800
GFE	MIPR	Various Various	0.874	0.000		0.000		0.000		0.000	0.000	0.874	Continuing
		Subtotal	23.674	0.000		0.000		0.000		0.000	0.000	23.674	22.800

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
Devlopmental Test & Evaluation	WR	NAWCAD Patuxent River	2.511	0.000		0.000		0.000		0.000	0.000	2.511	Continuing
Operational Test & Evaluation	WR	NAWCAD Patuxent River	3.431	0.000		0.000		0.000		0.000	0.000	3.431	Continuing
Live Fire Test & Evaluation	WR	NAWCWD Patuxent River	0.800	0.000		0.000		0.000		0.000	0.000	0.800	Continuing
		Subtotal	6.742	0.000		0.000		0.000		0.000	0.000	6.742	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605430N: *C/KC-130 Avionics Modernization Program (AMP)*	PROJECT 3199: *Avionics Modernization Program*

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	WR	NAWCAD Patuxent River	0.610	0.000		0.000		0.000		0.000	0.000	0.610	Continuing
Government Engineering Support	WR	Various Various	4.178	0.000		0.000		0.000		0.000	0.000	4.178	Continuing
Program Management Support	WR	NADEP Cherry Point	0.266	0.000		0.000		0.000		0.000	0.000	0.266	Continuing
DAWDF Realignment	Various/ Various	Various Various	5.809	0.000		0.000		0.000		0.000	0.000	5.809	Continuing
		Subtotal	10.863	0.000		0.000		0.000		0.000	0.000	10.863	

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	41.279	0.000		0.000		0.000		0.000	0.000	41.279	22.800

Remarks

Totals 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605430N: *C/KC-130 Avionics Modernization Program (AMP)*	**PROJECT** 3199: *Avionics Modernization Program*

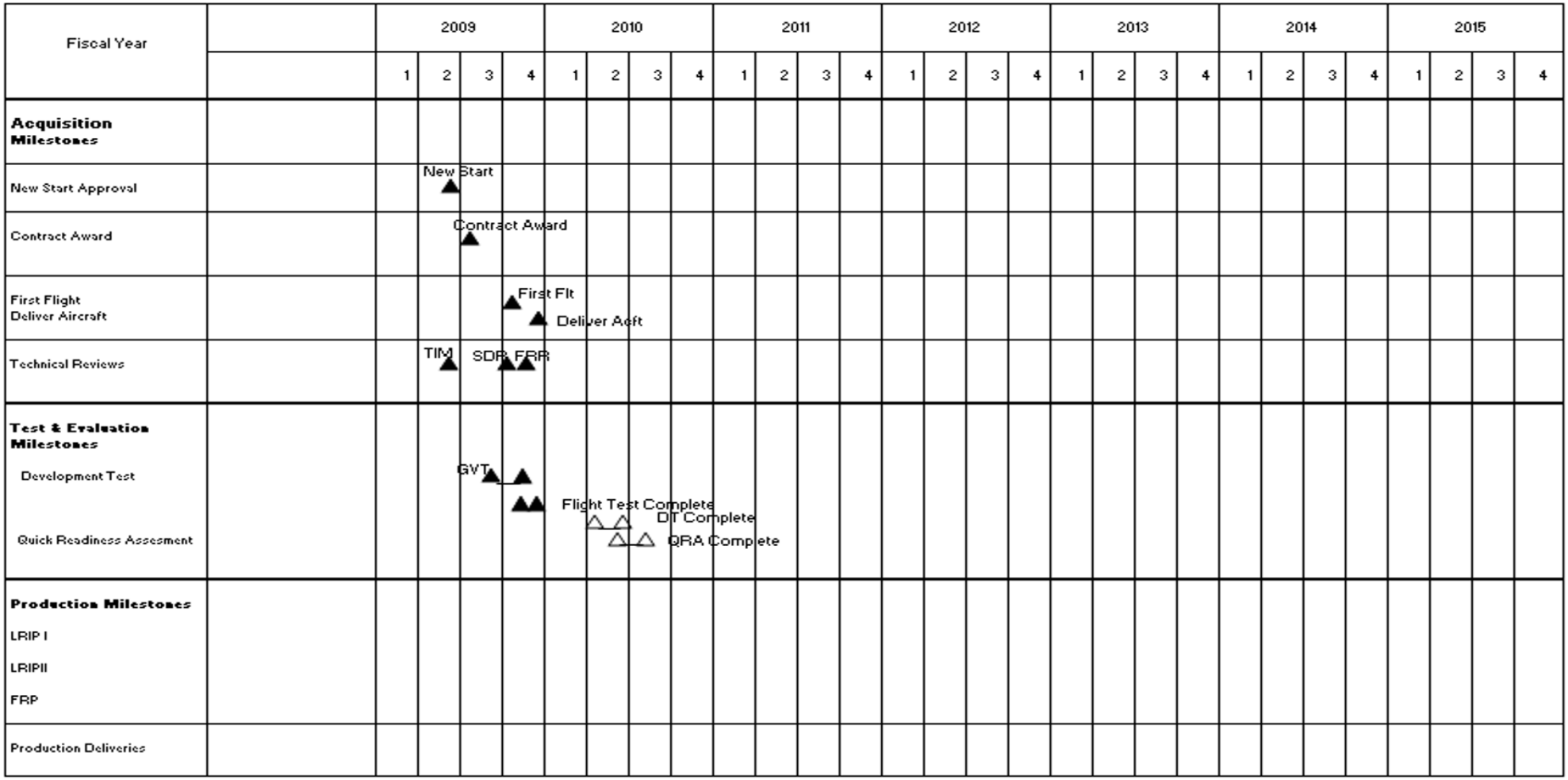


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605430N: *C/KC-130 Avionics Modernization Program (AMP)*	**PROJECT** 3199: *Avionics Modernization Program*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
New Start Approval	2	2009	2	2009
Contract Award	3	2009	3	2009
First Flight	4	2009	4	2009
Deliver Aircraft	4	2009	4	2009
Technical Interface Meeting (TIM)	2	2009	2	2009
System Design Review (SDR)	4	2009	4	2009
Flight Readiness Review (FRR)	4	2009	4	2009
Ground Vibration Testing (GVT)	3	2009	4	2009
Flight Test Complete	4	2009	4	2009
Developmental Testing (DT-IIA)	2	2010	2	2010
Quick Readiness Assessment (QRA)	2	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605450N: *Joint Air-to-ground Missile (JAGM)*

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	54.972	77.412	100.846	0.000	100.846	120.044	126.481	131.679	63.622	Continuing	Continuing
2211: *Joint Air-to-Ground Missile*	54.972	77.412	100.846	0.000	100.846	120.044	126.481	131.679	63.622	Continuing	Continuing

A. Mission Description and Budget Item Justification

(U) JOINT AIR TO GROUND MISSILE (JAGM): JAGM is an Army-led close-air-support missile program that will utilize tri-mode seeker technology and be employed against land and maritime stationary and moving targets. JAGM will provide a fixed wing, rotary wing, and unmanned aircraft system launched missile system that provides advanced Line-of-sight and Beyond-line-of-sight capabilities, including precision point targeting and fire and forget seeker technologies; increased range; and increased lethality against soft and hardened moving and stationary targets. Its multi-mode seeker will provide robust capability in adverse weather, day or night, and in an obscured/countermeasure environment, against both stationary and moving targets. Initial Navy platform integration efforts include the F/A-18E/F, AH-1Z and MH-60R platforms. The JAGM system includes the missiles, trainers, containers, support equipment, and launcher modifications.

This PE includes $.404M for the Acquisition Workforce Development Fund in FY 2009.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	61.757	81.434	0.000	0.000	0.000
Current President's Budget	54.972	77.412	100.846	0.000	100.846
Total Adjustments	-6.785	-4.022	100.846	0.000	100.846
• Congressional General Reductions		-0.322			
• Congressional Directed Reductions		-3.700			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-5.950	0.000			
• SBIR/STTR Transfer	-0.835	0.000			
• Program Adjustments	0.000	0.000	100.846	0.000	100.846

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605450N: *Joint Air-to-ground Missile (JAGM)*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605450N: *Joint Air-to-ground Missile (JAGM)*	PROJECT 2211: *Joint Air-to-Ground Missile*	

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
2211: *Joint Air-to-Ground Missile*	54.972	77.412	100.846	0.000	100.846	120.044	126.481	131.679	63.622	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

(U) JOINT AIR TO GROUND MISSILE (JAGM): JAGM is an Army-led close-air-support missile program that will utilize tri-mode seeker technology and be employed against land and maritime stationary and moving targets. JAGM will provide a fixed wing, rotary wing, and unmanned aircraft system launched missile system that provides advanced Line-of-sight and Beyond-line-of-sight capabilities, including precision point targeting and fire and forget seeker technologies; increased range; and increased lethality against soft and hardened moving and stationary targets. Its multi-mode seeker will provide robust capability in adverse weather, day or night, and in an obscured/countermeasure environment, against both stationary and moving targets. Initial Navy platform integration efforts include the F/A-18E/F, AH-1Z and MH-60R platforms. The JAGM system includes the missiles, trainers, containers, support equipment, and launcher modifications.

This project includes $.404M for the Defense Acquisition Workforce Development Fund (DAWDF) in FY2009.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
JAGM Technology Development	54.568	77.412	0.000	0.000	0.000
FY 2009 Accomplishments: Funding was used toward an OSD directed 27 month competitive technology development effort. Funding will be used to support the Navy's program management and integration efforts on 3 threshold platforms. This includes support of all acquisition, system engineering and test reviews. Navy integration efforts are focused on the following threshold platforms: F/A-18E/F, AH-1Z and MH-60R.					
FY 2010 Plans: Funding is to be used towards an OSD directed 27 month competitive technology development effort. Funding will be used to support the Navy's program management and integration efforts on					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605450N: *Joint Air-to-ground Missile (JAGM)*	PROJECT 2211: *Joint Air-to-Ground Missile*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
3 threshold platforms. This includes support of all acquisition, system engineering and test reviews. Navy integration efforts are focused on the following threshold platforms: F/A-18E/F, AH-1Z and MH-60R.					
JAGM Engineering Manufacturing Development (EMD) *FY 2011 Base Plans:* Funding is to be used towards EMD. A competitive downselect at the end of the technology development effort will allow for continuation of one contractor into the 4-year EMD period. Funding will be used to support the Navy's program management and integration efforts on 3 threshold platforms. This includes support of all acquisition, system engineering and test reviews. Navy integration efforts are focused on the following threshold platforms: F/A-18E/F, AH-1Z and MH-60R.	0.000	0.000	100.846	0.000	100.846
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded DoD Acquisition Workforce Fund	0.404	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	54.972	77.412	100.846	0.000	100.846

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, 224800: *JAGM*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.878	143.865	3,011.128	3,187.871
• RDT&E ARMY, 0605450A: *JAGM*	114.817	126.725	130.340	0.000	130.340	127.534	136.692	109.476	57.084	104.002	906.670
• MPA, C70302: *JAGM*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.508	96.442	3,313.250	3,415.200

D. Acquisition Strategy

The JAGM System is an ACAT 1D Joint Army/Navy program with the Army designated as lead service. The Government will utilize full and open competition to acquire the JAGM System. The JAGM program will consist of a 27 month Technology Development (TD) phase and a 48 month Engineering Manufacturing and Development

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605450N: *Joint Air-to-ground Missile (JAGM)*	PROJECT 2211: *Joint Air-to-Ground Missile*

(EMD) phase followed by limited rate and full rate production. The first phase will be a competitively awarded contract to two contractors and will include analysis, windtunnel, ground testing, and flight testing in support of initial Navy platform integration activites. A competitive downselect is planned to choose a single contractor to continue into the EMD phase.

E. Performance Metrics

JAGM to complete OSD directed 27 month competitive technology development effort 1Q FY11.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605450N: *Joint Air-to-ground Missile (JAGM)*	PROJECT 2211: *Joint Air-to-Ground Missile*	

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
Technology Development	C/CPIF	Lockheed Martin Orlando, FL	8.629	10.901	Dec 2009	0.000		0.000		0.000	0.000	19.530	19.530
Technology Development	C/CPIF	Raytheon Tucson, AZ	8.629	10.901	Dec 2009	0.000		0.000		0.000	0.000	19.530	19.530
EMD	C/CPIF	TBD TBD	0.000	0.000		47.434	Dec 2010	0.000		47.434	210.367	257.801	257.801
Aircraft Integraton	WR	NAWCAD Pax River, MD	1.072	1.517	Nov 2009	1.806	Nov 2010	0.000		1.806	41.129	45.524	Continuing
Aircraft Integration (AH-1Z)	TM	Bell Helicopter Hurst, TX	0.725	1.775	Dec 2009	4.420	Dec 2010	0.000		4.420	5.048	11.968	11.968
Aircraft Integration (F-18E/F)	TM	Boeing St. Louis MO	5.991	9.711	Dec 2009	3.391	Dec 2010	0.000		3.391	14.539	33.632	33.632
Aircraft Integration (MH-60R)	TM	Sikorsky East Hartford CT	1.050	0.550	Nov 2009	0.500	Nov 2010	0.000		0.500	7.205	9.305	9.305
Sytems Eng - WD	WR	NAWCWD China Lake, CA	15.642	15.889	Nov 2009	15.427	Nov 2010	0.000		15.427	53.698	100.656	Continuing
		Subtotal	41.738	51.244		72.978		0.000		72.978	331.986	497.946	351.766

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605450N: *Joint Air-to-ground Missile (JAGM)*	PROJECT 2211: *Joint Air-to-Ground Missile*

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	NAWCWD China Lake, CA	0.491	5.239	Nov 2009	7.277	Nov 2010	0.000		7.277	76.551	89.558	Continuing
Software Development	TM	LMSI Owego NY	0.855	4.341	Dec 2009	6.250	Dec 2010	0.000		6.250	24.000	35.446	35.446
Integrated Logistics Support	WR	NAWCWD China Lake, CA	0.325	0.403	Nov 2009	0.874	Nov 2010	0.000		0.874	6.763	8.365	Continuing
		Subtotal	1.671	9.983		14.401		0.000		14.401	107.314	133.369	35.446

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	NAWCAD Pax River , MD	1.125	3.375	Nov 2009	3.625	Nov 2010	0.000		3.625	25.351	33.476	Continuing
Test & Evaluation	WR	NAWCWD China Lake, CA	1.875	3.025	Nov 2009	3.272	Nov 2010	0.000		3.272	25.124	33.296	Continuing
Test & Evaluation	MIPR	NASA AMES CA	2.141	0.460	Nov 2009	0.500	Nov 2010	0.000		0.500	0.000	3.101	Continuing
Test & Evaluation	MIPR	AEDC/DOF, AFB TN	6.000	3.500	Nov 2009	0.000		0.000		0.000	0.000	9.500	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605450N: *Joint Air-to-ground Missile (JAGM)*	PROJECT 2211: *Joint Air-to-Ground Missile*

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	11.141	10.360		7.397		0.000		7.397	50.475	79.373	

Remarks

Contract type for Test $ Evaluation to NASA AMES is IPR.

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
Contr Eng Supt - ETS (NON-FFRDC)	Various/ Various	Various Various	2.350	2.400	Dec 2009	2.450	Dec 2010	0.000		2.450	6.265	13.465	Continuing
Government Eng Sup	WR	NAWCAD Pax River, MD	2.348	3.325	Nov 2009	3.520	Nov 2010	0.000		3.520	11.660	20.853	Continuing
Travel - Internal	WR	NAVAIR Pax River, MD	0.100	0.100	Oct 2009	0.100	Oct 2010	0.000		0.100	0.300	0.600	Continuing
Acquisition Workforce Fund	Various/ Various	Various Various	0.404	0.000		0.000		0.000		0.000	0.000	0.404	Continuing
		Subtotal	5.202	5.825		6.070		0.000		6.070	18.225	35.322	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605450N: *Joint Air-to-ground Missile (JAGM)*	PROJECT 2211: *Joint Air-to-Ground Missile*	

	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	59.752	77.412		100.846		0.000		100.846	508.000	746.010	387.212

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605450N: *Joint Air-to-ground Missile (JAGM)*	**PROJECT** 2211: *Joint Air-to-Ground Missile*

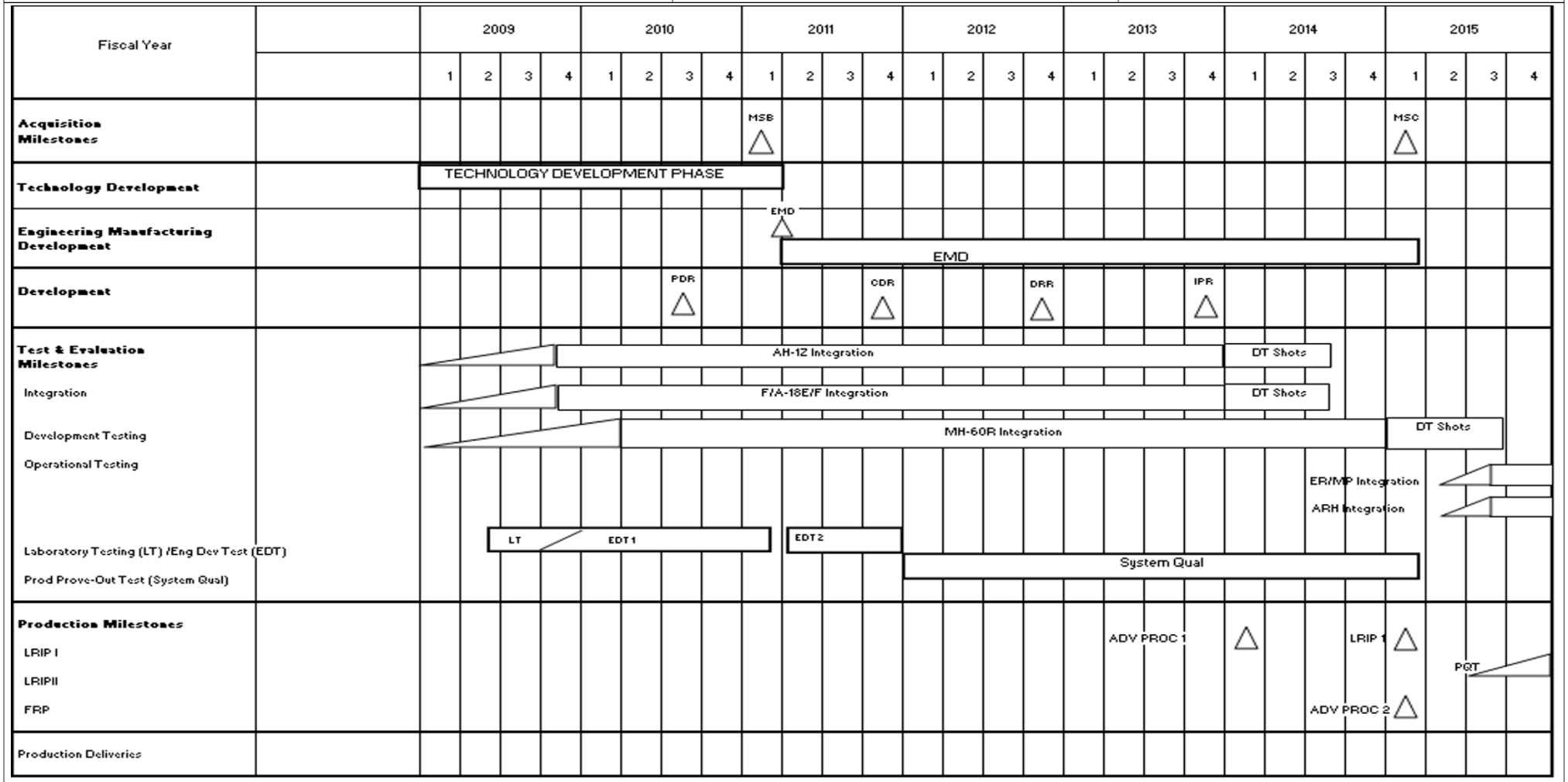


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605450N: *Joint Air-to-ground Missile (JAGM)*	**PROJECT** 2211: *Joint Air-to-Ground Missile*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Milestone B	1	2011	1	2011
Technology Development	1	2009	1	2011
EMD Contract Award	2	2011	2	2011
EMD	2	2011	1	2015
AH-1Z Integration	1	2009	4	2013
AH-1Z DT Shots	1	2014	3	2014
F/A-18 E/F Integration	1	2009	4	2013
F/A-18 E/F DT Shots	1	2014	3	2014
MH-60R Integration	1	2009	4	2014
MH-60R DT Shots	1	2015	3	2015
ERMP Integration	2	2015	4	2015
ARH Integration	2	2015	4	2015
Program Decision Review	3	2010	3	2010
Critical Design Review	4	2011	4	2011
Design Readiness Review	4	2012	4	2012
Laboratory Test	2	2009	4	2009
Engineering Design Test (1)	4	2009	1	2011
Engineering Design Test (2)	2	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605450N: *Joint Air-to-ground Missile (JAGM)*	PROJECT 2211: *Joint Air-to-Ground Missile*

	Start		End	
Event	Quarter	Year	Quarter	Year
Prod Prove-Out Test (System Qual)	1	2012	1	2015
In-Process Review	4	2013	4	2013
Advanced Procurement 1	1	2014	1	2014
Milestone C	1	2015	1	2015
Advanced Procurement 2	1	2015	1	2015
LRIP 1	1	2015	1	2015
PQT	3	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 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*							
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	1,089.670	1,170.527	929.240	0.000	929.240	430.643	198.644	133.360	184.780	Continuing	Continuing
2696: *Multi-Mission Maritime Aircraft*	1,079.269	1,128.025	923.258	0.000	923.258	339.667	113.876	34.393	33.309	Continuing	Continuing
3181: *P-8A Spiral One Development*	10.401	29.556	3.995	0.000	3.995	55.158	40.718	33.337	14.699	Continuing	Continuing
3218: *P-8A Spiral 2 Development*	0.000	0.000	1.987	0.000	1.987	35.818	44.050	65.630	136.772	Continuing	Continuing
9999: *Congressional Adds*	0.000	12.946	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.910

A. Mission Description and Budget Item Justification

The P-8A Multi-mission Maritime Aircraft (MMA) will replace the aging P-3 aircraft. The P-8A program was initiated in response to the Joint Requirements Oversight Council (JROC) validated Mission Needs Statement (MNS), "Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconnaissance" and the requirements for the program are defined in the MMA Operational Requirements Document (ORD)/ Capability Development Document (CDD), validated and approved by JROC on 08 December 2003. The P-8A program received Milestone 0 approval to proceed into Concept Exploration (CE) on 22 March 2000. Concept exploration activities began in June 2000 under Program Element 0702207N Project Unit W2737. Approval to enter Component Advanced Development (CAD) was attained from the Overarching Integrated Product Team on 18 January 2002 and the Milestone Decision Authority, Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)), approved the program Acquisition Strategy on 8 February 2002. Approval to enter System Development and Demonstration (SDD) was attained at the Defense Acquisition Board (DAB) on 28 May 2004. Approval was granted to award the SDD contract at the DAB. The contract was awarded to Boeing on 14 June 2004. A successful Critical Design Review (CDR) was completed in June 2007. In August 2007 the Design Readiness Review (DRR) was conducted and resulted in approval to obligate funding for the fabrication of the Stage II flight test aircraft. The Interim Program Review (IPR) was completed on 7 April 2009 based on release of Acquisition Decision Memorandum. The first flight of P-8A occurred on 25 Apr 2009.

The primary objectives of SDD are to: perform the system detailed design, develop and produce Systems Integration Labs, develop and build ground and flight test articles and prepare for Milestone C. Six flight test aircraft will be built during SDD. These test aircraft will be grouped into two stages based on which phase of the test program the aircraft will support. SDD Stage I flight test aircraft (FY06/Qty-3) will support integrated Test and Evaluation (IT&E). This was previously called combined Developmental/Operational Testing (DT/OT). SDD Stage II flight test aircraft (FY09/Qty-3) will support the completion of IT&E and Initial Operational Test and Evaluation (IOT&E) after being updated to the production configuration. The SDD contract includes the development and initial builds of training devices to

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*

support IOT&E. The scope of SDD includes activities necessary to facilitate an efficient transition of the fleet to achieve the P-8A Initial Operational Capability (IOC) of Increment 1 in CY13. P-8A plans to enter Production and Deployment (PD) in the 3rd quarter of FY10 after completing the Milestone C DAB.

P-8A program is based on an evolutionary acquisition strategy consisting of sequential incremental enhancements to system capabilities that will retain cost-wise effectiveness for winning major combat operations through 2020. The Increment 2 Integration effort will allow the P-8A to keep pace with the threat. In order to pace the threat, this will incorporate the following capabilities into the P-8A: Advanced Extended Echo Ranging, Automatic Identification System, Aircraft Rapid Commercial-Off-The-Shelf Insertion (ARCI), Integrated Broadcast Services, and updates to the Tactical Operations Center (TOC) as well as additional Anti-Submarine (ASW) and Anti-Surface Warfare (ASuW) capabilities necessary to reduce the gap between the evolved legacy P-3C and P-8A systems. These capabilities and other emergent capability requirements, such as the High Altitude Anti-Submarine Warfare (HAASW) capability, will be investigated during the Technology Development phase of Increment 2. The scope of this effort includes the integration, design, and test of the capability enhancements to the P-8A and associated TOC ground support facilities and initial trainers. Integration of these capabilities will be accomplished incrementally, based on the scope of the integration effort. Fleet introduction is planned to be completed in FY16.

As part of the P-8A evolutionary strategy, Increment 3 will focus on attaining cost wise effectiveness for winning major combat operations through FY2023. In order to pace the threat, Increment 3 may include the following capabilities: Net-Ready KPP compliance, High Altitude ASW, integration of future ASuW weapon survivability upgrades, precision targeting improvements to radar, ARCI capabilities, as well as additional ASW and ASuW capabilities required to reduce the gap between the evolved legacy P-3C and P-8A systems. These capabilities and other emergent capability requirements will be investigated during the Techology Development phase of Increment 3 for the P-8A and TOC. Increment 3 will capitalize on existing planned P-8A DABs to serve as decision points for entering furture phases of work.

This Program Element includes $1.000 million for the Defense Acquisition Work Force Development Fund (DAWDF) in FY09.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	1,123.877	1,162.417	0.000	0.000	0.000
Current President's Budget	1,089.670	1,170.527	929.240	0.000	929.240
Total Adjustments	-34.207	8.110	929.240	0.000	929.240
• Congressional General Reductions		-4.875			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.015			
• Congressional Adds		13.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.712	0.000			
• SBIR/STTR Transfer	-33.495	0.000			
• Program Adjustments	0.000	0.000	929.240	0.000	929.240

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	12.946
Congressional Add Subtotals for Project: 9999	0.000	12.946
Congressional Add Totals for all Projects	0.000	12.946

Change Summary Explanation

Technical: Not applicable.

Schedule: Project 2696: The schedule reflects the following changes: Changed DT/OT to IT&E, corrected IOT&E to reflect APB objective values for start and completion.

Project 3181: The following schedule change due to budget adjustments: MS-B changed from 3Q FY10 to 3Q FY11.

Project 3218: The schedule for Increment 3 is now displayed.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 2696: *Multi-Mission Maritime Aircraft*	

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
2696: *Multi-Mission Maritime Aircraft*	1,079.269	1,128.025	923.258	0.000	923.258	339.667	113.876	34.393	33.309	Continuing	Continuing
Quantity of RDT&E Articles	3	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The P-8A Multi-mission Maritime Aircraft (MMA) will replace the aging P-3 aircraft. The P-8A program was initiated in response to the Joint Requirements Oversight Council (JROC) validated Mission Needs Statement (MNS), "Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconnaissance" and the requirements for the program are defined in the MMA Operational Requirements Document (ORD)/ Capability Development Document (CDD), validated and approved by JROC on 08 December 2003. The P-8A program received Milestone 0 approval to proceed into Concept Exploration (CE) on 22 March 2000. Concept exploration activities began in June 2000 under Program Element 0702207N Project Unit W2737. Approval to enter Componen Advanced Development (CAD) was attained from the Overarching Integrated Product Team on 18 January 2002 and the Milestone Decision Authority Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) approved the program Acquisition Strategy on 8 February 2002. Approval to enter System Development and Demonstration (SDD) was attained at the Defense Acquisition Board (DAB) on 28 May 2004. Approval was granted to award the SDD contract at the DAB. The contract was awarded to Boeing on 14 June 2004. A successful Critical Design Review (CDR) was completed in June 2007. In August 2007 the Design Readiness Review (DRR) was conducted and resulted in approval to obligate funding for the fabrication of the Stage II flight test aircraft. The Interim Program Review (IPR) was completed on 7 April 2009 based on release of Acquisition Decision Memorandum. The first flight of P-8A occurred on 25 Apr 2009.

The primary objectives of SDD are to: perform the system detailed design, develop and produce Systems Integration Labs, develop and build ground and flight test articles and prepare for Milestone C. Six flight test aircraft will be built during SDD. These test aircraft will be grouped into two stages based on which phase of the test program the aircraft will support. SDD Stage I flight test aircraft (FY06/Qty-3) will support Integrated Test and Evaluation (IT&E). This was previously called combined Developmental/Operational Testing (DT/OT). SDD Stage II flight test aircraft (FY09/Qty-3) will support the completion of combined DT/OT and Initial Operational Test and Evaluation (IOT&E). The SDD contract includes the development and initial builds of training devices to support IOT&E. P-8A plans to enter Production and Deployment (PD) in the 3rd quarter of FY10 after completing the Milestone C DAB.

This project includes $1.000 million for the Defense Acquisition Work Force Development Fund (DAWDF) in FY09.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 2696: *Multi-Mission Maritime Aircraft*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continue System Development & Demonstration (SDD)	1,026.076	1,060.255	869.436	0.000	869.436

FY 2009 Accomplishments:

System Development and Demonstration (SDD) phase. Scope of effort includes: design, develop, build, and test P-8A aircraft, avionics, mission systems, Systems Integration Lab(s), wind tunnel test models, ground and flight test articles (SDD Stage I, FY06, Qty-3; SDD Stage II, FY09, Qty-3, other test articles, associated Tactical Operations Center (TOC) updates, and development and initial builds of training devices to support IOT&E. Conduct the periodic cost and schedule performance reviews associated with Earned Value Management and prepare and conduct technical, test and logistic reviews.

FY 2010 Plans:

System Development and Demonstration (SDD) phase. Scope of effort includes: design, develop, build, and test P-8A aircraft, avionics, mission systems, Systems Integration Lab(s), wind tunnel test models, ground and flight test articles (SDD Stage I, FY06, Qty-3; SDD Stage II, FY09, Qty-3, other test articles, associated Tactical Operations Center (TOC) updates, and development and initial builds of training devices to support IOT&E. Conduct the periodic cost and schedule performance reviews associated with Earned Value Management and prepare and conduct technical, test and logistic reviews.

FY 2011 Base Plans:

System Development and Demonstration (SDD) phase. Scope of effort includes: design, develop, build, and test P-8A aircraft, avionics, mission systems, Systems Integration Lab(s), wind tunnel test models, ground and flight test articles (SDD Stage I, FY06, Qty-3; SDD Stage II, FY09, Qty-3, other test articles, associated Tactical Operations Center (TOC) updates, and development and initial builds of training devices to support IOT&E. Conduct the periodic cost and schedule performance reviews associated with Earned Value Management and prepare and conduct technical, test and logistic reviews.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 2696: *Multi-Mission Maritime Aircraft*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continue Engineering and Technical Development and Test for SDD contracts	52.193	67.770	53.822	0.000	53.822
FY 2009 Accomplishments: Test, GFE, Engineering and Technical Development for the SDD contract: Effort includes: analysis of contracted deliverables; direct technical and logistic support of system development and delivery; assessment of contractors readiness to proceed in design/development; evaluate contract cost, schedule, and performance; test preparations, provide necessary government furnished equipment and test articles, risk assessment/mitigation; program control; performance status; and plan and prepare for future Milestone/Decision Reviews and develop associated documentation. Modeling & Simulation tools will be developed to assess proposed risk mitigations. Conduct and support Integrated Test and Evaluation and Live Fire Test and Evaluation.					
FY 2010 Plans: Test, GFE, Engineering and Technical Development for the SDD contract: Effort includes: analysis of contracted deliverables; direct technical and logistic support of system development and delivery; assessment of contractors readiness to proceed in design/development; evaluate contract cost, schedule, and performance; test preparations, provide necessary government furnished equipment and test articles, risk assessment/mitigation; program control; performance status; and plan and prepare for future Milestone/Decision Reviews and develop associated documentation. Modeling & Simulation tools will be developed to assess proposed risk mitigations. Conduct and support Integrated Test and Evaluation and Live Fire Test and Evaluation.					
FY 2011 Base Plans: Test, GFE, Engineering and Technical Development for the SDD contract: Effort includes: analysis of contracted deliverables; direct technical and logistic support of system development and delivery; assessment of contractors readiness to proceed in design/development; evaluate contract cost, schedule, and performance; test preparations, provide necessary government furnished equipment and test articles, risk assessment/mitigation; program control; performance status; and plan and prepare for future Milestone/Decision Reviews and develop associated documentation. Modeling					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 2696: *Multi-Mission Maritime Aircraft*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
& Simulation tools will be developed to assess proposed risk mitigations. Conduct and support Integrated Test and Evaluation and Live Fire Test and Evaluation.					
DAWDF Realignment *FY 2009 Accomplishments:* DAWDF Realignment.	1.000	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	1,079.269	1,128.025	923.258	0.000	923.258

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
• APN1/0193: *P-8A MMA*	110.227	1,797.396	1,990.590	0.000	1,990.590	2,446.306	3,071.079	3,938.290	5,154.100	7,970.282	26,478.270
• APN6/0605: *P-8A Initial Spares*	0.000	122.909	72.422	0.000	72.422	85.029	63.775	11.808	9.838	0.000	365.781
• MILCON: *P-8A MILCON*	48.220	5.917	0.000	0.000	0.000	49.679	0.000	0.000	0.000	0.000	103.816

D. Acquisition Strategy

The Multi-Mission Maritime Aircraft (MMA) Milestone 0 was approved 22 March 2000 and the resulting Acquisition Decision Memorandum directed P-8A to begin the CE phase consisting of an Analysis of Alternatives (AoA) and industry concept studies. These activities began 3Q/01 and were funded under Program Element 0702207N Project Unit W2737. Approval to enter Component Advanced Development (CAD) was attained from the Overarching Integrated Product Team on 18 Jan 2002 and the Milestone Decision Authority (USD(AT&L)) approved the program Acquisition Strategy on 8 Feb 2002. The CAD was a competitive award to multiple contractors to define alternative MMA concept system architectures and evaluate associated risks and proposed mitigations. Selection of MMA concept and approval to enter System Development and Demonstration (SDD) phase occurred at MS B decision review on 28 May 2004. The contract was awarded to Boeing on 14 June 2004. The SDD phase is being used to design, develop and test the P-8A system. The P-8A program was initiated in response to the JROC validated MNS, "Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconnaissance" and the requirements for the program are defined in the MMA Operational Requirements Document (ORD)/ Capability Development Document (CDD), validated and approved by JROC on 08 December 2003. P-8A IOC objective is FY 2013.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	**PROJECT** 2696: *Multi-Mission Maritime Aircraft*

E. Performance Metrics

Milestone C scheduled to complete 3rd quarter 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 2696: *Multi-Mission Maritime Aircraft*

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
Award Fee for Primary HW	C/CPAF	Boeing St. Louis, MO	123.451	86.878	Oct 2009	38.699	Oct 2010	0.000		38.699	21.980	271.008	271.008
Info. Assurance	WR	NAWC AD Pax River, MD	0.931	0.450	Oct 2009	0.450	Oct 2010	0.000		0.450	0.600	2.431	Continuing
Primary HW Dev - Boeing	C/CPAF	Boeing St. Louis, MO	4,089.724	959.479	Oct 2009	822.037	Oct 2010	0.000		822.037	415.321	6,286.561	6,286.561
Primary HW Dev - SPAWAR	WR	SPAWAR San Diego, CA	22.796	7.100	Feb 2010	6.000	Feb 2011	0.000		6.000	3.000	38.896	Continuing
Sys Eng (gov)	WR	Various Various	49.096	6.348	Nov 2009	2.250	Nov 2010	0.000		2.250	1.100	58.794	Continuing
All other PY Product Dev.	Various/ Various	Various Various	70.538	0.000		0.000		0.000		0.000	0.000	70.538	Continuing
		Subtotal	4,356.536	1,060.255		869.436		0.000		869.436	442.001	6,728.228	6,557.569

Remarks

The total award fee issued to date was 2.1% of the total budget.

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
Int. Log Gov	WR	NAWC AD Pax River, MD	35.705	8.266	Nov 2009	7.857	Nov 2010	0.000		7.857	6.311	58.139	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 2696: *Multi-Mission Maritime Aircraft*

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
SAE (NON-FFRCD)	C/FFP	Various Various	9.884	0.610	Jan 2010	0.000		0.000		0.000	0.000	10.494	10.494
Tech Dev Gov	WR	NAWC AD Pax River, MD	63.534	7.375	Nov 2009	3.052	Nov 2010	0.000		3.052	2.756	76.717	Continuing
All other PY Support Cost	Various/ Various	Various Various	4.868	0.000		0.000		0.000		0.000	0.000	4.868	Continuing
		Subtotal	113.991	16.251		10.909		0.000		10.909	9.067	150.218	10.494

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 T&E - Gov	WR	Various Various	24.058	17.563	Nov 2009	16.200	Nov 2010	0.000		16.200	56.785	114.606	Continuing
GFE & GFI	Various/ Various	Various Various	19.331	20.600	Nov 2009	18.500	Nov 2010	0.000		18.500	13.700	72.131	Continuing
LFT&E - Gov	WR	Various Various	14.944	2.398	Nov 2009	2.808	Nov 2010	0.000		2.808	0.000	20.150	Continuing
Oper Test & Eval - TBD	WR	Various Various	0.000	0.000		0.000		0.000		0.000	16.484	16.484	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 2696: *Multi-Mission Maritime Aircraft*

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
All other PY T&E Cost	Various/ Various	Various Various	5.187	0.000		0.000		0.000		0.000	0.000	5.187	Continuing
		Subtotal	63.520	40.561		37.508		0.000		37.508	86.969	228.558	

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
Mgmt Suppt Serv (NON-FFRDC)	C/CPFF	RBC INC Alexandria, VA	16.994	4.949	Nov 2009	1.743	Nov 2010	0.000		1.743	4.000	27.686	27.686
Program Mgmt Support	WR	NAWC AD Pax River, MD	25.005	5.459	Nov 2009	3.362	Nov 2010	0.000		3.362	5.231	39.057	Continuing
Travel - EOB	Various/ Various	NAWC AD Pax River, MD	2.221	0.550	Nov 2009	0.300	Nov 2010	0.000		0.300	0.600	3.671	Continuing
All other PY Support Cost	Various/ Various	Various Various	19.060	0.000		0.000		0.000		0.000	0.000	19.060	Continuing
DAWDF Realignment	Various/ Various	Various Various	1.000	0.000		0.000		0.000		0.000	0.000	1.000	Continuing
		Subtotal	64.280	10.958		5.405		0.000		5.405	9.831	90.474	27.686

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 2696: *Multi-Mission Maritime Aircraft*	

	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	4,598.327	1,128.025		923.258		0.000		923.258	547.868	7,197.478	6,595.749

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	**PROJECT** 2696: *Multi-Mission Maritime Aircraft*

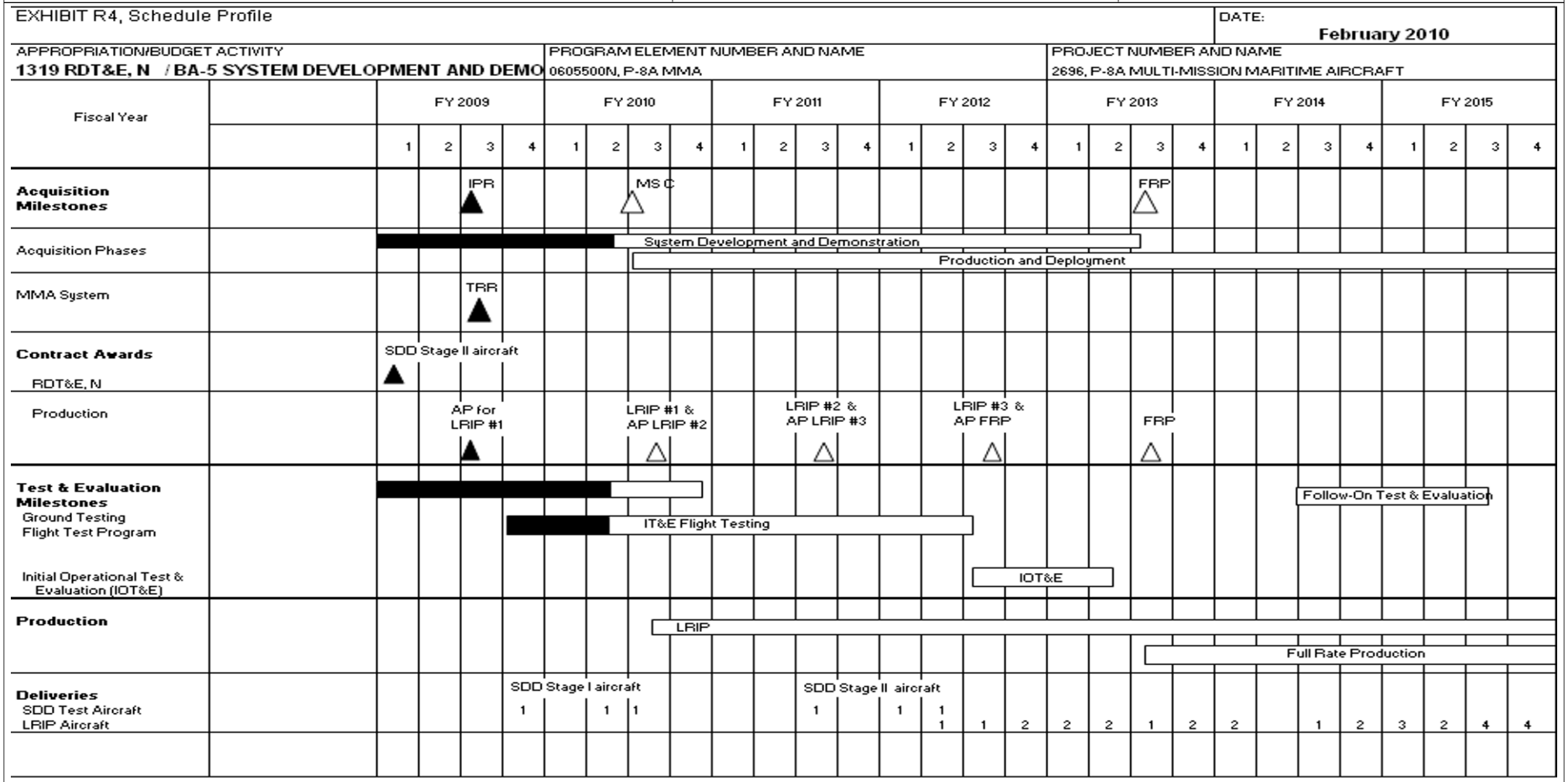


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	**PROJECT** 2696: *Multi-Mission Maritime Aircraft*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
System Development and Demonstration Phase	1	2009	3	2013
Ground Testing	1	2009	4	2010
Test Readiness Review (TRR)	3	2009	3	2009
SDD Stage II Test Aircraft Contract award	1	2009	1	2009
Interim Program Review (IPR)	3	2009	3	2009
Advance Procurement (AP) for LRIP#1 Contract award	3	2009	3	2009
Integrated Test & Evaluation (Flight Test)	4	2009	3	2012
Follow-on Test & Evaluation	3	2014	3	2015
Milestone C	3	2010	3	2010
LRIP Lot #1 and AP LRIP#2 Contract award	3	2010	3	2010
Production and Deployment	3	2010	4	2015
Low Rate Initial Production	3	2010	4	2015
LRIP Lot #2 and AP LRIP#3 Contract award	3	2011	3	2011
LRIP Lot #3 and AP FRP Contract award	3	2012	3	2012
Initial Operational Test and Evaluation (IOT&E)	3	2012	2	2013
Full Rate Production Decision	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 3181: *P-8A Spiral One 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
3181: *P-8A Spiral One Development*	10.401	29.556	3.995	0.000	3.995	55.158	40.718	33.337	14.699	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The P-8A Multi-mission Maritime Aircraft (MMA) program is based on an evolutionary acquisition strategy consisting of sequential incremental enhancements to system capabilities that will retain cost-wise effectiveness for winning major combat operations through 2020. In order to pace the threat, the Increment 2 will incorporate the following capabilities into the P-8A: Advanced Extended Echo Ranging, Automatic Identification System, Aircraft Rapid Commercial-Off-The-Shelf Insertion (ARCI), Integrated Broadcast Services, and updates to the Tactical Operations Center (TOC), as well as additional Anti-Submarine (ASW) and Anti-Surface Warfare (ASuW) capabilities necessary to reduce the gap between the evolved legacy P-3C and P-8A systems. These capabilities and other emergent capability requirements such as the High Altitude Anti-Submarine Warfare (HAASW) capability, will be investigated during the Technology Development phase of Increment 2. Increment 2 will capitalize on existing plannned P-8A DABs to serve as decision points for entering phases of planned work.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Perform technology demostrations and analyses of proposed new capabilities	8.229	27.203	0.537	0.000	0.537
FY 2009 Accomplishments: Multiple technology demonstrations and analyses of the proposed new P-8A capabilities to ascertain the most affordable, military useful, most mature technological solution. Initiate design for integrating new capabilities into P-8A Tactical Operations Center and associated trainers. *FY 2010 Plans:* Commence development of integration design of new P-8A capabilities.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 3181: *P-8A Spiral One Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Continued development of integration design of new P-8A capabilities. Complete the Preliminary Design Review.					
Conduct technical, cost, risk and logistics analysis of proposed technologies *FY 2009 Accomplishments:* Conduct technical, cost, risk and logistics analysis of proposed technologies. Evaluate system requirements through cost/performance trade-off analysis. Provide technical and management support for the development of acquisition documentation. Provide engineering and management of technical development effort. *FY 2010 Plans:* Conduct technical, cost, risk and logistics analysis of proposed technologies. Provide technical and management support for the development of acquisition documentation. Provide engineering and management of technical development effort. *FY 2011 Base Plans:* Conduct technical, cost, risk and logistics analysis of proposed technologies. Provide technical and management support for the development of acquisition documentation. Provide engineering and management of technical development effort.	2.172	2.353	3.458	0.000	3.458
Accomplishments/Planned Programs Subtotals	10.401	29.556	3.995	0.000	3.995

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 3181: *P-8A Spiral One Development*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

P-8A program is based on an evolutionary acquisition strategy consisting of sequential increments that will retain cost-wise effectiveness for winning major combat operations through 2020. The P-8A Increment 2 Integration effort will allow the P-8A to keep pace with the threat. In order to pace the threat, Increment 2 will incorporate the following capabilities into the P-8A: Advanced Extended Echo Ranging, Automatic Identification System, ARCI, Integrated Broadcast Services, and updates to the TOC as well as additional ASWand ASuW capabilities required to reduce the gap between the evolved legacy P-3C and P-8 systems. These capabilities and other emergent capability requirements such as the High Altitude Anti-Submarine Warfare (HAASW) capability, will be investigated during the Technology Development phase of Increment 2. Integration of these capabilities will be accomplished incrementally, based on the scope of the integration effort. Fleet introduction is planned to be completed in FY16.

E. Performance Metrics

Milestone B scheduled to complete 3rd quarter 2011; Milestone C scheduled to complete 2nd quarter 2014.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 3181: *P-8A Spiral One 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
Ancillary Hdw Development	Various/ Various	Various Various	0.508	2.085	Jan 2010	0.000		0.000		0.000	6.450	9.043	9.043
Primary HW Dev - TBD	Various/ Various	Various Various	3.920	7.210	Mar 2010	0.000		0.000		0.000	6.631	17.761	17.761
Primary HW Dev - Boeing	C/CPAF	Boeing St. Louis, MO	3.154	15.876	Mar 2010	0.000		0.000		0.000	57.901	76.931	76.931
Sys Eng (gov)	WR	NAWC AD Pax River, MD	3.666	2.032	Nov 2009	0.537	Nov 2010	0.000		0.537	6.624	12.859	Continuing
		Subtotal	11.248	27.203		0.537		0.000		0.537	77.606	116.594	103.735

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 Sup	WR	NAWC AD Pax River, MD	0.560	0.578	Nov 2009	0.600	Nov 2010	0.000		0.600	3.476	5.214	Continuing
Studies & Analysis	Various/ Various	Various Various	3.820	0.400	Jan 2010	0.000		0.000		0.000	0.000	4.220	Continuing
		Subtotal	4.380	0.978		0.600		0.000		0.600	3.476	9.434	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 3181: *P-8A Spiral One Development*

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	NAWC AD Pax River, MD	0.260	0.320	Nov 2009	1.500	Nov 2010	0.000		1.500	34.496	36.576	Continuing
GFE/GFI/GFP	Various/ Various	NAWC AD Pax River, MD	0.000	0.050	Nov 2009	0.050	Nov 2010	0.000		0.050	2.968	3.068	Continuing
Oper Test & Eval	WR	NAWC AD Pax River, MD	0.000	0.000		0.000		0.000		0.000	14.583	14.583	Continuing
Test Assets	Various/ Various	NAWC AD Pax River, MD	0.000	0.100	Nov 2009	0.000	Nov 2010	0.000		0.000	4.178	4.278	Continuing
		Subtotal	0.260	0.470		1.550		0.000		1.550	56.225	58.505	

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 Serv (NON-FFRDC)	Various/ Various	Various TBD	0.300	0.300	Jan 2010	0.300	Jan 2011	0.000		0.300	1.356	2.256	2.256
Mgmt Suppt Serv (NON-FFRDC)	Various/ Various	Various Various	1.378	0.300	Jan 2010	0.300	Jan 2011	0.000		0.300	2.600	4.578	4.578
Program Mgmt Support	WR	NAWC AD Pax River, MD	0.329	0.220	Nov 2009	0.608	Nov 2010	0.000		0.608	2.249	3.406	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 3181: *P-8A Spiral One Development*

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	NAWC AD Pax River, MD	0.095	0.085	Nov 2009	0.100	Nov 2010	0.000		0.100	0.400	0.680	Continuing
		Subtotal	2.102	0.905		1.308		0.000		1.308	6.605	10.920	6.834

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	17.990	29.556		3.995		0.000		3.995	143.912	195.453	110.569

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	**PROJECT** 3181: *P-8A Spiral One Development*

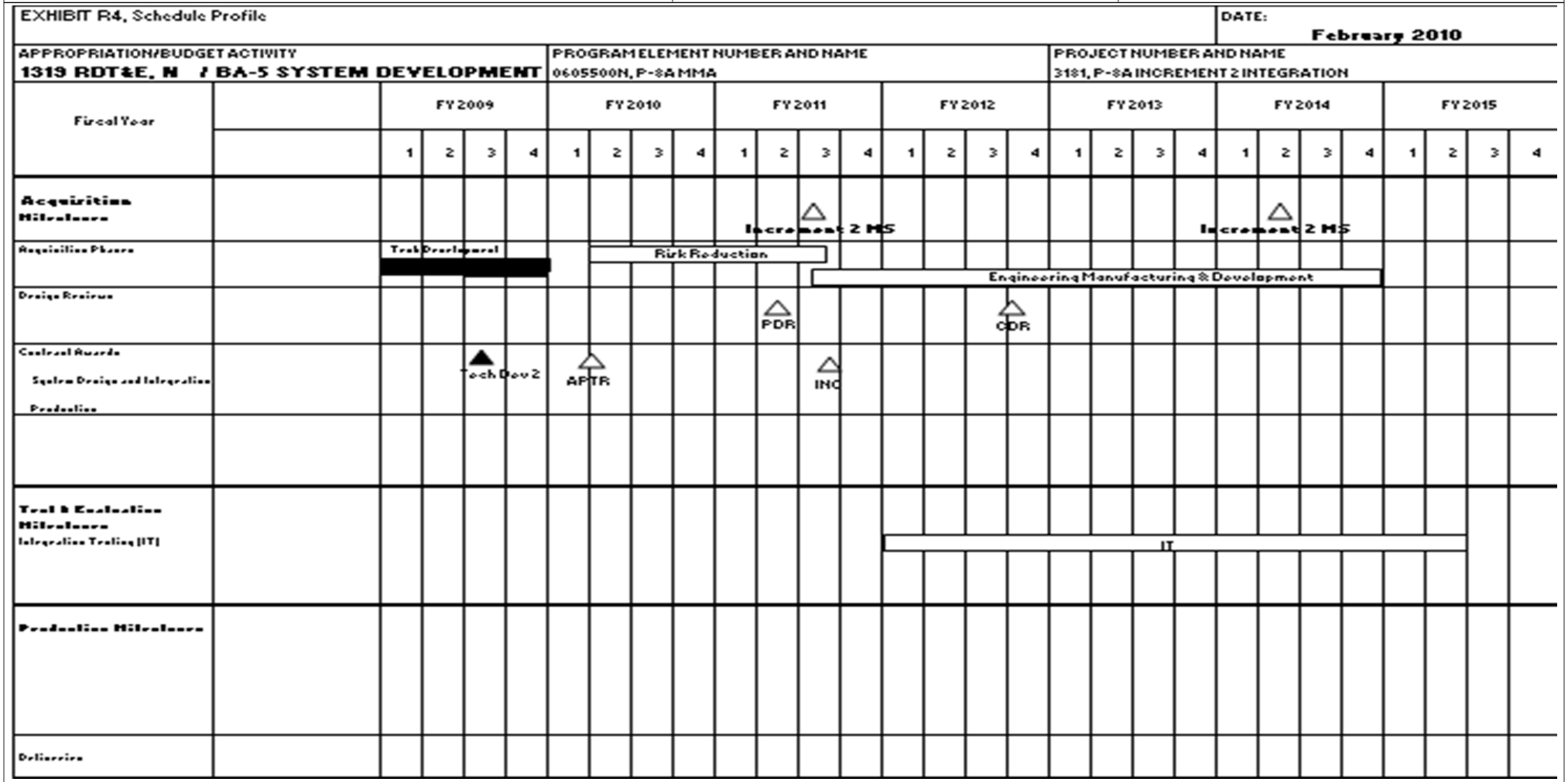


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	**PROJECT** 3181: *P-8A Spiral One Development*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Increment 2 Milestone B	3	2011	3	2011
Increment 2 Milestone C	2	2014	2	2014
Technology Development	1	2009	4	2009
Risk Reduction	2	2010	3	2011
Contract Award (Tech Dev 2)	3	2009	3	2009
Contract Award (ATPR)	2	2010	2	2010
Preliminary Design Review (PDR)	2	2011	2	2011
Contract Award (INCR)	3	2011	3	2011
Critical Design Review (CDR)	4	2012	4	2012
Engineering Manufacturing & Development	3	2011	4	2014
Developmental Testing (Integration Testing)	1	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 3218: *P-8A Spiral 2 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
3218: *P-8A Spiral 2 Development*	0.000	0.000	1.987	0.000	1.987	35.818	44.050	65.630	136.772	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The P-8A Multi-mission Maritime Aircraft (MMA) program is based on an evolutionary acquisition strategy consisting of sequential increments that will retain cost-wise effectiveness for winning major combat operations through 2023. In order to pace the threat, Increment 3 may include the following capabilities: Net-Ready KPP compliance, High Altitude ASW (GPS Sonobuoys, RFI Mitigation, etc.), Integration of a network enabled ASuW weapon, Survivability Upgrades, Precision Targeting improvements, and Acoustic Rapid COTS Insertion (ARCI) Capabilities, as well as additional Anti-Submarine (ASW) and Anti-Surface Warfare (ASuW) capabilities required to reduce the gap between the evolved legacy P-3C and P-8A systems. These capabilities and other emergent capability requirements will be investigated during the Technology Development phase of Increment 3 for the P-8A and Tactical Operations Center (ground support facility). Increment 3 will capitalize on existing plannned P-8A DABs to serve as decisions points for entering future phases of planned work.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Perform technology demostrations and analyses of proposed new capabilities	0.000	0.000	0.496	0.000	0.496
FY 2011 Base Plans: Multiple studies and technology demonstrations and analyses of the proposed new P-8A capabilities to ascertain the most affordable, military useful, most mature technological solution. Initiate design for integrating new capabilities into P-8A Tactical Support Center.					
Conduct technical, cost, risk and logistics analysis of proposed technologies	0.000	0.000	1.491	0.000	1.491
FY 2011 Base Plans: Conduct technical, cost, risk and logistics analysis of proposed technologies. Evaluate system requirements through cost/performance trade-off analysis. Provide technical and management					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 3218: *P-8A Spiral 2 Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
support for the development of acquisition documentation. Provide engineering and management of technical development effort.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.987	0.000	1.987

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The P-8A Increment 3 Development & Integration Design effort will allow the P-8A to keep pace with the threat. The scope of this effort includes the integration design and test of capability enhancements to the P-8A. Integration of the Increment 3 capabilities will be accomplished incrementally, based on the scope of the integration effort. The P-8A Increment 3 effort will integrate the capabilities necessary to attain phase I of the Net-Ready Key Performance Parameter, Integration of a network enabled ASuW weapon, ARCI Capabilities, and additional ASW and ASuW capabilities required to reduce the gap between the evolved legacy P-3C and P-8A systems. Fleet introduction is planned to be accomplished incrementally based on the scope of change, with a planned completion in FY18. It is based on an evolutionary acquisition strategy consisting of sequential increments that will retain cost-wise effectiveness for winning major combat operations through 2023. These capabilities and other emergent capability requirements will be investigated during the Technology Development phase of Increment 3.

E. Performance Metrics

Milestone A to be completed 2nd quarter 2012; Milestone B to be completed 3rd quarter 2014.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 3218: *P-8A Spiral 2 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
Ancillary Hdw Development	Various/ Various	Various Various	0.000	0.000		0.000		0.000		0.000	23.387	23.387	23.387
Primary HW Dev - TBD	Various/ Various	Various Various	0.000	0.000		0.000		0.000		0.000	45.665	45.665	45.665
Primary HW Dev - Boeing	C/TBD	Boeing St. Louis, MO	0.000	0.000		0.000		0.000		0.000	424.998	424.998	424.998
Sys Eng (gov)	WR	NAWC AD Pax River, MD	0.000	0.000		0.496	Dec 2010	0.000		0.496	18.213	18.709	Continuing
		Subtotal	0.000	0.000		0.496		0.000		0.496	512.263	512.759	494.050

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 Sup	WR	NAWC AD Pax River, MD	0.000	0.000		0.000		0.000		0.000	45.745	45.745	Continuing
Studies & Analysis	Various/ Various	Various Various	0.000	0.000		0.187	Jan 2011	0.000		0.187	6.295	6.482	Continuing
		Subtotal	0.000	0.000		0.187		0.000		0.187	52.040	52.227	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 3218: *P-8A Spiral 2 Development*

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	NAWC AD Pax River, MD	0.000	0.000		0.000		0.000		0.000	148.519	148.519	Continuing
GFE/GFI/GFP	Various/ Various	NAWC AD Pax River, MD	0.000	0.000		0.000		0.000		0.000	13.902	13.902	Continuing
Oper Test & Eval	WR	NAWC AD Pax River, MD	0.000	0.000		0.000		0.000		0.000	16.552	16.552	Continuing
Test Assets	Various/ Various	NAWC AD Pax River, MD	0.000	0.000		0.000		0.000		0.000	2.295	2.295	Continuing
		Subtotal	0.000	0.000		0.000		0.000		0.000	181.268	181.268	

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 Serv (NON-FFRDC)	Various/ Various	TBD TBD	0.000	0.000		0.228	Dec 2010	0.000		0.228	5.267	5.495	5.495
Mgmt Suppt Serv (NON-FFRDC)	Various/ Various	Various Various	0.000	0.000		0.894	Dec 2010	0.000		0.894	5.135	6.029	6.144
Program Mgmt Support	WR	NAWC AD Pax River, MD	0.000	0.000		0.182	Dec 2010	0.000		0.182	3.922	4.104	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	PROJECT 3218: *P-8A Spiral 2 Development*

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	NAWC AD Pax River, MD	0.000	0.000		0.000		0.000		0.000	0.683	0.683	Continuing
		Subtotal	0.000	0.000		1.304		0.000		1.304	15.007	16.311	11.639

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		1.987		0.000		1.987	760.578	762.565	505.689

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	**PROJECT** 3218: *P-8A Spiral 2 Development*

EXHIBIT R4, Schedule Profile — DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY: 1319 RDT&E, N / BA-5 SYSTEM DEVELOPMENT

PROGRAM ELEMENT NUMBER AND NAME: 0605500N, P-8A MMA

PROJECT NUMBER AND NAME: 3218, P-8A INCREMENT 3 DEV & INTEG DSGN

Fiscal Year	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														△ Increment 3 MS								△ Increment 3 MS						
Acquisition Phase														Technology Development										EMD				
Design Reviews																						△ PDR						
Contract Awards System Design and Integration Production														△ Tech Dev									△ EMD					
Test & Evaluation Milestones																												
Production Milestones																												
Deliveries																												

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	**PROJECT** 3218: *P-8A Spiral 2 Development*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Increment 3 MS A	2	2012	2	2012
Contract Award (Tech Dev)	2	2012	2	2012
Technology Development	2	2012	3	2014
Preliminary Design Review (PDR)	2	2014	2	2014
Increment 3 MS B	3	2014	3	2014
Contract Award (EMD)	3	2014	3	2014
Engineering Manufacturing & Development	3	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605500N: *Multi-mssn Maritime Aircraft (MMA) (P-8A)*	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	12.946	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.910
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: Small Business Technology Insertion *FY 2010 Plans:* The Small Business Technology Insertion activities will fund innovative and creative small business efforts that allow the P-8 to keep pace with the rapid pace of changing technology.	0.000	12.946
Congressional Adds Subtotals	0.000	12.946

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

E. Performance Metrics

Not required for Congresisonal Adds.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy											DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0204201N: *CG(X)*							
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	45.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	45.400
3106: *Combat System Integration*	0.000	10.680	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.680
3107: *CG(X) Development*	0.000	34.720	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.720

A. Mission Description and Budget Item Justification

This Program Element (PE) provides funds for development of CG(X), the next generation cruiser. CG(X) will focus on providing multi-mission capabilities. CG(X) is the follow-on to the CG-47 class as they reach the end of their service life. CG(X) development efforts will mature the ship design.

The CG(X) program is proposed for termination due to a projected high cost and risk in its technology and design. Instead of procuring CG(X), the Navy is considering other options including maturing the air and missile defense radar program and using technologies from other similar kinds of ships such as DDG-1000 and DDG-51 destroyers.

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	150.022	0.000	0.000	0.000
Current President's Budget	0.000	45.400	0.000	0.000	0.000
Total Adjustments	0.000	-104.622	0.000	0.000	0.000
• Congressional General Reductions		-0.622			
• Congressional Directed Reductions		-104.000			
• 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

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204201N: *CG(X)*	PROJECT 3106: *Combat System 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
3106: *Combat System Integration*	0.000	10.680	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.680
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project encompasses efforts for the integration of the CG(X) Combat System, C4I, Air, and Ship systems including materiel analysis, technology development, and integration of the Mission Systems into the CG(X) Mission System. Integration efforts will include communications, electronics, air, command and control, interface requirements, definition, system integration, and test and evaluation.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition and Requirements Documentation *FY 2010 Plans:* Conduct feasibility analysis to evaluate capabilities and cost based on requirements allocation, and define and complete FY 2010 National Defense Authorization Act requirements for details on a technology roadmap and acquisition strategy for surface combatants.	0.000	6.000	0.000	0.000	0.000
Technology Risk Reduction *FY 2010 Plans:* Conduct risk reduction for technology elements in total ship system integration, including technology maturity and integration risks.	0.000	3.000	0.000	0.000	0.000
Total Ship Systems Engineering	0.000	1.680	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204201N: *CG(X)*	PROJECT 3106: *Combat System Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Suppport of Total Ship Systems Engineering (TSSE) with maturation of mission system architecture functional allocation and integration requirements to support materiel solution analysis, including total ship system capabilities.					
Accomplishments/Planned Programs Subtotals	0.000	10.680	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/0604501N: *Advanced Above Water Sensors/Air and Missile Defense Radar*	92.998	189.078	228.436	0.000	228.436	123.053	132.390	141.771	141.608	Continuing	Continuing
• RDTEN/0604300N: *SC-21 Total Ship System Engineering*	67.168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	67.168

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204201N: *CG(X)*	PROJECT 3107: *CG(X) 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
3107: *CG(X) Development*	0.000	34.720	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.720
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project encompasses efforts for total ship system development. These development efforts include materiel analysis, technology development, systems engineering, computer program development, interface design, technical documentation, and system testing to ensure a fully functional CG(X) system design. This project will mature the CG(X) design through several ship design cycles and baselines. Preparation and execution of a program level Preliminary Design Review (PDR) and Critical Design Review (CDR) will occur through these efforts.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition & Requirements Development *FY 2010 Plans:* Development of requirements, capabilities, cost, and technical feasibility of the total ship system to develop a materiel solution. Refinement of program documentation to support CG(X) decision reviews (Gate and Milestone). Define and complete FY 2010 National Defense Authorization Act requirements for details on a technology roadmap and acquisition strategy for surface combatants.	0.000	30.000	0.000	0.000	0.000
Technology Risk Reduction *FY 2010 Plans:* Conduct risk reduction for Technology Elements including technology maturity and manufacturing feasibility in support of materiel solution analysis.	0.000	4.720	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	34.720	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204201N: *CG(X)*	PROJECT 3107: *CG(X) 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
• RDTEN/0604501N: *Advanced Above Water Sensors/Air and Missile Defense Radar*	92.998	189.078	228.436	0.000	228.436	123.053	132.390	141.771	141.608	Continuing	Continuing
• RDTEN/0604300N: *SC-21 Total Ship Systems Engineering*	67.168	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	67.168

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*							
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	524.269	549.241	0.000	549.241	337.564	124.079	177.579	171.945	Continuing	Continuing
2464: *DD(X) Sys Design, Dev & Integration*	0.000	412.663	441.117	0.000	441.117	269.960	112.857	155.876	149.793	Continuing	Continuing
4009: *Advanced Gun System (AGS) on DD(X)*	0.000	111.606	108.124	0.000	108.124	67.604	11.222	21.703	22.152	Continuing	Continuing

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This Program Element (PE) provides funds for development of the DDG 1000 Class of U.S. Navy surface combatants. The mission of the DDG 1000 class is to provide affordable and credible independent forward presence/deterrence and operate as an integral part of Naval, Joint or Combined Maritime Forces. DDG 1000 will provide advanced land attack capability in support of the ground campaign and contribute to Naval, Joint or Combined battlespace dominance in littoral operations. DDG 1000 will establish and maintain surface and sub-surface superiority, provide local air defense, and incorporate signature reduction to operate in all threat environments. DDG 1000 will have seamless Joint Interoperability to integrate all source information for battlespace awareness and weapons direction. Funding for FY 10 and follow was realigned from PE 0604300N.

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	539.053	0.000	0.000	0.000
Current President's Budget	0.000	524.269	549.241	0.000	549.241
Total Adjustments	0.000	-14.784	549.241	0.000	549.241
• Congressional General Reductions		-2.184			
• Congressional Directed Reductions		-12.600			
• 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	549.241	0.000	549.241

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0204202N: *DDG-1000*

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*	PROJECT 2464: *DD(X) Sys Design, Dev & 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
2464: *DD(X) Sys Design, Dev & Integration*	0.000	412.663	441.117	0.000	441.117	269.960	112.857	155.876	149.793	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 DDG 1000 development efforts required to deliver the Flight I DDG 1000 Class Ships. Major efforts include software requirements analysis, architectural and design code and unit testing, integration, qualification testing, and Independent Verification and Validation (IV&V) for software releases 5-6; hull form testing at Naval Surface Warfare Center/Carderock; communication and sensor aperture cosite and electromagnetic interference risk reductions testing for critical arrays; planning for Integrated Power Systems (IPS) and ship control system testing and integration; develop Tomahawk Weapon Control System software; Integration of Line of Sight (LOS)/Below Line of Site (BLOS) communication capability; and develop an alternative to Full Ship Shock Trials (FSSTs). Funding for previous years is included in PE 0604300N.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
System Engineering, Development and Testing	0.000	392.663	406.117	0.000	406.117
FY 2010 Plans: Development of the DDG 1000 Flight 1 software, Commercial Off the Shelf/Government Off the Shelf (COTS/GOTS) software acquisition, code and unit testing, integration, qualification testing, and Independent Verification and Validation (IV&V). Development of a total system software architecture that defines the relationships and interfaces among the software segments, elements, components and/or configuration items using an incremental release process (Software (SW) Releases 5-6). Conduct the following events for the remaining software releases: Software Release 5-complete Test Readiness Review (TRR), System Acceptance Testing (SAT) and Software Certification Panel (SCP) in FY10. Software Release 6 - conduct SW Preliminary Design Review (S-PDR) and SW Critical					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*	PROJECT 2464: *DD(X) Sys Design, Dev & Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Design Review (S-CDR) in FY10. The following efforts will occur in FY10: Conduct all developmental software test planning, conduct, test data analysis and reporting in accordance with the DDG 1000 TEMP. Perform total ship system design analysis. Perform systems engineering, develop, and fully integrate into the DDG 1000 System an Electric Ship (ES) system for DDG 1000. Integrate Next Generation Command and Control Processor (NGC2P). For Next Generation Command and Control Processor (NGC2P) complete hardware and software through Software Release 6, accomplish testing and certification. Develop, test and integrate the Common Display System (CDS) consoles and medium/large screen displays. *FY 2011 Base Plans:* Software Release 6 will enter into the Design, Code, Test and Integration phase and begin Software Integration and Test (SWIT) activities. The following efforts will continue in FY1I: Conduct all developmental software test planning, conduct, test data analysis and reporting in accordance with the DDG 1000 TEMP. Perform total ship system design analysis. Perform systems engineering, develop, and fully integrate into the DDG 1000 System an Electric Ship (ES) system for DDG 1000. Integrate Next Generation Command and Control Processor (NGC2P). For Next Generation Command and Control Processor (NGC2P) complete hardware and software development through Software Release 6, accomplish testing and certification. Develop, test and integrate the Common Display System (CDS) consoles and medium/large screen displays. Continue hull form testing at NSWC/Carderock. Planning for IPS and Ship Control System (SCS) testing and integration at Naval Surface Warfare Center/Philadelphia. Conduct communication and sensor aperture cosite and electromagnetic interference risk reduction testing for critical arrays at the Wallops Island Test Facility. Develop Tomahawk Weapons Control System software. Conduct developmental testing and operation evaluation in accordance with TEMP. Conduct Live Fire Testing & Vulnerability Analysis in accordance with TEMP. Conduct signature range Non-Recurring Engineering (NRE) to upgrade ranges to support DDG 1000 test and evaluation.					
Line of Site (LOS)/Below Line of Site (BLOS) Communication Capability	0.000	20.000	22.000	0.000	22.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*	PROJECT 2464: *DD(X) Sys Design, Dev & Integration*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Provides funding for integration of High Frequency (HF), Very High Frequency (VHF) and Ultra High Frequency (UHF) Line of Site (LOS)/Below Line of Site (BLOS) communication capability on DDG 1000 and 1001. *FY 2011 Base Plans:* Provides funding for integration of High Frequency (HF), Very High Frequency (VHF) and Ultra High Frequency (UHF) Line of Site (LOS)/Below Line of Site (BLOS) communication capability on DDG 1000 and 1001.					
Alternative to Full Ship Shock Trials (FSST) *FY 2011 Base Plans:* Provides funding to develop a common, affordable Navy-wide alternative to Full Ship Shock Trials (FSST) for Surface Ships, Aircraft Carriers and Submarines in support of OPNAV N091 Memo dated 5 November 2007 (DON Test & Evaluation Objectives). FSSTs are required for all new ship classes and flights to confirm design and construction shock-hardness requirements and as part of OSD's Live Fire Test & Evaluation survivability assessment.	0.000	0.000	13.000	0.000	13.000
Accomplishments/Planned Programs Subtotals	0.000	412.663	441.117	0.000	441.117

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
• SCN/ 2119: *DDG 1000*	1,504.297	1,378.532	186.312	0.000	186.312	139.388	133.168	126.325	50.871	0.000	3,518.893
	433.347	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	433.347

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*	PROJECT 2464: *DD(X) Sys Design, Dev & 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
• RDTEN/0604300N: *SC-21 Total Ship System Engineering*											

D. Acquisition Strategy

A revised acquisition strategy is being reviewed by the Navy and OSD that supports the DDG-1000/DDG-51 restart shipyard allocation workload MOAs. Execution of the MOAs would shift primary construction of all three DDG-1000 class ships to Bath Iron Works (BIW).

E. Performance Metrics

Successfully achieve Milestone C. Successfully achieve Initial Operational Capability. Successfully complete Operation Test Readiness Review. 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*	PROJECT 2464: *DD(X) Sys Design, Dev & 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
Ship Integration Development Phase IV	C/CPAF	Raytheon Tewksbury MA	0.000	308.418	Dec 2009	252.744	Dec 2010	0.000		252.744	Continuing	Continuing	Continuing
		Subtotal	0.000	308.418		252.744		0.000		252.744			

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
Live Fire Test and Evaluation	C/CPAF	Raytheon Tewksbury MA	0.000	5.000	Dec 2009	7.900	Dec 2010	0.000		7.900	Continuing	Continuing	Continuing
Test and Evaluation	Various/ Various	Various Various	0.000	37.255	Dec 2009	127.105	Dec 2010	0.000		127.105	Continuing	Continuing	Continuing
		Subtotal	0.000	42.255		135.005		0.000		135.005			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*	PROJECT 2464: *DD(X) Sys Design, Dev & 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
Government Engineering Services	WR	NSWC Dahlgren VA	0.000	13.300	Dec 2009	13.500	Dec 2010	0.000		13.500	Continuing	Continuing	Continuing
Government Engineering Services	WR	NSWC Philadelphia PA	0.000	7.000	Dec 2009	3.000	Dec 2010	0.000		3.000	Continuing	Continuing	Continuing
Government Engineering Services	WR	NSWC Port Huneme CA	0.000	1.252	Dec 2009	1.252	Dec 2010	0.000		1.252	Continuing	Continuing	Continuing
Government Engineering Services	WR	NSWC Patuxent River MD	0.000	8.408	Dec 2009	8.408	Dec 2010	0.000		8.408	Continuing	Continuing	Continuing
Government Engineering Services	WR	NSWC Bethesda MD	0.000	15.100	Dec 2009	15.400	Dec 2010	0.000		15.400	Continuing	Continuing	Continuing
Government Engineering Services	WR	SSCSD San Diego CA	0.000	8.240	Dec 2009	2.828	Dec 2010	0.000		2.828	Continuing	Continuing	Continuing
Government Engineering Services	Various/ Various	Other Govt Activities Various	0.000	7.690	Dec 2009	7.980	Dec 2010	0.000		7.980	Continuing	Continuing	Continuing
Travel	Various/ Various	Various Various	0.000	1.000	Dec 2009	1.000	Dec 2010	0.000		1.000	Continuing	Continuing	Continuing
		Subtotal	0.000	61.990		53.368		0.000		53.368			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*	PROJECT 2464: *DD(X) Sys Design, Dev & 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	412.663		441.117		0.000		441.117			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0204202N: *DDG-1000*	**PROJECT** 2464: *DD(X) Sys Design, Dev & Integration*

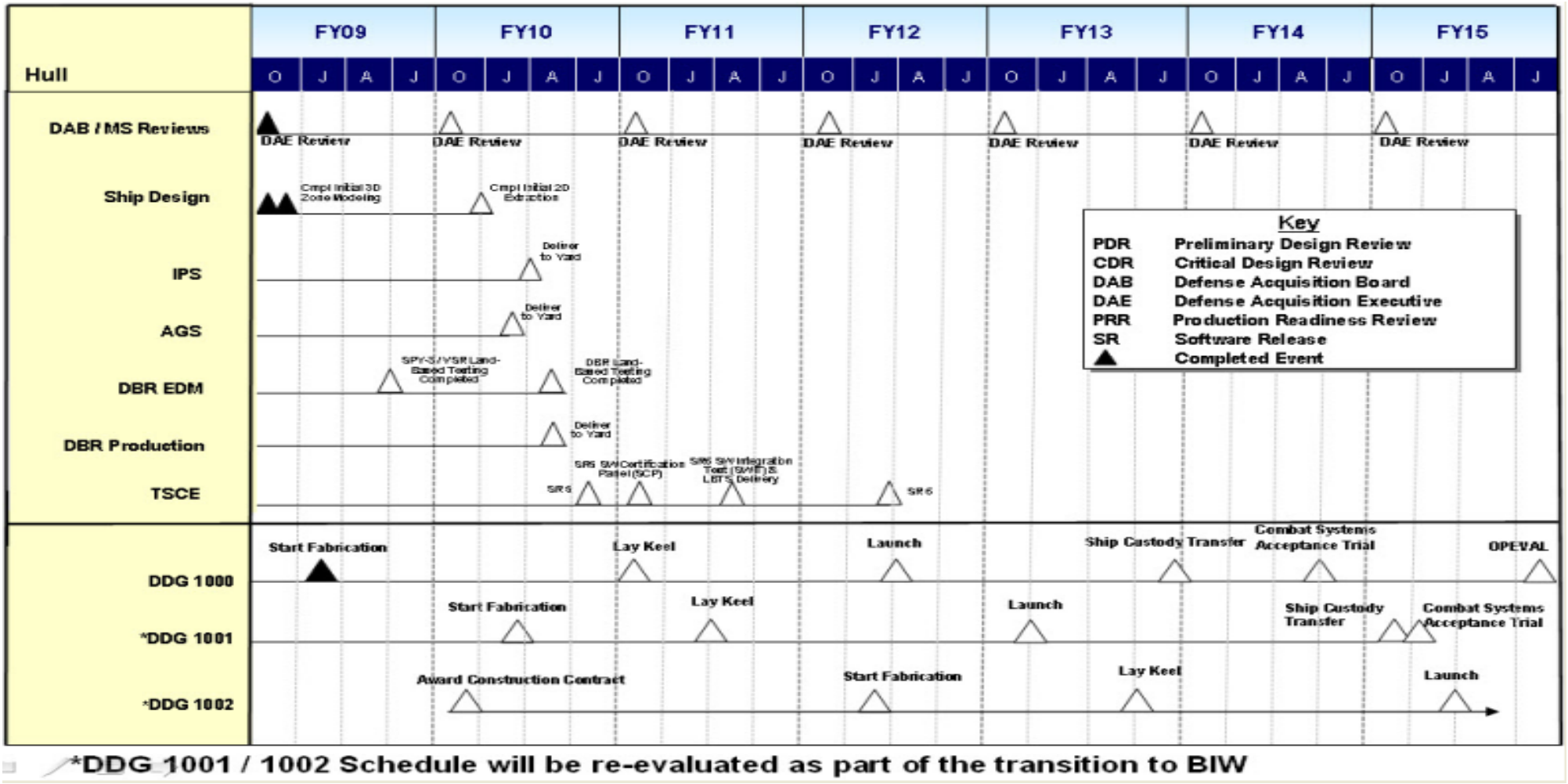


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0204202N: *DDG-1000*	**PROJECT** 2464: *DD(X) Sys Design, Dev & Integration*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Software Release SR5	4	2010	4	2010
Software Release SR6	2	2012	2	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*	PROJECT 4009: *Advanced Gun System (AGS) on DD(X)*	

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
4009: *Advanced Gun System (AGS) on DD(X)*	0.000	111.606	108.124	0.000	108.124	67.604	11.222	21.703	22.152	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

These funds provide for the development of the Advanced Gun System (AGS) and the development, qualification and initial production of the Long Range Land Attack Projectile (LRLAP) associated with the development of DDG 1000. The AGS will consist of a major caliber gun, an automated ammunition handling system, and a family of munitions/propelling charges. The AGS will, at a minimum, meet the Land Attack and Surface Dominance Missions assigned to the gun system. The system will provide a high rate of fire (approximately 10 rounds per minute) with a magazine capacity sufficient in size for meeting USMC operational requirements. LRLAP will be stored throughout its life cycle in an 8 round pallet which is handled by the AGS magazine. By palletizing the munition, AGS is able to significantly reduce manning and improve munition reliability, safety and resupply. The LRLAP Engineering Development Model (EDM) guided flight tests began in Dec 2004. System Design and Development began in FY06 with final land based qualification testing planned in FY12. The Long Range Land Attack Projectile (LRLAP) will deliver a high explosive unitary payload with Global Positioning System (GPS) accuracy. Funding for previous years is included in PE 0604300N.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Development of Hardware Test Assets *FY 2010 Plans:* Procurement of AGS Qualification test assets.	0.000	1.100	0.000	0.000	0.000
System Engineering, Development and Testing *FY 2010 Plans:* LRLAP System Design, development and qualification testing.	0.000	45.173	81.194	0.000	81.194

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*	PROJECT 4009: *Advanced Gun System (AGS) on DD(X)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: LRLAP System Design, development and qualification testing.					
Procurement of Ordnance Test Assets	0.000	65.333	26.930	0.000	26.930
FY 2010 Plans: Procurement of LRLAP rounds for qualification testing.					
FY 2011 Base Plans: Procurement of LRLAP rounds for qualification testing.					
Accomplishments/Planned Programs Subtotals	0.000	111.606	108.124	0.000	108.124

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
• SCN/2119: *DDG 1000*	1,504.297	1,378.532	186.312	0.000	186.312	139.388	133.168	126.325	50.871	0.000	3,518.893
• RDTEN/0604300N: *SC-21 Total Ship System Engineering*	433.347	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	433.347

D. Acquisition Strategy

A revised acquisition strategy is being reviewed by the Navy and OSD that supports the DDG-1000/DDG-51 restart shipyard allocation workload MOAs. Execution of the MOAs would shift all three DDG-1000 class ships to Bath Iron Works (BIW). AGS is developed via a sole source contract to BAE. Lockheed is the key supplier to BAE for LRLAP development.

E. Performance Metrics

Successfully achieve Milestone C. Successfully achieve Initial Operational Capability. Successfully complete Operation Test Readiness Review. 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*	PROJECT 4009: *Advanced Gun System (AGS) on DD(X)*

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	BAE Minneapolis MN	0.000	106.704	Dec 2009	99.450	Dec 2010	0.000		99.450	Continuing	Continuing	Continuing
		Subtotal	0.000	106.704		99.450		0.000		99.450			

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
Test and Evaluation	Various/ Various	Various Not Specified	0.000	2.200	Dec 2009	6.358	Dec 2010	0.000		6.358	Continuing	Continuing	Continuing
		Subtotal	0.000	2.200		6.358		0.000		6.358			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0204202N: *DDG-1000*	PROJECT 4009: *Advanced Gun System (AGS) on DD(X)*

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 Services	Various/ Various	Various Not Specified	0.000	0.452	Dec 2009	0.400	Dec 2010	0.000		0.400	Continuing	Continuing	Continuing
Government Engineering Services	WR	NSWC DD Dahlgren VA	0.000	1.635	Dec 2009	1.416	Dec 2010	0.000		1.416	Continuing	Continuing	Continuing
Government Engineering Services	WR	NSWC PHD Pt Hueneme CA	0.000	0.190	Dec 2009	0.400	Dec 2010	0.000		0.400	Continuing	Continuing	Continuing
Government Engineering Services	WR	Various Not Specified	0.000	0.425	Dec 2009	0.100	Dec 2010	0.000		0.100	Continuing	Continuing	Continuing
		Subtotal	0.000	2.702		2.316		0.000		2.316			

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	111.606		108.124		0.000		108.124			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0204202N: *DDG-1000*	**PROJECT** 4009: *Advanced Gun System (AGS) on DD(X)*

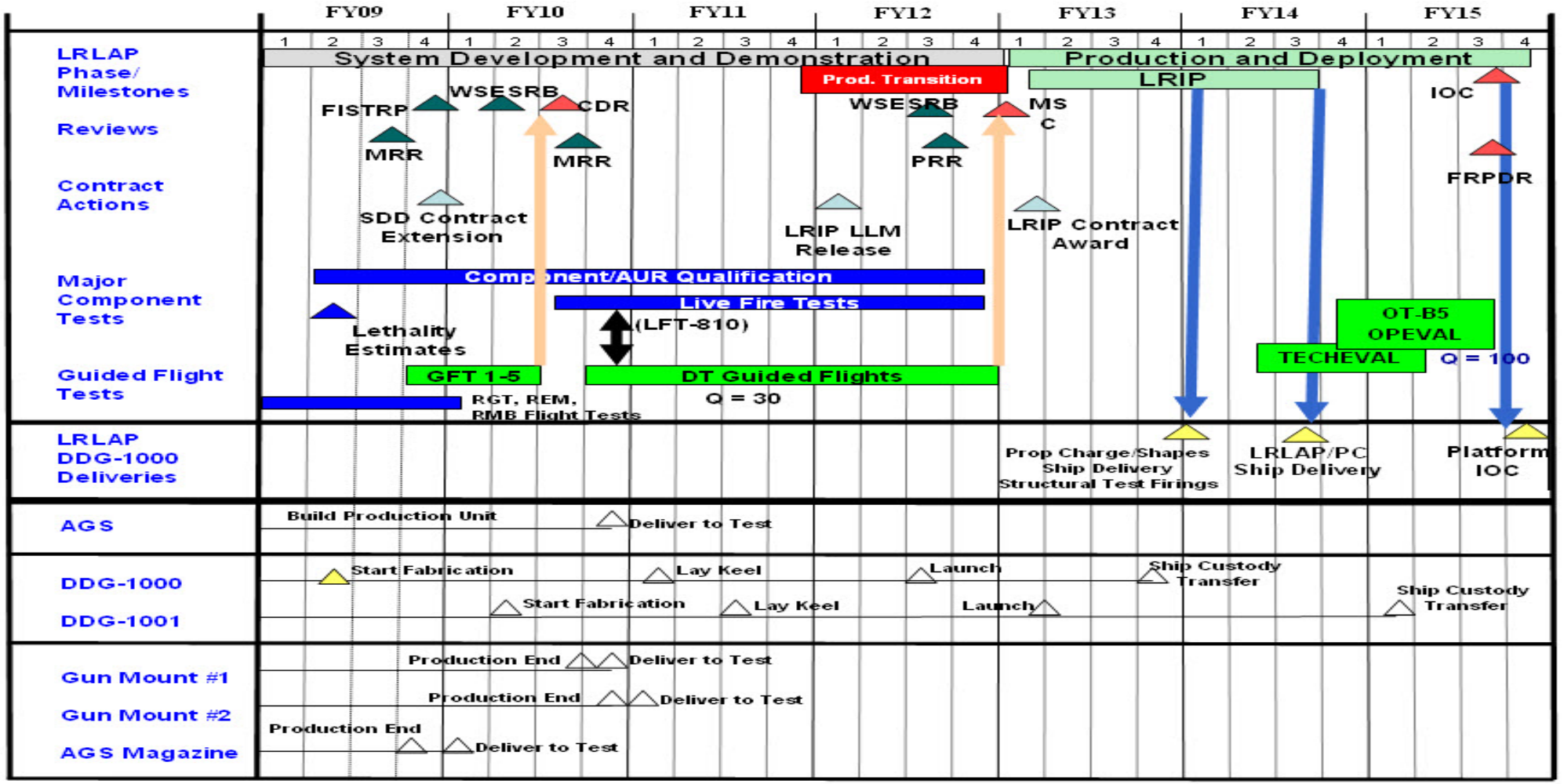


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0204202N: *DDG-1000*	**PROJECT** 4009: *Advanced Gun System (AGS) on DD(X)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Guided Flight Tests	4	2009	4	2012
Qualification	2	2009	4	2012
Critical Design Review (CDR)	3	2010	3	2010
Milestone C (MS C)	1	2013	1	2013
Wpn Sys Explosive Safety Revw Bd (WSESRB)	2	2010	3	2012
Low Rate Initial Production (LRIP)	1	2013	3	2014
Initial Operating Capability (IOC)	3	2015	3	2015
Live Fire Tests	3	2010	4	2012
Full Rate Production Decision Review (FRP DR)	3	2015	3	2015
AGS Build Production Unit	1	2009	4	2010
AGS Deliver to Test	4	2010	4	2010
Gun Mount #1 Production End	3	2010	4	2010
Gun Mount #1 Deliver to Test	4	2010	4	2010
Gun Mount #2 Production End	4	2010	4	2010
Gun Mount #2 Deliver to Test	1	2011	1	2011
AGS Magazine Production End	4	2009	4	2009
AGS Magazine Deliver to Test	1	2010	1	2010

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0304231N: *Tactical Command System - 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	1.318	0.000	1.318	1.081	1.286	1.308	1.344	Continuing	Continuing
2009: *OSIS Evolutionary Development (OED)*	0.000	0.000	1.318	0.000	1.318	1.081	1.286	1.308	1.344	Continuing	Continuing

A. Mission Description and Budget Item Justification

Trusted Information Systems MIP resources are transferred from PE 0604231N to PE 0304231N beginning in FY11.

Trusted Information Systems (TIS): Radiant Mercury is a secure information platform that provides an automated means to sanitize, downgrade, guard, and transliterate formatted data at various classifications, compartments and releasabilities. With the aid of a reliable human reviewer, RM can process nonstandard messages, such as messages with National Imagery Transmission Format (NITF) products and other non/semi-formatted file types. It enables combat commanders and operational commanders, afloat and ashore, to disseminate and receive critical operational and intelligence information with coalition and allied forces.

FY11: Begin developing capabilities needed in RM version 5.x and begin Factory Acceptance Test in preparation for Certification and Accreditation Test. Conduct security test and evaluation of RM version 5.x. Identify and define emerging requirements for RM version 5.X to meet Consolidated Afloat Network and Enterprise Services (CANES) and other Navy and non-Navy CDS 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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0304231N: *Tactical Command System - MIP*

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	1.318	0.000	1.318
Total Adjustments	0.000	0.000	1.318	0.000	1.318
• 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	1.318	0.000	1.318

Change Summary Explanation

Technical: Not applicable.

Schedule: Radiant Mercury - Schedule slip of RM Test and Integration capabilities Ver 5.X from 3QFY10 to 1QFY11 due to Ver 5.0 delivery delay in award to follow-on developer 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304231N: *Tactical Command System - MIP*	PROJECT 2009: *OSIS Evolutionary Development (OED)*	

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
2009: *OSIS Evolutionary Development (OED)*	0.000	0.000	1.318	0.000	1.318	1.081	1.286	1.308	1.344	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Radiant Mercury (RM): Trusted Information System (TIS) Radiant Mercury (RM) is a system that successfully provides accredited Cross Domain Solutions (CDS) to the Navy, DoD, and intelligence Community. TIS RM is a critical component of network-centric warfare, supporting joint operations and coalition forces world-wide. The ability to pass sensitive, yet critical, data across security domains and to our Coalition partners in a timely fashion can only be met by accredited Cross Domain Solution (CDS) systems such as Radiant Mercury. RM enables US Navy to operate in a multi-national environment.

TIS RM provides automated, bi-directional sanitization, transliteration and guarding capability for formatted and unformatted data between security enclaves. Radiant Mercury helps ensure critical intelligence is provided quickly to operational decision-makers. TIS RM provides the capability to disseminate information for operating forces worldwide, including the operating forces of key allies in Pacific, Central and Europe Command regions. This capability to move all-source intelligence-derived track information into the realm of the operational community significantly improves the situational awareness of tactical operators and planners. Additionally, it assists in providing critical operational information to intelligence and cryptologic analysts. Unformatted data is handled by the Information Review Process (IRP). The system provides cross domain services to a wide variety of customers including Combatant Commanders, Air Force (Shared Early Warning program), Army (Blue Force Tracking program), Navy (Global Command and Control System - Maritime (GCCS-M) and Automatic Identification System (AIS)), Maritime Operations Centers (MOC), Distributed Common Ground System-Navy (DCGS-N), Tactical Ranges, and numerous other DoD and Intelligence agencies.

FY11: Begin developing capabilities needed in RM version 5.x and begin Factory Acceptance Test in preparation for Certification and Accreditation Test. Conduct security test and evaluation of RM version 5.x. Identify and define emerging requirements for RM version 5.X to meet Consolidated Afloat Network and Enterprise Services (CANES) and other Navy and non-Navy CDS requirements. The next RM version 5.x will include improvements identified by operational commands and remedies to shortfalls as identified in the Unified Cross Domain Management Office (UCDMO) roadmap. One of the major improvements include: installing RM as a blackbox at some sites where maintenance, troubleshooting, and auditing are conducted at a remote site; enhancing functional capabilities to support service oriented architectures (SOA) and enterprise services; providing automated and remote installation; simplifying the code; and providing robust network addressing capabilities.

FY OCO: 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304231N: *Tactical Command System - MIP*	PROJECT 2009: *OSIS Evolutionary Development (OED)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Radiant Mercury	0.000	0.000	1.318	0.000	1.318
FY 2011 Base Plans: Develop and test RM version 5.x. Identify and define emerging requirements for RM version 5.X to meet Navy and non-Navy Cross Domain Solution (CDS) requirements. Conduct RM software version 5.X certification tests by Defense Intelligence Agency and risk assessment by National Security Agency. Conduct security test and evaluation of RM version 5.x by Joint Interoperability Test Command (JITC). Identify and define emerging requirements for RM version 5.X to meet other Navy and non-Navy Cross Domain Solution (CDS) requirements. Note: Trusted Information Systems MIP resources transferred from PE 0604231N to PE 0304231N beginning in FY11.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.318	0.000	1.318

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/2608: *GCCS-M (TIS)*	0.000	0.000	0.338	0.000	0.338	0.471	0.539	0.535	0.555	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

Provide and develop certified, accredited Cross Domain Solution (CDS) and transfer capabilities to the Department of Defense and Intelligence Community, and provide the capability to disseminate and receive operational and intelligence information for 100% of authorized sites. Complete 100% of certification, system and security testing of Radiant Mercury (RM) version 5.x for release. Provide the capability to sanitize, downgrade, guard, and transliterate formatted data at various classifications, compartments and releasabilities to combat and operational commanders, coalition and allied forces at over 340 sites world wide.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304231N: *Tactical Command System - MIP*	PROJECT 2009: *OSIS Evolutionary Development (OED)*

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	0.000	0.000		0.897	Jan 2011	0.000		0.897	0.000	0.897	Continuing
		Subtotal	0.000	0.000		0.897		0.000		0.897	0.000	0.897	

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	0.000	0.000		0.382	Jan 2011	0.000		0.382	0.000	0.382	Continuing
		Subtotal	0.000	0.000		0.382		0.000		0.382	0.000	0.382	

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304231N: *Tactical Command System - MIP*	PROJECT 2009: *OSIS Evolutionary Development (OED)*

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		0.000		0.000		0.000	0.680	0.680	Continuing
		Subtotal	0.000	0.000		0.000		0.000		0.000	0.680	0.680	

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	0.000	0.000		0.039	Jan 2011	0.000		0.039	Continuing	Continuing	Continuing
Travel	WR	Not Specified Not Specified	0.000	0.000		0.000		0.000		0.000	0.000	0.000	Continuing
		Subtotal	0.000	0.000		0.039		0.000		0.039			

Remarks

No remarks.

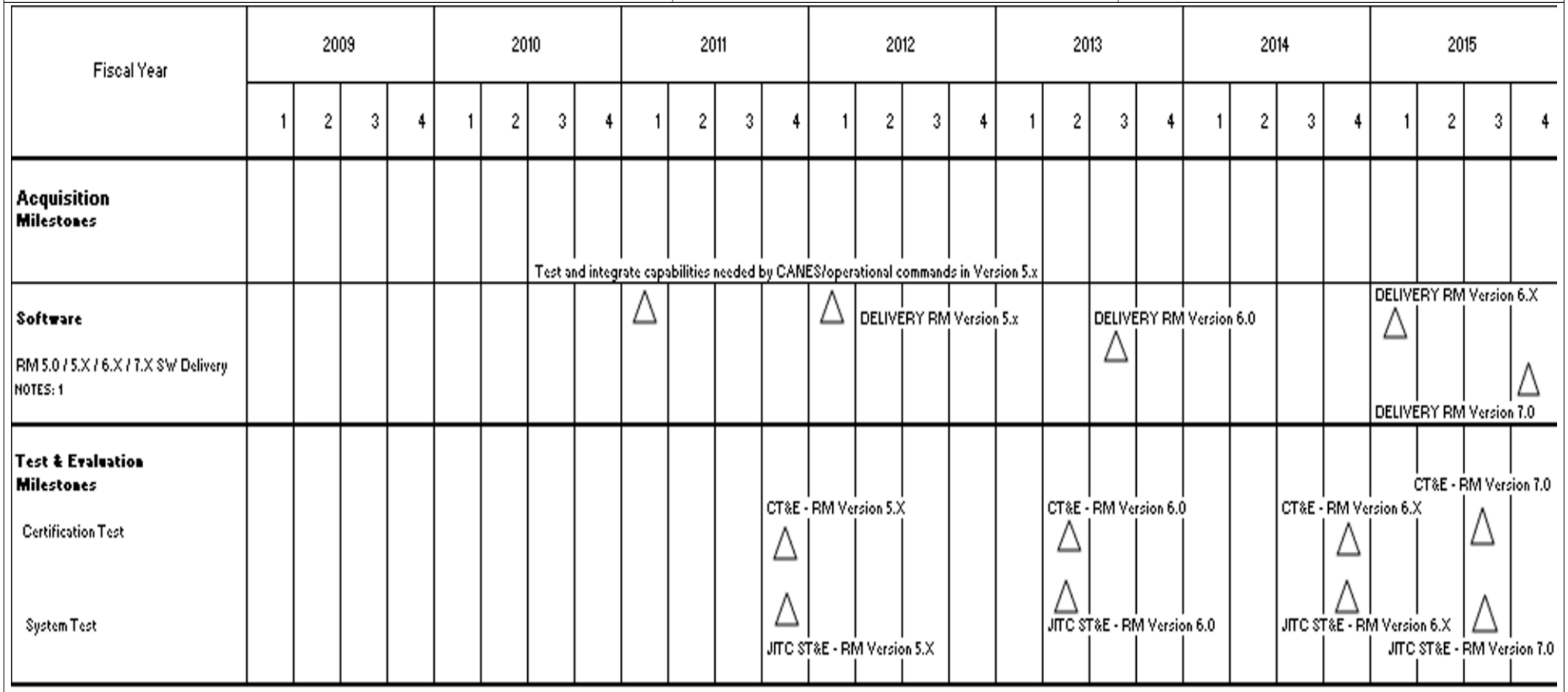
Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304231N: *Tactical Command System - MIP*	PROJECT 2009: *OSIS Evolutionary Development (OED)*	

	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		1.318		0.000		1.318			

Remarks

No remarks.

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0304231N: *Tactical Command System - MIP*	**PROJECT** 2009: *OSIS Evolutionary Development (OED)*



NOTES:

Exhibit R-4, Schedule Profile

1) Schedule slip of RM Test and Integration capabilities Ver 5.X from 3QFY10 to 1QFY11 due to Ver 5.0 delivery delay in award to follow-on developer contract.

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0304231N: *Tactical Command System - MIP*	**PROJECT** 2009: *OSIS Evolutionary Development (OED)*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
RM Software - Test and Integrate Capabilities needed by CANES/operational commands in version 5.X	1	2011	1	2011
RM Software - Delivery of RM Version 5.x	1	2012	1	2012
RM Software - Delivery of RM Version 6.0	3	2013	3	2013
RM Software - Delivery of RM Version 6.x	1	2015	1	2015
RM Software - Delivery of RM Version 7.0	4	2015	4	2015
RM Test & Evaluation Milestone - CT&E - RM Version 5.x	4	2011	4	2011
RM Test & Evaluation Milestone - CT&E - RM Version 6.0	2	2013	2	2013
RM Test & Evaluation Milestone - CT&E - RM Version 6.x	4	2014	4	2014
RM Test & Evaluation Milestone - CT&E - RM Version 7.0	3	2015	3	2015
RM System Test - JITC ST&E - RM Version 5.x	4	2011	4	2011
RM System Test - JITC ST&E - RM Version 6.0	2	2013	2	2013
RM System Test - JITC ST&E - RM Version 6.x	4	2014	4	2014
RM System Test - JITC ST&E - RM Version 7.0	3	2015	3	2015

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0304503N: *SSN-688 and Trident Modernization-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	1.415	0.000	1.415	1.440	1.464	1.491	1.520	Continuing	Continuing
0775: *Submarine Supt Equip Prog*	0.000	0.000	1.415	0.000	1.415	1.440	1.464	1.491	1.520	Continuing	Continuing

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Submarine Support Equipment Program develops and improves submarine Electronic Warfare Support (EWS) technology, components, equipment, and systems that will increase submarine operational effectiveness, safety of ship, and survivability in an increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Enhancements are necessary for submarine EWS to be operationally effective in the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare and Intelligence Collection, Maritime Protection, and Joint Strike.

The Submarine Sonar Improvement Program delivers block updates to Sonar Systems and improved Sensors installed on SSN 688, 688I, SSN 21, TRIDENT, Virginia, SSBN, and SSGN Class Submarines to maintain clear acoustical, tactical and operational superiority over submarine and surface combatants in all scenarios through detection, classification, localization and contact following. Current developments are focused on supporting Littoral Warfare, Regional Sea Denial, Battle Group Support, Diesel Submarine Detection, Surveillance, and Peacetime Engagement.

Submarine Support Equipment Program was changed to a Military Intelligence Program beginning Fiscal Year 2011 under a new Program Element.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0304503N: *SSN-688 and Trident Modernization-MIP*

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	1.415	0.000	1.415
Total Adjustments	0.000	0.000	1.415	0.000	1.415
• 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	1.415	0.000	1.415

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304503N: *SSN-688 and Trident Modernization-MIP*	PROJECT 0775: *Submarine Supt Equip 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
0775: *Submarine Supt Equip Prog*	0.000	0.000	1.415	0.000	1.415	1.440	1.464	1.491	1.520	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 develops and improves techniques, components, equipment, and systems that will increase submarine operational effectiveness, safety of ship, and survivability in the increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for Submarine Electronic Warfare Support (ES) systems to be operationally effective in the following mission areas: Joint Littoral Warfare; Joint Surveillance, Space and Electronic Warfare and Intelligence Collection; Maritime Protection; Information Operations, Special Operations Force (SOF) Support; and Joint Strike. Efforts include: (1) Integration of the technology developed and transitioned from the Advanced Submarine Support Equipment Program (ASSEP), project F0770 into the tactical ES system; (2) Resolution of software trouble reports during technology updates, from fleet feedback reports, and Submarine Warfare Federated Tactical System (SWFTS)/Non Propulsion Electronic System (NPES) Tactical Local Area Network (TACLAN) migrations; (3) Integration, test, and installation of COTS technology for system enhancements.

The Advanced Electronic Warfare Support (ES) Development Projects include the development of: PATRIOT Phase B - Low Probability of Intercept (LPI) Radar, LPI Direction Finding (DF), Distant ES Support and Remote Log-In, Specific Emitter Identification (SEI) Improvements, ES Vulnerability Tool, Integrated ES and ECS Radio Frequency
Distribution Unit (RFDU), Multi-function Modular Mast (MMM) payloads, Mast Signature Reduction, PATRIOT Non-Scanning LPI Radar, Capability and Technical Initiatives, and next generation processes and radar wideband miniaturization.

RDTE Funding line supports the entire AN/BLQ-10 ES procurement program. Average FY OPN and SCN hardware procurement yearly funds are $100M.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Submarine Support Equipment Program	0.000	0.000	1.415	0.000	1.415

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304503N: *SSN-688 and Trident Modernization-MIP*	PROJECT 0775: *Submarine Supt Equip Prog*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Develop processor improvements, advanced EW tuners, pulse digitizer upgrade and IO payloads. Research and resolve AN/BLQ-10 SPRs. NPES and SWFTS software baseline changes.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.415	0.000	1.415

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/256000: *Submarine Supt Equip Prog*	0.000	0.000	71.558	0.000	71.558	109.581	63.746	84.682	73.353	0.000	402.920
• SCN/201300: *Virginia Class Submarine*	0.000	0.000	5,132.688	0.000	5,132.688	4,730.396	4,778.041	6,127.475	6,301.397	0.000	27,069.997
• RDT&E/0303562N: *Submarine Tactical Warfare*	0.000	0.000	4.253	0.000	4.253	4.334	4.404	4.503	4.595	0.000	22.089

D. Acquisition Strategy

AN/BLQ-10 (V) ES System - Procurements are executed/managed in accordance with the Acquisition Strategy Report (Rev 4) for AN/BLQ-10(V) ES System dtd 3/7/06 and the Acquisition Plan (Rev 6) for AN/BLQ-10(V) ES System dtd 3/7/06.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304503N: *SSN-688 and Trident Modernization-MIP*	PROJECT 0775: *Submarine Supt Equip 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
AN/BLQ-10 ES Product Development	C/CPFF	Various Not Specified	0.000	0.000	Mar 2010	0.156	Mar 2011	0.000		0.156	Continuing	Continuing	Continuing
Systems Engineering and Test Support	WR	NUWC Newport RI	0.000	0.000	Mar 2010	0.962	Mar 2011	0.000		0.962	Continuing	Continuing	Continuing
Miscellaneous	Various/ Various	Various Not Specified	0.000	0.000	Mar 2010	0.255	Mar 2011	0.000		0.255	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		1.373		0.000		1.373			

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
Travel	WR	NAVSEA Not Specified	0.000	0.000		0.014	Mar 2011	0.000		0.014	0.000	0.014	0.014
SBIR Assessment	Various/ Various	Not Specified Not Specified	0.000	0.000		0.028	Mar 2011	0.000		0.028	0.000	0.028	0.028
		Subtotal	0.000	0.000		0.042		0.000		0.042	0.000	0.042	0.042

Remarks

Labor (Research) removed. No longer 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304503N: *SSN-688 and Trident Modernization-MIP*	PROJECT 0775: *Submarine Supt Equip 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	0.000	0.000		1.415		0.000		1.415			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0304503N: *SSN-688 and Trident Modernization-MIP*	**PROJECT** 0775: *Submarine Supt Equip Prog*

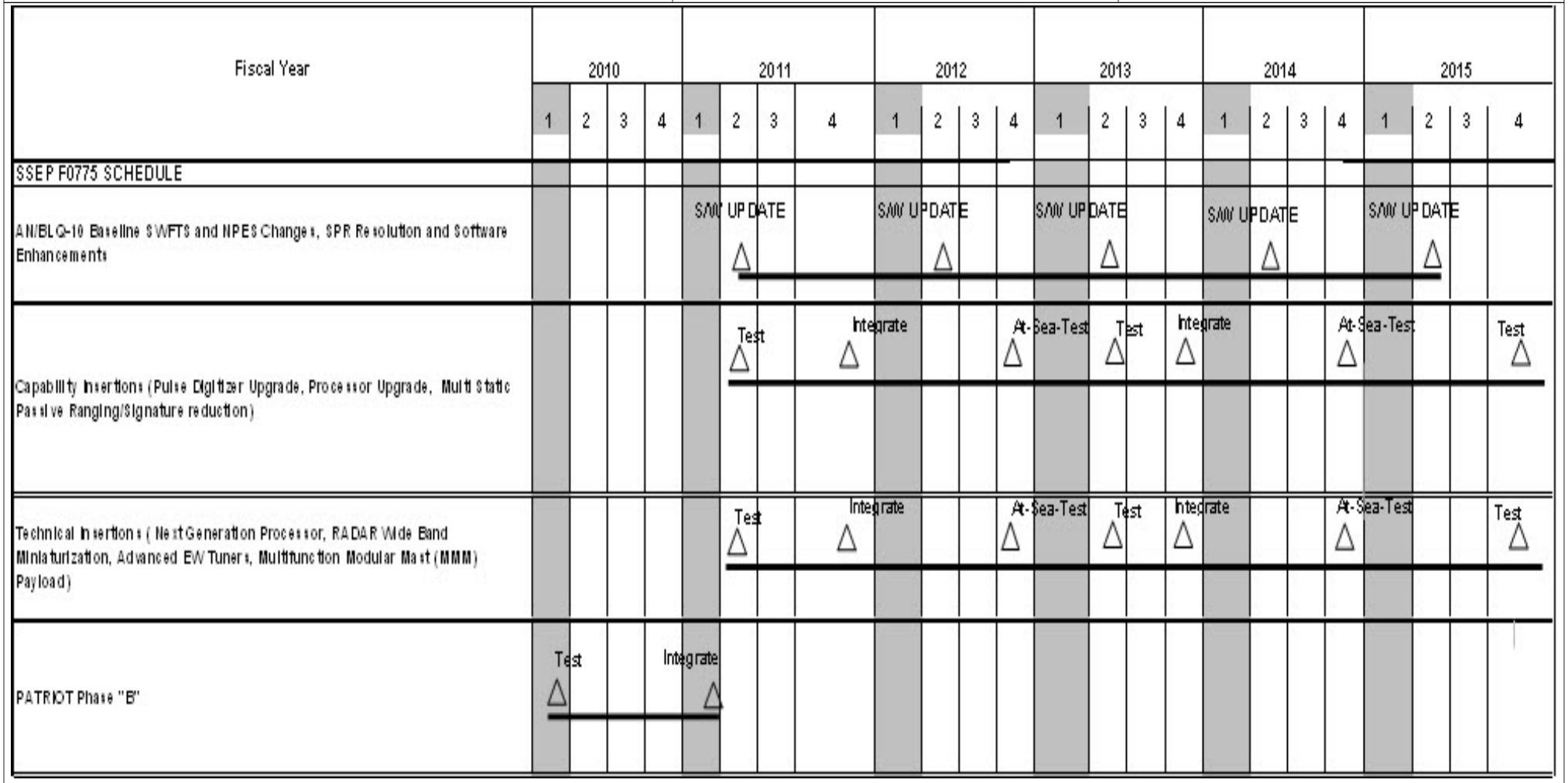


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0304503N: *SSN-688 and Trident Modernization-MIP*	**PROJECT** 0775: *Submarine Supt Equip Prog*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
AN/BLQ-10 BASELINE CHANGES, SPR RESOLUTION, AND SOFTWARE ENHANCEMENT	2	2011	2	2015
Capability Insertions (Pulse Digitizer Upgrade, Processor Upgrade, Muliti Static Passive Ranging/Signature Reduction)	2	2011	4	2015
Technical Insertions (Next Generation Processor, RADAR Wide Band Miniaturization, Advanced EW Tuners, Mulifunction Modular Mast Payload)	2	2011	4	2015
PATRIOT Phase B	2	2010	1	2011

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic 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	18.229	19.833	17.019	0.000	17.019	16.567	16.353	15.759	16.080	Continuing	Continuing
2134: *Shipboard IW Exploit*	12.608	16.943	16.554	0.000	16.554	16.099	16.353	15.759	16.080	Continuing	Continuing
3165: *Automatic Identification System (AIS)*	4.025	0.500	0.465	0.000	0.465	0.468	0.000	0.000	0.000	0.000	24.066
9999: *Congressional Adds*	1.596	2.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.816

A. Mission Description and Budget Item Justification

The Shipboard IW line includes the Ships Signal Exploitation Equipment (SSEE) program and the Program of Record that executes a major component of the Maritime Cryptologic Systems for the 21st Century. These systems provide the battle group and combatant commanders with the surfaces fleets only Information Operations (IO) non-kinetic capabilities ("Finish"). In addition they provide the battle groups with real time Indications and Warnings by acquisition ("Find") and localization ("Fix") of Signals of Interest. This program's funding is required to incorporate Pre-Planned Product Improvements, new Commercial Off-the-Shelf (COTS) based technologies and software into the existing systems. Funding will also focus on developing and delivering expanded non-kinetic IO capabilities and net-centric service oriented architecture, which includes the development, integration and test of "Ballistic Missile Defense Executive Committee Anti-Submarine Warfare Chief of Naval Operations Executive Board IO Countermeasure Red Flash / Integrated Communications and Data Systems (ICADS) (description and details classified) and Paragon (Frequency Extension/Targeting Enhancement) into SSEE E/F and the follow-on spiral of the SSEE program.

The SSEE program is a classified IW / IO and tactical cryptologic system that subsequently provides critical tactical intelligence, situational awareness/Battlespace Awareness, indications and warnings, and hostile threat assessment. As a spiral acquisition program, Research, Development, Test & Evaluation (RDT&E) funding is required to have new technologies and associated new operational capabilities rapidly developed and transitioned as Pre-Planned Product Improvements (P3I) upgrades into the system's hardware/software configuration.

Automatic Identification System is an International Maritime Very High Frequency Communication system that allows any ship to exchange information (machine to machine) on Navigation (Position, Course, Speed, etc), Ship Info (Ship Name, Call Sign, Length/Beam), and Cargo Info (Draft, Type, Destination, Route, Estimated Time of Arrival) and Messaging (Safety, Text). This technology will improve capability in three diverse areas: (a) Situational Awareness/Common Operational Picture (b) Navigation/Safety of Ship and (c) Other intelligence gathering/correlation. Funding will support the integration of modified COTS AIS equipment with the existing Global Command and Control - Maritime/Common Operational Picture, navigation and bridge display capabilities, surface search / weapons systems and intelligence / Cryptologic capabilities

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0304785N: *Tactical Cryptologic Systems*

Congressional Adds:

PARAGON System Updates is a classified Navy tactical signals intelligence frequency extension capability that will be integrated into Ships Signal Exploitation Equipment (SSEE) Inc E/F programs. This capability will provide simultaneous detection, collection, processing, IO and display of communication intelligence data from hostile, high threat and adversary platforms in select frequency ranges that are not prosecuted or countered today.

PARAGON (Frequency Extension) is a classified Navy tactical signals intelligence frequency extension capability that will be integrated into SSEE Inc E/F programs. This capability provides simultaneous detection, collection, processing, Information Operations and display of communication intelligence data from hostile, high threat and adversary platforms in select frequency ranges that are not prosecuted or countered today.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	18.228	19.016	0.000	0.000	0.000
Current President's Budget	18.229	19.833	17.019	0.000	17.019
Total Adjustments	0.001	0.817	17.019	0.000	17.019
• Congressional General Reductions		-0.083			
• Congressional Directed Reductions		-1.500			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		2.400			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.001	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	17.019	0.000	17.019

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Paragon (Frequency Extension)*	0.000	2.390
Congressional Add: *Paragon System Upgrades*	1.596	0.000
Congressional Add Subtotals for Project: 9999	1.596	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 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0304785N: *Tactical Cryptologic Systems*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add Totals for all Projects	1.596	2.390

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 2134: *Shipboard IW Exploit*	

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
2134: *Shipboard IW Exploit*	12.608	16.943	16.554	0.000	16.554	16.099	16.353	15.759	16.080	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Shipboard IW line includes the Ships Signal Exploitation Equipment (SSEE) program and the Program of Record that executes a major component of the Maritime Cryptologic Systems for the 21st Century. These systems provide the battle group and Combatant Commanders with the surfaces fleets only Information Operations (IO) non-kinetic capabilities ("Finish"). In addition they provide the battle groups with real time Indications and Warnings by acquisition ("Find") and localization ("Fix") of Signals of Interest. This program's funding is required to incorporate Pre-Planned Product Improvements (P3I), new Commercial Off-the-Shelf (COTS) based technologies and software into the existing systems. Funding will also focus on developing and delivering expanded non-kinetic IO capabilities and net-centric Service Oriented Architecture (SOA), which includes the development, integration and test of "Ballistic Missile Defense (BMD) Executive Committee (EXCOM) Anti-Submarine Warfare (ASW) Chief of Naval Operations Executive Board (CEB) IO Countermeasure Red Flash/ Integrated Communications and Data Systems (ICADS) (Description and details classified) and Paragon (Frequency Extension/Targeting Enhancement) into SSEE and the follow-on spiral of the SSEE program. Paragon is a classified Navy tactical signals intelligence frequency extension capability that will be integrated into SSEE Inc E/F and follow on spiral of SSEE programs. This capability will provide simultaneous detection, collection, processing, IO and display of communication intelligence data from hostile, high threat and adversary platforms in select frequency ranges that are not prosecuted or countered today.

The SSEE program is a classified IW/IO and tactical cryptologic system that subsequently provides critical tactical intelligence, situational awareness/battlespace awareness (BA), indications and warnings, and hostile threat assessment. As a spiral acquisition program, Research, Development, Test & Evaluation funding is required to have new technologies and associated new operational capabilities rapidly developed and transitioned as P3I upgrades into the system's hardware/software configuration.

FY11 funding will incorporate P3I, new COTS based technologies and software into the existing systems. Funding will also focus on developing and delivering IO capabilities and net-centric SOA, which includes the development, integration and test of "BMD EXCOM ASW CEB IO Countermeasure Red Flash/ICADS" (description and details classified), Graywing, Medusa and Paragon (Frequency Extension/Targeting Enhancement capabilities) into SSEE Inc F and the follow on spiral of the SSEE program.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 2134: *Shipboard IW Exploit*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Ship Signal Exploitation Equipment Inc E (SSEE Inc E)	1.974	1.739	0.000	0.000	0.000
FY 2009 Accomplishments: Expanded Signals of Interest (SOI) processing capability to allow collection of the newest high priority modern technology threat signals for tightly integrated Information Operation (IO) / non-kinetic, and processing and analysis capabilities. Developed and integrated Cryptologic Unified Build (CUB) software to support battlegroup interoperability. Developed and integrated upgrades to Hostile Force Integration Targeting Subsystems (HITS) to integrate both national and tactical Intelligence, Surveillance, and Reconnaissance (ISR) sensors for new and emerging SOI. Fully tested improved software. Completed Follow-on Test and Evaluation. *FY 2010 Plans:* Continue to expand SOI processing capability to allow collection of the newest high priority modern technology threat signals for tightly integrated IO / non-kinetic, and processing and analysis capabilities. Development and integration of CUB software to support battlegroup interoperability. Continue to develop and integrate upgrades to HITS to integrate both national and tactical ISR sensors for new and emerging SOI.					
Ship Signals Exploitation Equipment Inc F (SSEE Inc F)	10.572	11.775	15.615	0.000	15.615
FY 2009 Accomplishments: Continued SSEE Inc F development and system design Engineering Development Models (EDMs). Integrated, tested and delivered EDMs. Continued development efforts for remoting of manned and unmanned platforms. Continued development in the areas of signal recognition, suitability, and Net-Centric Enterprise Solutions for Interoperability (NCESI). Conducted EDM interoperability testing, platform integration efforts, and operational assessment. Developed technical publications. Completed engineering and management data. Continued development efforts for remoting and evolving NCESI/Service Oriented Architecture (SOA) 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 2134: *Shipboard IW Exploit*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Conduct EDM interoperability testing, platform integration efforts, environmental qualifications and correction of deficiencies identified during operational assessment. Expand Signals of Interest (SOI) processing capability to allow collection of the newest high priority modern technology threat signals for tightly integrated Information Operation (IO) / non-kinetic capabilities for support to time critical military strike operation and subsequent processing and analysis capabilities for timely and accurate situational awareness for force protection. Funding will focus on developing and delivering IO capabilities and Net-Centric SOA including development integration and test of "Ballistic Missile Defense (BMD) Executive Committee (EXCOM) Anti-Submarine Warfare (ASW) Chief of Naval Operations Executive Board (CEB) IO Countermeasure Red Flash" (program details classified), and Paragon (Frequency Extension/Targeting Enhancement) for integration into SSEE Inc F and the follow on spiral of the SSEE program. *FY 2011 Base Plans:* Continue to expand SOI processing capability to allow collection of the newest high priority modern technology threat signals for tightly integrated IO/non-kinetic capabilities for support to time critical military strike operation and subsequent processing and analysis capabilities for timely and accurate situational awareness for force protection. Complete operational evaluation in support of full rate decision. Correct limitations identified in operational evaluation in support of follow on test and evaluation. Develop and deliver IO capabilities and NCESI SOA including development integration and test of "BMD EXCOM ASW CEB IO Countermeasure Red Flash", Graywing, Medusa, and Paragon (Frequency Extension/Targeting Enhancement capabilities) for integration into SSEE Inc F.					
ICADS *FY 2010 Plans:* Integrated Communications and Data System (ICADS) is a non-kinetic capability that can be rapidly developed to counter a serious threat to afloat units. ICADS provides a counter-Intelligence,	0.000	3.429	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 2134: *Shipboard IW Exploit*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Surveillance, Reconnaissance (ISR) capability against adversary sensor systems (specific development/capability details are held at a higher classification). *FY 2011 Base Plans:* ICADS is a non-kinetic capability that can be rapidly developed to counter a serious threat to afloat units. ICADS provides a counter-ISR capability against adversary sensor systems (specific development/capability details are held at a higher classification). Note: Funds transferred from Program Element 0204575N Project Number 2263.					
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded acquisition workforce fund.	0.062	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	12.608	16.943	16.554	0.000	16.554

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 / 2360: *Shipboard IW Exploit*	90.672	89.408	105.624	0.000	105.624	101.575	110.648	111.913	113.904	Continuing	Continuing

D. Acquisition Strategy

Acquisition, management and contracting strategies are to support engineering and manufacturing development by providing funds to a Prime Contractor and Space & Naval Warfare Systems Command (SPAWAR) Systems Center (SSC) - Atlantic, SSC - Pacific and miscellaneous contractors, with management oversight by SPAWAR.

E. Performance Metrics

Ship Signal Exploitation Equipment (SSEE) Inc F is in its last year of development. SSEE Inc F is scheduled to achieve Milestone-C 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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 2134: *Shipboard IW Exploit*	

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	73.395	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Engineering	Various/ Various	Various Various	20.762	1.547	Nov 2009	1.684	Nov 2010	0.000		1.684	Continuing	Continuing	Continuing
Training Development	WR	SSC PAC San Diego, CA	0.577	0.899	Nov 2009	0.220	Nov 2010	0.000		0.220	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC LANT Charleston, SC	0.000	1.324	Nov 2009	1.476	Nov 2010	0.000		1.476	Continuing	Continuing	Continuing
		Subtotal	94.734	3.770		3.380		0.000		3.380			

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	39.428	1.348	Feb 2010	1.167	Nov 2010	0.000		1.167	Continuing	Continuing	Continuing
Training Development	Various/ Various	Various Various	0.079	0.000		0.445	Nov 2010	0.000		0.445	Continuing	Continuing	Continuing
Integrated Logistics Support	Various/ Various	Various Various	1.692	0.514	Nov 2009	0.000		0.000		0.000	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 2134: *Shipboard IW Exploit*

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
Configuration Management	WR	SSC Lant Charleston, SC	1.011	0.325	Nov 2009	0.341	Nov 2010	0.000		0.341	Continuing	Continuing	Continuing
Technical Data	Various/ Various	Various Various	0.264	0.278	Nov 2009	0.210	Nov 2010	0.000		0.210	Continuing	Continuing	Continuing
Software Development	C/CPAF	Argon ST Fairfax, VA	0.000	6.284	Feb 2010	5.442	Nov 2010	0.000		5.442	Continuing	Continuing	Continuing
		Subtotal	42.474	8.749		7.605		0.000		7.605			

Remarks

Software Development contract action delayed due to FY10 CRA.

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	6.644	0.731	Nov 2009	0.769	Nov 2010	0.000		0.769	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	OPTEVFOR Norfolk	2.391	0.400	Nov 2009	0.287	Nov 2010	0.000		0.287	Continuing	Continuing	Continuing
Test Assets	WR	SSC PAC San Diego	1.747	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	10.782	1.131		1.056		0.000		1.056			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 2134: *Shipboard IW Exploit*	

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

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	0.000	0.933	Nov 2009	0.942	Nov 2010	0.000		0.942	Continuing	Continuing	Continuing
Government Engineering Support	Various/ Various	Various Various	0.000	1.290	Nov 2009	2.140	Nov 2010	0.000		2.140	Continuing	Continuing	Continuing
Program Management Support	Various/ Various	Various Various	15.611	0.600	Nov 2009	0.900	Nov 2010	0.000		0.900	Continuing	Continuing	Continuing
Travel	WR	DTS Various	1.100	0.470	Nov 2009	0.531	Nov 2010	0.000		0.531	Continuing	Continuing	Continuing
Acquisition Workforce	Various/ Various	Various Various	0.062	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	16.773	3.293		4.513		0.000		4.513			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 2134: *Shipboard IW Exploit*	

	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	164.763	16.943		16.554		0.000		16.554			

Remarks

PY funding reflects PE 0604721N. Funding moved to PE 0304785N starting in FY07.

Exhibit R-4, **RDT&E Schedule Profile:** PB 2011 Navy		**DATE:** February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0304785N: *Tactical Cryptologic Systems*	**PROJECT** 2134: *Shipboard IW Exploit*

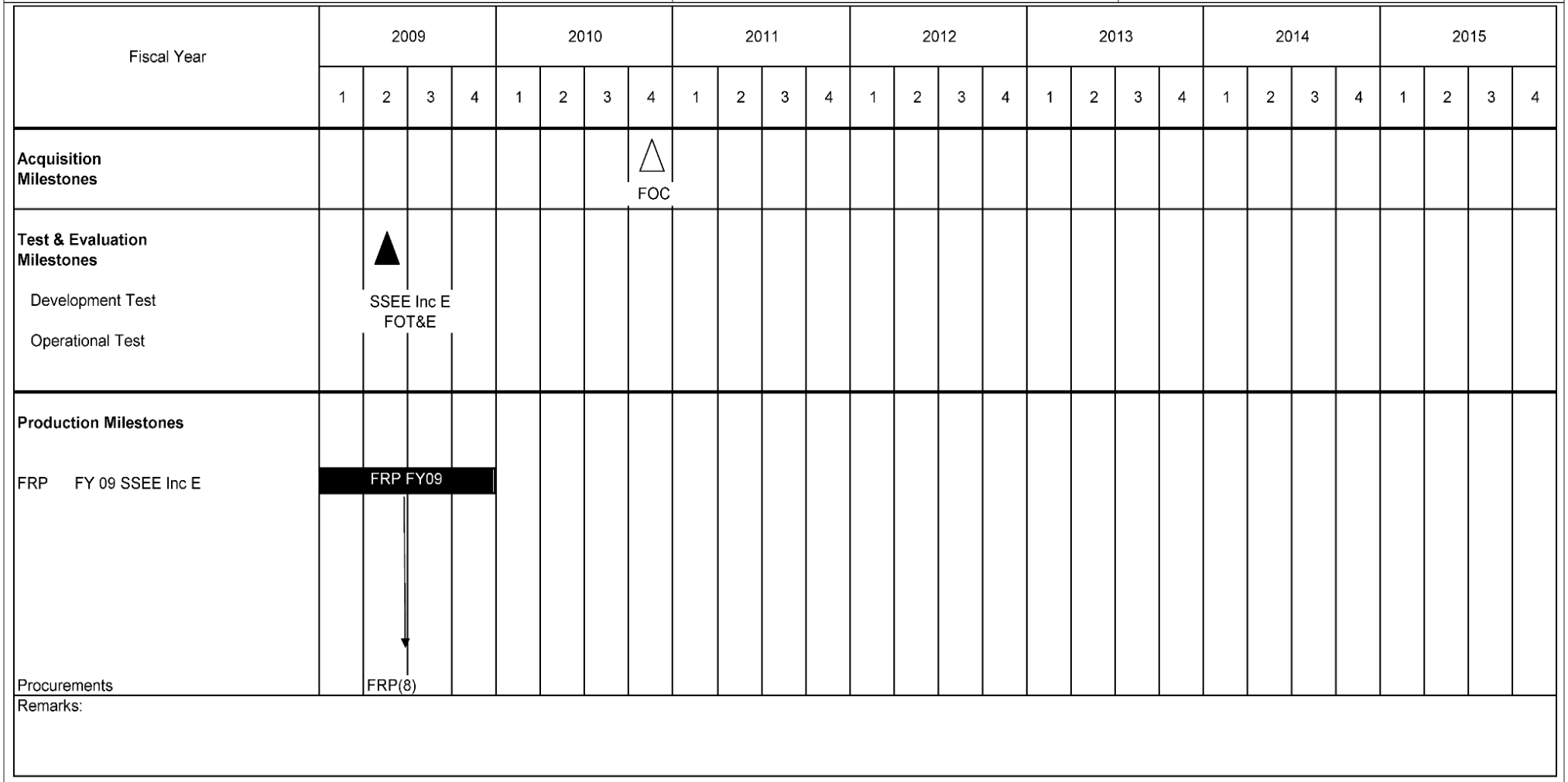


Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0304785N: *Tactical Cryptologic Systems*	**PROJECT** 2134: *Shipboard IW Exploit*

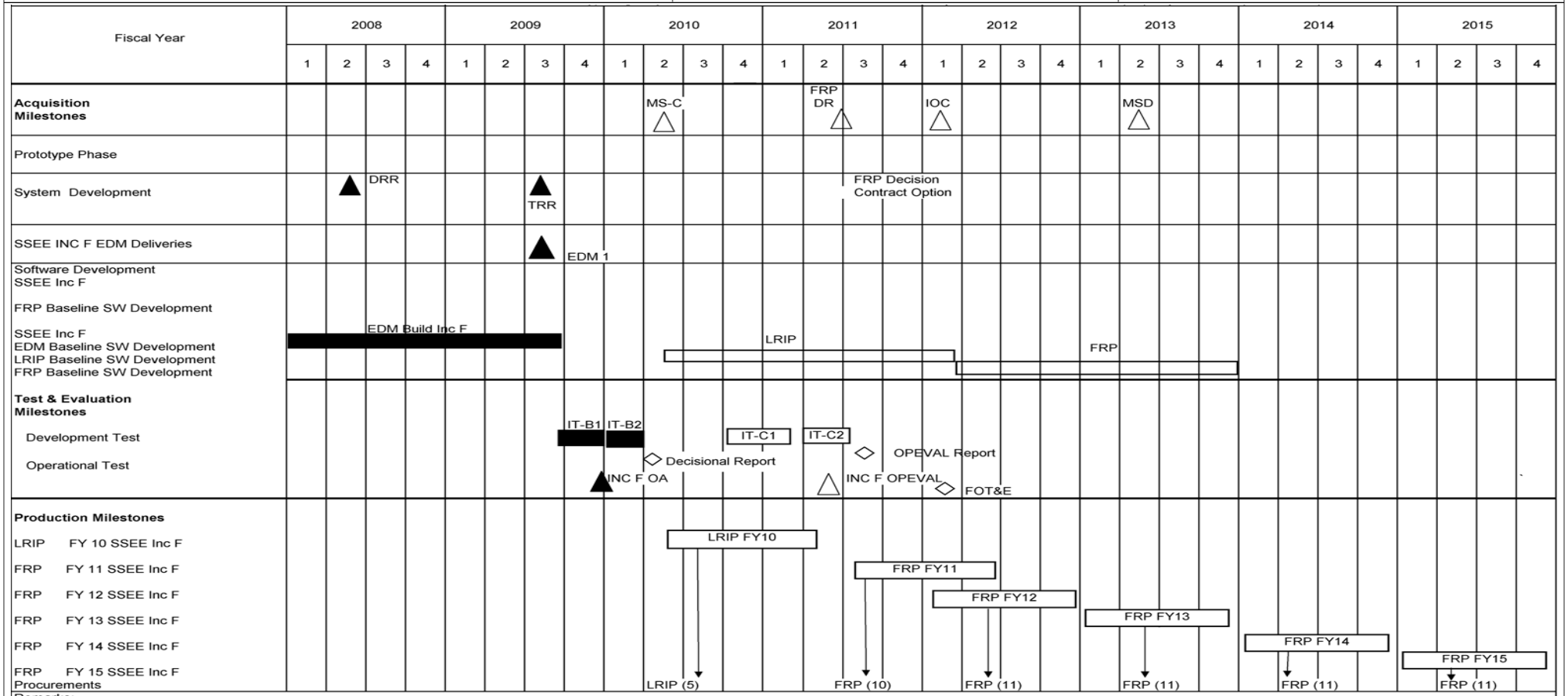


Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0304785N: *Tactical Cryptologic Systems*	**PROJECT** 2134: *Shipboard IW Exploit*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Inc E - Full Operational Capability (FOC)	4	2010	4	2010
Inc E - Follow-On Test & Evaluation (FOTE)	2	2009	2	2009
Inc E - Full Rate Production (FRP)	1	2009	4	2009
Inc F - Test Readiness Review (TRR)	3	2009	3	2009
Inc F - Developmental Testing IT-B1	3	2009	4	2009
Inc F - Developmental Testing IT-B2	1	2010	2	2010
Inc F - Developmental Testing IT-C1	4	2010	1	2011
Inc F - Developmental Testing IT-C2	2	2011	2	2011
Inc F - Operational Testing Operational Assessment (OA)	4	2009	1	2010
Inc F - Operational Testing (OT)	2	2011	2	2011
Inc F - Engineering Development Models (EDM) Deliveries	3	2009	3	2009
Inc F - Milestone C - Low Rate Initial Production (LRIP)	2	2010	2	2010
Inc F - LRIP Contract Award	2	2010	3	2010
Inc F - Full Rate Production (FRP) Decision	2	2011	3	2011
Inc F - FRP Contract Award	3	2011	3	2011
Inc F - Material Support Date (MSD)	2	2013	2	2013
Inc F - Initial Operational Capability (IOC)	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 3165: *Automatic Identification System (AIS)*	

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
3165: *Automatic Identification System (AIS)*	4.025	0.500	0.465	0.000	0.465	0.468	0.000	0.000	0.000	0.000	24.066
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Automatic Identification System (AIS) is an International Maritime Very High Frequency Communication system that allows any ship to exchange information (machine to machine) on Navigation (Position, Course, Speed, etc), Ship Info (Ship Name, Call Sign, Length/Beam), and Cargo Info (Draft, Type, Destination, Route, Estimated Time of Arrival) and Messaging (Safety, Text). This technology will improve capability in three diverse areas: (a) Situational Awareness/Common Operational Picture (b) Navigation/Safety of Ship and (c) Other intelligence gathering/correlation. Funding will support the integration of modified Commercial Off-The-Shelf AIS equipment with the existing Global Command and Control - Maritime/Common Operational Picture navigation and bridge display capabilities, surface search / weapons systems and intelligence / Cryptologic capabilities.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Automatic Identification System (AIS)	4.005	0.500	0.465	0.000	0.465
FY 2009 Accomplishments: Continued to design and develop a Net-Centric Enterprise Solution-compliant AIS, within a service oriented architecture. Consolidated and streamlined data sharing between the United States Navy (USN) /Department of Defense (DoD) AIS capability and other agencies, such as the Department of Transportation emerging Maritime Security and Safety Information System (MSSIS). Continued the refinement of the Global AIS architecture, and its relation to the overall USN Maritime Domain Awareness (MDA) effort and Concept of Operations (CONOP) as well as the National MDA CONOP. This will provide a secure end-to-end AIS data sharing capability in-line with National MDA CONOPs and current DoD guidance and policies.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 3165: *Automatic Identification System (AIS)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Funds will support developmental testing and operational testing of submarines and shore site Automatic Identification System (AIS) configurations. Also funds will support new AIS interoperability requirements, such as incorporation of AIS into Consolidated Afloat Networks and Enterprise Services (CANES) and AIS interoperability with the Maritime Security and Safety Information System (MSSIS). Funds will also continue the refinement of the Global AIS architecture, and its relation to the overall United States Navy (USN) Maritime Domain Awareness (MDA) effort and Concept of Operations (CONOP) as well as the National MDA CONOP. *FY 2011 Base Plans:* Funds will support incorporation of new AIS interoperability requirements, such as AIS CANES configuration. Funds will also continue the refinement of the Global AIS architecture, and its relation to the overall USN MDA effort and CONOP as well as the National MDA CONOP. This will provide a secure end-to-end AIS data sharing capability in-line with National MDA CONOPs.					
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded Acquisition Workforce Fund.	0.020	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	4.025	0.500	0.465	0.000	0.465

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
• OPN / 2360: *Shipboard IW Exploit (AIS only)*	6.912	2.399	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
	0.000	0.000	1.299	0.000	1.299	1.384	0.961	0.957	0.954	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 3165: *Automatic Identification System (AIS)*

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 / 2361: *Automatic Identification System*											

D. Acquisition Strategy

Acquisition management and contracting strategies are to support the integration of Commercial Off-The-Shelf (COTS) Automatic Identification System (AIS) data into the existing and emerging United States Navy Command and Control and Network infrastructure capabilities, navigation and bridge capabilities surface search/ weapons systems and intelligence/cryptologic capabilities. COTS will be procured from a contractor with government over sight from Space and Naval Warfare (SPAWAR) Systems Center (SSC) - Atlantic and SSC - Pacific with management oversight by SPAWAR .

E. Performance Metrics

AIS will incorporate new interoperability requirements in order to provide a secure end-to-end AIS data sharing capability with National Maritime Domain Awareness Concept of Operations.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic 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*	1.596	2.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.816
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

PARAGON System Updates is a classified Navy tactical signals intelligence frequency extension capability that will be integrated into SSEE Inc E/F programs. This capability will provide simultaneous detection, collection, processing, IO and display of communication intelligence data from hostile, high threat and adversary platforms in select frequency ranges that are not prosecuted or countered today.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Paragon (Frequency Extension) *FY 2010 Plans:* PARAGON Frequency Extension is a classified Navy tactical signals intelligence frequency extension capability that will be integrated into Ships Signal Exploitation Equipment Inc E/F programs. This capability provides simultaneous detection, collection, processing, Information Operations and display of communication intelligence data from hostile, high threat and adversary platforms in select frequency ranges that are not prosecuted or countered today.	0.000	2.390
Congressional Add: Paragon System Upgrades *FY 2009 Accomplishments:* PARAGON system updates is a classified Navy tactical signals intelligence frequency extension capability that was integrated into Ships Signal Exploitation Equipment Inc E/F programs. This capability provided simultaneous detection, collection, processing, Information Operations and	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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0304785N: *Tactical Cryptologic Systems*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
display of communication intelligence data from hostile, high threat and adversary platforms in select frequency ranges that are not prosecuted or countered today.		
Congressional Adds Subtotals	1.596	2.390

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add.

THIS PAGE INTENTIONALLY LEFT BLANK