Department of Defense
Fiscal Year (FY) 2014 President's Budget Submission

April 2013

Navy

Justification Book Volume 2 of 5

Research, Development, Test & Evaluation, Navy

Budget Activity 4

THIS PAGE INTENTIONALLY LEFT BLANK

Table of Volumes

Budget Activities 1, 2, and 3.....Volume 1

Budget Activity 4.....Volume 2

Budget Activity 5.....Volume 3

Budget Activity 6.....Volume 4

Budget Activity 7.....Volume 5

THIS PAGE INTENTIONALLY LEFT BLANK

Volume 2 Table of Contents

Comptroller Exhibit R-1..... Volume 2 - v

Program Element Table of Contents (by Budget Activity then Line Item Number).....Volume 2 - xxiii

Program Element Table of Contents (Alphabetically by Program Element Title).....Volume 2 - xxvii

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

THIS PAGE INTENTIONALLY LEFT BLANK

Department of Defense
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

Appropriation	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base
Research, Development, Test & Eval, Navy	17,723,271	17,848,141	60,119		17,908,260	15,974,780
Total Research, Development, Test & Evaluation	17,723,271	17,848,141	60,119		17,908,260	15,974,780

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of Defense
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

Summary Recap of Budget Activities	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base
Basic Research	590,619	605,021			605,021	615,306
Applied Research	812,531	790,302			790,302	834,538
Advanced Technology Development	674,173	584,402			584,402	583,116
Advanced Component Development & Prototypes	4,361,733	4,335,297	4,600		4,339,897	4,641,385
System Development & Demonstration	5,980,572	5,747,232	2,173		5,749,405	5,028,476
Management Support	1,167,031	845,077	5,200		850,277	886,137
Operational Systems Development	4,136,612	3,975,546	48,146		4,023,692	3,385,822
Undistributed		965,264			965,264	
Total Research, Development, Test & Evaluation	17,723,271	17,848,141	60,119		17,908,260	15,974,780
Summary Recap of FYDP Programs						
Strategic Forces	150,203	161,263			161,263	153,018
General Purpose Forces	1,429,687	1,422,932	6,762		1,429,694	1,489,417
Intelligence and Communications	1,327,153	1,176,330	7,600		1,183,930	671,724
Research and Development	13,393,865	12,883,923	11,973		12,895,896	12,391,516
Central Supply and Maintenance	80,174	87,270			87,270	83,973
Administration and Associated Activities	441	965,264			965,264	
Classified Programs	1,341,748	1,151,159	33,784		1,184,943	1,185,132
Total Research, Development, Test & Evaluation	17,723,271	17,848,141	60,119		17,908,260	15,974,780

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of Defense
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base
Summary Recap of Non-RDT&E Title FYDP Programs						
Mobility Forces	50,632	42,811			42,811	56,058
Total Research, Development, Test & Evaluation	50,632	42,811			42,811	56,058

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

Summary Recap of Budget Activities	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base
Basic Research	590,619	605,021			605,021	615,306
Applied Research	812,531	790,302			790,302	834,538
Advanced Technology Development	674,173	584,402			584,402	583,116
Advanced Component Development & Prototypes	4,361,733	4,335,297	4,600		4,339,897	4,641,385
System Development & Demonstration	5,980,572	5,747,232	2,173		5,749,405	5,028,476
Management Support	1,167,031	845,077	5,200		850,277	886,137
Operational Systems Development	4,136,612	3,975,546	48,146		4,023,692	3,385,822
Undistributed		965,264			965,264	
Total Research, Development, Test & Evaluation	17,723,271	17,848,141	60,119		17,908,260	15,974,780
Summary Recap of FYDP Programs						
Strategic Forces	150,203	161,263			161,263	153,018
General Purpose Forces	1,429,687	1,422,932	6,762		1,429,694	1,489,417
Intelligence and Communications	1,327,153	1,176,330	7,600		1,183,930	671,724
Research and Development	13,393,865	12,883,923	11,973		12,895,896	12,391,516
Central Supply and Maintenance	80,174	87,270			87,270	83,973
Administration and Associated Activities	441	965,264			965,264	
Classified Programs	1,341,748	1,151,159	33,784		1,184,943	1,185,132
Total Research, Development, Test & Evaluation	17,723,271	17,848,141	60,119		17,908,260	15,974,780

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
1	0601103N	University Research Initiatives	01	126,836	113,690			113,690	112,617	U
2	0601152N	In-House Laboratory Independent Research	01	17,642	18,261			18,261	18,230	U
3	0601153N	Defense Research Sciences	01	446,141	473,070			473,070	484,459	U
	Basic Research			590,619	605,021			605,021	615,306	
4	0602114N	Power Projection Applied Research	02	98,452	89,189			89,189	104,513	U
5	0602123N	Force Protection Applied Research	02	194,050	143,301			143,301	145,307	U
6	0602131M	Marine Corps Landing Force Technology	02	43,901	46,528			46,528	47,334	U
7	0602235N	Common Picture Applied Research	02	70,935	41,696			41,696	34,163	U
8	0602236N	Warfighter Sustainment Applied Research	02	97,107	44,127			44,127	49,689	U
9	0602271N	Electromagnetic Systems Applied Research	02	104,457	78,228			78,228	97,701	U
10	0602435N	Ocean Warfighting Environment Applied Research	02	46,891	49,635			49,635	45,685	U
11	0602651M	Joint Non-Lethal Weapons Applied Research	02	4,652	5,973			5,973	6,060	U
12	0602747N	Undersea Warfare Applied Research	02	114,251	96,814			96,814	103,050	U
13	0602750N	Future Naval Capabilities Applied Research	02		162,417			162,417	169,710	U
14	0602782N	Mine and Expeditionary Warfare Applied Research	02	37,835	32,394			32,394	31,326	U
	Applied Research			812,531	790,302			790,302	834,538	
15	0603114N	Power Projection Advanced Technology	03	103,710	56,543			56,543	48,201	U
16	0603123N	Force Protection Advanced Technology	03	41,666	18,616			18,616	28,328	U
17	0603235N	Common Picture Advanced Technology	03	46,530						U
18	0603236N	Warfighter Sustainment Advanced Technology	03	68,955						U

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
19	0603271N	Electromagnetic Systems Advanced Technology	03	125,674	54,858			54,858	56,179	U
20	0603640M	USMC Advanced Technology Demonstration (ATD)	03	120,141	130,598			130,598	132,400	U
21	0603651M	Joint Non-Lethal Weapons Technology Development	03	12,035	11,706			11,706	11,854	U
22	0603673N	Future Naval Capabilities Advanced Technology Development	03		256,382			256,382	247,931	U
23	0603729N	Warfighter Protection Advanced Technology	03	55,867	3,880			3,880	4,760	U
24	0603747N	Undersea Warfare Advanced Technology	03	43,729						U
25	0603758N	Navy Warfighting Experiments and Demonstrations	03	50,062	51,819			51,819	51,463	U
26	0603782N	Mine and Expeditionary Warfare Advanced Technology	03	5,804					2,000	U
		Advanced Technology Development		674,173	584,402			584,402	583,116	
27	0603207N	Air/Ocean Tactical Applications	04	46,274	34,085			34,085	42,246	U
28	0603216N	Aviation Survivability	04	10,720	8,783			8,783	5,591	U
29	0603237N	Deployable Joint Command and Control	04	3,418	3,773			3,773	3,262	U
30	0603251N	Aircraft Systems	04	10,040	24,512			24,512	74	U
31	0603254N	ASW Systems Development	04	7,610	8,090			8,090	7,964	U
32	0603261N	Tactical Airborne Reconnaissance	04	8,294	5,301			5,301	5,257	U
33	0603382N	Advanced Combat Systems Technology	04	1,107	1,506			1,506	1,570	U
34	0603502N	Surface and Shallow Water Mine Countermeasures	04	126,760	190,622			190,622	168,040	U
35	0603506N	Surface Ship Torpedo Defense	04	122,311	93,346			93,346	88,649	U
36	0603512N	Carrier Systems Development	04	61,909	108,871			108,871	83,902	U

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
37	0603525N	PILOT FISH	04	98,052	101,169			101,169	108,713	U
38	0603527N	RETRACT LARCH	04	80,180	74,312			74,312	9,316	U
39	0603536N	RETRACT JUNIPER	04	120,904	90,730			90,730	77,108	U
40	0603542N	Radiological Control	04	1,312	777			777	762	U
41	0603553N	Surface ASW	04	38,943	6,704			6,704	2,349	U
42	0603561N	Advanced Submarine System Development	04	843,646	555,123			555,123	852,977	U
43	0603562N	Submarine Tactical Warfare Systems	04	9,008	9,368			9,368	8,764	U
44	0603563N	Ship Concept Advanced Design	04	16,837	24,609			24,609	20,501	U
45	0603564N	Ship Preliminary Design & Feasibility Studies	04	17,611	13,710			13,710	27,052	U
46	0603570N	Advanced Nuclear Power Systems	04	463,683	249,748			249,748	428,933	U
47	0603573N	Advanced Surface Machinery Systems	04	17,721	29,897			29,897	27,154	U
48	0603576N	CHALK EAGLE	04	573,676	509,988			509,988	519,140	U
49	0603581N	Littoral Combat Ship (LCS)	04	297,125	429,420			429,420	406,389	U
50	0603582N	Combat System Integration	04	48,999	56,551			56,551	36,570	U
51	0603609N	Conventional Munitions	04	4,660	7,342			7,342	8,404	U
52	0603611M	Marine Corps Assault Vehicles	04	37,000	95,182			95,182	136,967	U
53	0603635M	Marine Corps Ground Combat/Support System	04	52,992	10,496			10,496	1,489	U
54	0603654N	Joint Service Explosive Ordnance Development	04	33,012	52,331	4,600		56,931	38,422	U
55	0603658N	Cooperative Engagement	04	54,422	56,512			56,512	69,312	U
56	0603713N	Ocean Engineering Technology Development	04	9,802	7,029			7,029	9,196	U

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
57	0603721N	Environmental Protection	04	21,407	21,080			21,080	18,850	U
58	0603724N	Navy Energy Program	04	69,844	55,324			55,324	45,618	U
59	0603725N	Facilities Improvement	04	3,754	3,401			3,401	3,019	U
60	0603734N	CHALK CORAL	04	76,540	45,966			45,966	144,951	U
61	0603739N	Navy Logistic Productivity	04	4,054	3,811			3,811	5,797	U
62	0603746N	RETRACT MAPLE	04	272,049	341,305			341,305	308,131	U
63	0603748N	LINK PLUMERIA	04	54,816	181,220			181,220	195,189	U
64	0603751N	RETRACT ELM	04	114,374	174,014			174,014	56,358	U
65	0603764N	LINK EVERGREEN	04	142,858	68,654			68,654	55,378	U
66	0603787N	Special Processes	04	42,805	44,487			44,487	48,842	U
67	0603790N	NATO Research and Development	04	9,402	9,389			9,389	7,509	U
68	0603795N	Land Attack Technology	04	411	16,132			16,132	5,075	U
69	0603851M	Joint Non-Lethal Weapons Testing	04	40,189	44,994			44,994	51,178	U
70	0603860N	Joint Precision Approach and Landing Systems - Dem/Val	04	95,097	137,369			137,369	205,615	U
71	0603889N	Counterdrug RDT&E Projects	04	7,354						U
72	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	71,738	73,934			73,934	37,227	U
73	0604279N	ASE Self-Protection Optimization	04	676	711			711	169	U
74	0604653N	Joint Counter Radio Controlled IED Electronic Warfare (JCREW)	04	60,853	71,300			71,300	20,874	U

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
75	0604659N	Precision Strike Weapons Development Program	04	3,381	5,654			5,654	2,257	U
76	0604707N	Space and Electronic Warfare (SEW) Architecture/ Engineering Support	04	39,250	31,549			31,549	38,327	U
77	0604786N	Offensive Anti-Surface Warfare Weapon Development	04		86,801			86,801	135,985	U
78	0605812M	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	04		44,500			44,500	50,362	U
79	0303354N	ASW Systems Development - MIP	04	1,078	13,172			13,172	8,448	U
80	0304270N	Electronic Warfare Development - MIP	04	11,775	643			643	153	U
		Advanced Component Development & Prototypes		4,361,733	4,335,297	4,600		4,339,897	4,641,385	
81	0604212N	Other Helo Development	05	41,473	33,978			33,978	40,558	U
82	0604214N	AV-8B Aircraft - Eng Dev	05	22,810	32,789			32,789	35,825	U
83	0604215N	Standards Development	05	47,406	84,988			84,988	99,891	U
84	0604216N	Multi-Mission Helicopter Upgrade Development	05	16,876	6,866			6,866	17,565	U
85	0604218N	Air/Ocean Equipment Engineering	05	5,492	4,060			4,060	4,026	U
86	0604221N	P-3 Modernization Program	05	3,294	3,451			3,451	1,791	U
87	0604230N	Warfare Support System	05	9,761	13,071			13,071	11,725	U
88	0604231N	Tactical Command System	05	75,683	71,645			71,645	68,463	U
89	0604234N	Advanced Hawkeye	05	129,414	119,065			119,065	152,041	U
90	0604245N	H-1 Upgrades	05	65,617	31,105			31,105	47,123	U
91	0604261N	Acoustic Search Sensors	05	49,353	34,299			34,299	30,208	U
92	0604262N	V-22A	05	71,938	54,412			54,412	43,084	U

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
93	0604264N	Air Crew Systems Development	05	2,620	2,717			2,717	11,401	U
94	0604269N	EA-18	05	14,770	13,009			13,009	11,138	U
95	0604270N	Electronic Warfare Development	05	93,692	51,304			51,304	34,964	U
96	0604273N	VH-71A Executive Helo Development	05	58,994	61,163			61,163	94,238	U
97	0604274N	Next Generation Jammer (NGJ)	05	160,793	187,024			187,024	257,796	U
98	0604280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05	601,347	337,480			337,480	3,302	U
99	0604307N	Surface Combatant Combat System Engineering	05	211,968	260,616			260,616	240,298	U
100	0604311N	LPD-17 Class Systems Integration	05	858	824			824	1,214	U
101	0604329N	Small Diameter Bomb (SDB)	05	23,188	31,064			31,064	46,007	U
102	0604366N	Standard Missile Improvements	05	55,546	63,891			63,891	75,592	U
103	0604373N	Airborne MCM	05	48,614	73,246			73,246	117,854	U
104	0604376M	Marine Air Ground Task Force (MAGTF) Electronic Warfare (EW) for Aviation	05		10,568			10,568	10,080	U
105	0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05	28,279	39,974			39,974	21,413	U
106	0604404N	Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) System	05	71,182	122,481			122,481	146,683	U
107	0604501N	Advanced Above Water Sensors	05	245,946	255,516			255,516	275,871	U
108	0604503N	SSN-688 and Trident Modernization	05	89,083	82,620			82,620	89,672	U
109	0604504N	Air Control	05	6,116	5,633			5,633	13,754	U
110	0604512N	Shipboard Aviation Systems	05	47,903	55,826			55,826	69,615	U

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
111	0604518N	Combat Information Center Conversion	05	3,315	918			918		U
112	0604558N	New Design SSN	05	109,117	165,230			165,230	121,566	U
113	0604562N	Submarine Tactical Warfare System	05	47,318	49,141			49,141	49,143	U
114	0604567N	Ship Contract Design/ Live Fire T&E	05	121,008	196,737			196,737	155,254	U
115	0604574N	Navy Tactical Computer Resources	05	3,003	3,889			3,889	3,689	U
116	0604601N	Mine Development	05	3,874	8,335			8,335	5,041	U
117	0604610N	Lightweight Torpedo Development	05	25,457	49,818			49,818	26,444	U
118	0604654N	Joint Service Explosive Ordnance Development	05	11,954	10,099			10,099	8,897	U
119	0604703N	Personnel, Training, Simulation, and Human Factors	05	12,552	7,348			7,348	6,233	U
120	0604727N	Joint Standoff Weapon Systems	05	7,303	5,518			5,518	442	U
121	0604755N	Ship Self Defense (Detect & Control)	05	71,094	87,662			87,662	130,360	U
122	0604756N	Ship Self Defense (Engage: Hard Kill)	05	20,041	64,079			64,079	50,209	U
123	0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05	179,033	151,489			151,489	164,799	U
124	0604761N	Intelligence Engineering	05	2,196					1,984	U
125	0604771N	Medical Development	05	32,118	12,707	2,173		14,880	9,458	U
126	0604777N	Navigation/ID System	05	38,389	47,764			47,764	51,430	U
127	0604800M	Joint Strike Fighter (JSF) - EMD	05	617,695	737,149			737,149	512,631	U
128	0604800N	Joint Strike Fighter (JSF) - EMD	05	632,042	743,926			743,926	534,187	U
129	0605013M	Information Technology Development	05	19,080	12,143			12,143	5,564	U
130	0605013N	Information Technology Development	05	28,919	72,209			72,209	69,659	U

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
131	0605018N	Navy Integrated Military Human Resources System (N-IMHRS)	05	2,367						U
132	0605212N	CH-53K RDTE	05	606,255	606,204			606,204	503,180	U
133	0605450N	Joint Air-to-Ground Missile (JAGM)	05	108,395					5,500	U
134	0605500N	Multi-mission Maritime Aircraft (MMA)	05	595,532	421,102			421,102	317,358	U
135	0204202N	DDG-1000	05	249,780	124,655			124,655	187,910	U
136	0304231N	Tactical Command System - MIP	05	979	1,170			1,170	2,140	U
137	0304785N	Tactical Cryptologic Systems	05	31,740	23,255			23,255	9,406	U
138	0305124N	Special Applications Program	05	100,000					22,800	U
		System Development & Demonstration		5,980,572	5,747,232	2,173		5,749,405	5,028,476	
139	0604256N	Threat Simulator Development	06	27,687	30,790			30,790	43,261	U
140	0604258N	Target Systems Development	06	52,561	59,221			59,221	71,872	U
141	0604759N	Major T&E Investment	06	36,670	35,894			35,894	38,033	U
142	0605126N	Joint Theater Air and Missile Defense Organization	06	2,896	7,573			7,573	1,352	U
143	0605152N	Studies and Analysis Support - Navy	06	18,431	20,963			20,963	5,566	U
144	0605154N	Center for Naval Analyses	06	46,312	46,856			46,856	48,345	U
145	0605502N	Small Business Innovative Research	06	325,202						U
146	0605804N	Technical Information Services	06	1,230	796			796	637	U
147	0605853N	Management, Technical & International Support	06	56,441	32,782			32,782	76,585	U
148	0605856N	Strategic Technical Support	06	3,192	3,306			3,306	3,221	U

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
149	0605861N	RDT&E Science and Technology Management	06	72,778	70,302			70,302	72,725	U
150	0605863N	RDT&E Ship and Aircraft Support	06	134,087	144,033			144,033	141,778	U
151	0605864N	Test and Evaluation Support	06	333,344	342,298			342,298	331,219	U
152	0605865N	Operational Test and Evaluation Capability	06	16,464	16,399			16,399	16,565	U
153	0605866N	Navy Space and Electronic Warfare (SEW) Support	06	4,152	4,579	5,200		9,779	3,265	U
154	0605867N	SEW Surveillance/Reconnaissance Support	06	7,642	8,000			8,000	7,134	U
155	0605873M	Marine Corps Program Wide Support	06	26,303	18,490			18,490	24,082	U
156	0305885N	Tactical Cryptologic Activities	06	1,198	2,795			2,795	497	U
157	0909999N	Financing for Cancelled Account Adjustments	06	441						U
		Management Support		1,167,031	845,077	5,200		850,277	886,137	
159	0604227N	HARPOON Modifications	07						699	U
160	0604402N	Unmanned Combat Air Vehicle (UCAV) Advanced Component and Prototype Development	07	202,188	142,282			142,282	20,961	U
161	0604717M	Marine Corps Combat Services Support	07	392						U
162	0604766M	Marine Corps Data Systems	07	1,617					35	U
163	0605525N	Carrier Onboard Delivery (COD) Follow On	07						2,460	U
164	0605555N	Strike Weapons Development	07						9,757	U
165	0101221N	Strategic Sub & Weapons System Support	07	87,454	105,892			105,892	98,057	U
166	0101224N	SSBN Security Technology Program	07	32,464	34,729			34,729	31,768	U
167	0101226N	Submarine Acoustic Warfare Development	07	6,210	1,434			1,434	1,464	U

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
168	0101402N	Navy Strategic Communications	07	24,075	19,208			19,208	21,729	U
169	0203761N	Rapid Technology Transition (RTT)	07	32,959	25,566			25,566	13,561	U
170	0204136N	F/A-18 Squadrons	07	148,313	188,299			188,299	131,118	U
171	0204152N	E-2 Squadrons	07	11,276	8,610			8,610	1,971	U
172	0204163N	Fleet Telecommunications (Tactical)	07	2,035	15,695			15,695	46,155	U
173	0204228N	Surface Support	07	3,292	4,171			4,171	2,374	U
174	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07	8,581	11,265			11,265	12,407	U
175	0204311N	Integrated Surveillance System	07	29,275	45,922			45,922	41,609	U
176	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07	5,085	8,435			8,435	7,240	U
177	0204460M	Ground/Air Task Oriented Radar (G/ATOR)	07		75,088			75,088	78,208	U
178	0204571N	Consolidated Training Systems Development	07	38,055	20,229			20,229	45,124	U
179	0204574N	Cryptologic Direct Support	07	1,447	1,756			1,756	2,703	U
180	0204575N	Electronic Warfare (EW) Readiness Support	07	17,686	19,843			19,843	19,563	U
181	0205601N	HARM Improvement	07	11,748	11,477			11,477	13,586	U
182	0205604N	Tactical Data Links	07	62,367	118,818			118,818	197,538	U
183	0205620N	Surface ASW Combat System Integration	07	28,927	27,342			27,342	31,863	U
184	0205632N	MK-48 ADCAP	07	45,130	28,717			28,717	12,806	U
185	0205633N	Aviation Improvements	07	101,135	89,157			89,157	88,607	U
186	0205658N	Navy Science Assistance Program	07	1,937	3,450			3,450		U

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
187	0205675N	Operational Nuclear Power Systems	07	82,705	86,435			86,435	116,928	U
188	0206313M	Marine Corps Communications Systems	07	313,832	219,054			219,054	178,753	U
189	0206623M	Marine Corps Ground Combat/Supporting Arms Systems	07	153,435	181,693			181,693	139,594	U
190	0206624M	Marine Corps Combat Services Support	07	45,803	58,393	6,762		65,155	42,647	U
191	0206625M	USMC Intelligence/Electronic Warfare Systems (MIP)	07	19,627	22,966			22,966	34,394	U
192	0207161N	Tactical AIM Missiles	07	8,463	21,107			21,107	39,159	U
193	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	2,803	2,857			2,857	2,613	U
194	0208058N	Joint High Speed Vessel (JHSV)	07	3,991	1,932			1,932	986	U
199	0303109N	Satellite Communications (SPACE)	07	258,812	188,482			188,482	66,231	U
200	0303138N	Consolidated Afloat Network Enterprise Services (CANES)	07	24,039	16,749			16,749	24,476	U
201	0303140N	Information Systems Security Program	07	38,747	26,307			26,307	23,531	U
202	0303150M	WWMCCS/Global Command and Control System	07	1,226	500			500		U
203	0303238N	Consolidated Afloat Network Enterprise Services (CANES) - MIP	07	6,602						U
205	0305149N	COBRA JUDY	07	40,605	17,091			17,091		U
206	0305160N	Navy Meteorological and Ocean Sensors-Space (METOC)	07	820	810			810	742	U
207	0305192N	Military Intelligence Program (MIP) Activities	07	4,099	8,617			8,617	4,804	U
208	0305204N	Tactical Unmanned Aerial Vehicles	07	9,353	9,066			9,066	8,381	U
209	0305206N	Airborne Reconnaissance Systems	07	20,000						U

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
210	0305207N	Manned Reconnaissance Systems	07		30,654			30,654		U
211	0305208M	Distributed Common Ground/Surface Systems	07	22,309	25,917			25,917	5,535	U
212	0305208N	Distributed Common Ground/Surface Systems	07	27,495	14,676			14,676	19,718	U
213	0305220N	RQ-4 UAV	07	548,617	657,483			657,483	375,235	U
214	0305231N	MQ-8 UAV	07	110,011	99,600			99,600	48,713	U
215	0305232M	RQ-11 UAV	07	979	495			495	102	U
216	0305233N	RQ-7 UAV	07	872	863	7,600		8,463	710	U
217	0305234N	Small (Level 0) Tactical UAS (STUASL0)	07	20,287	9,734			9,734	5,013	U
218	0305237N	Medium Range Maritime UAS	07	13,237						U
219	0305239M	RQ-21A	07	24,201	22,343			22,343	11,122	U
220	0305241N	Multi-Intelligence Sensor Development	07						28,851	U
221	0308601N	Modeling and Simulation Support	07	8,072	5,908			5,908	5,116	U
222	0702207N	Depot Maintenance (Non-IF)	07	24,473	27,391			27,391	28,042	U
223	0708011N	Industrial Preparedness	07	51,778	54,879			54,879	50,933	U
224	0708730N	Maritime Technology (MARITECH)	07	3,923	5,000			5,000	4,998	U
9999	9999999999	Classified Programs		1,341,748	1,151,159	33,784		1,184,943	1,185,132	U
		Operational Systems Development		4,136,612	3,975,546	48,146		4,023,692	3,385,822	
225	0901560N	Continuing Resolution Programs	20		965,264			965,264		U
		Undistributed			965,264			965,264		

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Department of the Navy
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

27 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
--	------	----	---	----------	----------	----------	----------	----------	----------	-
Total Research, Development, Test & Eval, Navy				17,723,271	17,848,141	60,119		17,908,260	15,974,780	

R-1C: FY 2014 President's Budget (Published Version), as of February 27, 2013 at 13:28:53
* Reflects the FY 2013 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level

THIS PAGE INTENTIONALLY LEFT BLANK

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

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 1319: Research, Development, Test & Evaluation, Navy

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
27	04	0603207N	Air/Ocean Tactical Applications	Volume 2 - 1
28	04	0603216N	Aviation Survivability	Volume 2 - 63
29	04	0603237N	Deployable JT Cmd & Control	Volume 2 - 89
30	04	0603251N	(U)AIRCRAFT SYSTEMS	Volume 2 - 97
31	04	0603254N	ASW Systems Development	Volume 2 - 111
32	04	0603261N	Tactical Airborne Reconnaissance	Volume 2 - 125
33	04	0603382N	Advanced Combat Systems Tech	Volume 2 - 139
34	04	0603502N	Surface & Shallow Water MCM	Volume 2 - 151
35	04	0603506N	Surface Ship Torpedo Defense	Volume 2 - 213
36	04	0603512N	Carrier Systems Development	Volume 2 - 229
37	04	0603525N	(U)PILOT FISH	Volume 2 - 267
38	04	0603527N	(U)RETRACT LARCH	Volume 2 - 269
39	04	0603536N	(U)RETRACT JUNIPER	Volume 2 - 271
40	04	0603542N	Radiological Control	Volume 2 - 273
41	04	0603553N	Surface ASW	Volume 2 - 287

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 1319: Research, Development, Test & Evaluation, Navy

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
42	04	0603561N	Advanced Submarine System Development	Volume 2 - 299
43	04	0603562N	Submarine Tactical Warfare Sys	Volume 2 - 339
44	04	0603563N	Ship Concept Advanced Design	Volume 2 - 357
45	04	0603564N	Ship Prel Design & Feasibility Studies	Volume 2 - 373
46	04	0603570N	Advanced Nuclear Power Systems	Volume 2 - 391
47	04	0603573N	Advanced Surface Machinery Sys	Volume 2 - 399
48	04	0603576N	(U)CHALK EAGLE	Volume 2 - 411
49	04	0603581N	Littoral Combat Ship (LCS)	Volume 2 - 413
50	04	0603582N	Combat System Integration	Volume 2 - 467
51	04	0603609N	Conventional Munitions	Volume 2 - 499
52	04	0603611M	Marine Corps Assault Vehicles	Volume 2 - 505
53	04	0603635M	Marine Corps Grnd Cmbt/Supt Sys	Volume 2 - 517
54	04	0603654N	JT Service Explosive Ordn Dev	Volume 2 - 535
55	04	0603658N	Cooperative Engagement	Volume 2 - 565
56	04	0603713N	Ocean Engineering Tech Dev	Volume 2 - 581
57	04	0603721N	Environmental Protection	Volume 2 - 597
58	04	0603724N	Navy Energy Program	Volume 2 - 625
59	04	0603725N	Facilities Improvement	Volume 2 - 661

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 1319: Research, Development, Test & Evaluation, Navy

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
60	04	0603734N	(U)CHALK CORAL	Volume 2 - 685
61	04	0603739N	Navy Logistic Productivity	Volume 2 - 687
62	04	0603746N	(U)RETRACT MAPLE	Volume 2 - 709
63	04	0603748N	(U)LINK PLUMERIA	Volume 2 - 711
64	04	0603751N	(U)RETRACT ELM	Volume 2 - 713
65	04	0603764N	(U)LINK EVERGREEN	Volume 2 - 715
66	04	0603787N	(U)SPECIAL PROCESSES	Volume 2 - 717
67	04	0603790N	NATO Research and Deve	Volume 2 - 719
68	04	0603795N	Land Attack Tech	Volume 2 - 725
69	04	0603851M	Joint Non-Lethal Weapons Testing	Volume 2 - 735
70	04	0603860N	JT Precision Approach & Ldg Sys	Volume 2 - 747
71	04	0603889N	Counterdrug RDT&E Projects	Volume 2 - 773
72	04	0604272N	Tact Air Dir Infrared CM (TADIRCM)	Volume 2 - 777
73	04	0604279N	(U)ASE Self Protection Optimization	Volume 2 - 797
74	04	0604653N	JT Cntr Radio Controlled IED Elec War (JCREW)	Volume 2 - 805
75	04	0604659N	(U)Precision Strike Weapons Development Program	Volume 2 - 813
76	04	0604707N	SEW Architecture/Eng Support	Volume 2 - 821
77	04	0604786N	(U)Offensive Anti-Surface Warfare Weapon Dev	Volume 2 - 863

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 1319: Research, Development, Test & Evaluation, Navy

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
78	04	0605812M	(U)Joint Light Tactical Vehicle(JLTV) EMD	Volume 2 - 873
79	04	0303354N	ASW Systems Development - MIP	Volume 2 - 883
80	04	0304270N	Electronic Warfare Development - MIP	Volume 2 - 891

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

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
(U)AIRCRAFT SYSTEMS	0603251N	30	04	Volume 2 - 97
(U)ASE Self Protection Optimization	0604279N	73	04	Volume 2 - 797
(U)CHALK CORAL	0603734N	60	04	Volume 2 - 685
(U)CHALK EAGLE	0603576N	48	04	Volume 2 - 411
(U)Joint Light Tactical Vehicle(JLTV) EMD	0605812M	78	04	Volume 2 - 873
(U)LINK EVERGREEN	0603764N	65	04	Volume 2 - 715
(U)LINK PLUMERIA	0603748N	63	04	Volume 2 - 711
(U)Offensive Anti-Surface Warfare Weapon Dev	0604786N	77	04	Volume 2 - 863
(U)PILOT FISH	0603525N	37	04	Volume 2 - 267
(U)Precision Strike Weapons Development Program	0604659N	75	04	Volume 2 - 813
(U)RETRACT ELM	0603751N	64	04	Volume 2 - 713
(U)RETRACT JUNIPER	0603536N	39	04	Volume 2 - 271
(U)RETRACT LARCH	0603527N	38	04	Volume 2 - 269
(U)RETRACT MAPLE	0603746N	62	04	Volume 2 - 709
(U)SPECIAL PROCESSES	0603787N	66	04	Volume 2 - 717
ASW Systems Development	0603254N	31	04	Volume 2 - 111
ASW Systems Development - MIP	0303354N	79	04	Volume 2 - 883

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Advanced Combat Systems Tech	0603382N	33	04	Volume 2 - 139
Advanced Nuclear Power Systems	0603570N	46	04	Volume 2 - 391
Advanced Submarine System Development	0603561N	42	04	Volume 2 - 299
Advanced Surface Machinery Sys	0603573N	47	04	Volume 2 - 399
Air/Ocean Tactical Applications	0603207N	27	04	Volume 2 - 1
Aviation Survivability	0603216N	28	04	Volume 2 - 63
Carrier Systems Development	0603512N	36	04	Volume 2 - 229
Combat System Integration	0603582N	50	04	Volume 2 - 467
Conventional Munitions	0603609N	51	04	Volume 2 - 499
Cooperative Engagement	0603658N	55	04	Volume 2 - 565
Counterdrug RDT&E Projects	0603889N	71	04	Volume 2 - 773
Deployable JT Cmd & Control	0603237N	29	04	Volume 2 - 89
Electronic Warfare Development - MIP	0304270N	80	04	Volume 2 - 891
Environmental Protection	0603721N	57	04	Volume 2 - 597
Facilities Improvement	0603725N	59	04	Volume 2 - 661
JT Cntr Radio Controlled IED Elec War (JCREW)	0604653N	74	04	Volume 2 - 805
JT Precision Approach & Ldg Sys	0603860N	70	04	Volume 2 - 747
JT Service Explosive Ordn Dev	0603654N	54	04	Volume 2 - 535
Joint Non-Lethal Weapons Testing	0603851M	69	04	Volume 2 - 735

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
Land Attack Tech	0603795N	68	04	Volume 2 - 725
Littoral Combat Ship (LCS)	0603581N	49	04	Volume 2 - 413
Marine Corps Assault Vehicles	0603611M	52	04	Volume 2 - 505
Marine Corps Grnd Cmbt/Supt Sys	0603635M	53	04	Volume 2 - 517
NATO Research and Deve	0603790N	67	04	Volume 2 - 719
Navy Energy Program	0603724N	58	04	Volume 2 - 625
Navy Logistic Productivity	0603739N	61	04	Volume 2 - 687
Ocean Engineering Tech Dev	0603713N	56	04	Volume 2 - 581
Radiological Control	0603542N	40	04	Volume 2 - 273
SEW Architecture/Eng Support	0604707N	76	04	Volume 2 - 821
Ship Concept Advanced Design	0603563N	44	04	Volume 2 - 357
Ship Prel Design & Feasibility Studies	0603564N	45	04	Volume 2 - 373
Submarine Tactical Warfare Sys	0603562N	43	04	Volume 2 - 339
Surface & Shallow Water MCM	0603502N	34	04	Volume 2 - 151
Surface ASW	0603553N	41	04	Volume 2 - 287
Surface Ship Torpedo Defense	0603506N	35	04	Volume 2 - 213
Tact Air Dir Infrared CM (TADIRCM)	0604272N	72	04	Volume 2 - 777
Tactical Airborne Reconnaissance	0603261N	32	04	Volume 2 - 125

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	572.743	46.274	34.085	42.246	-	42.246	46.862	44.387	46.550	48.038	Continuing	Continuing
2341: *METOC Data Acquisition*	143.699	5.921	6.702	6.336	-	6.336	6.909	6.838	6.990	7.087	Continuing	Continuing
2342.: *METOC Data Assimilation and Mod*	164.133	10.295	14.127	15.235	-	15.235	18.646	19.072	21.637	21.961	Continuing	Continuing
2343: *Tactical METOC Applications*	108.168	9.323	9.172	8.908	-	8.908	11.195	15.690	15.500	16.529	Continuing	Continuing
2344.: *Precise Time and Astrometry*	37.915	0.999	3.043	8.914	-	8.914	7.223	1.682	1.299	1.317	Continuing	Continuing
3207: *Fleet Synthetic Training*	0.943	0.936	1.041	2.853	-	2.853	2.889	1.105	1.124	1.144	Continuing	Continuing
3229: *JMAPS*	117.885	18.800	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	136.685

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Air Ocean Tactical Applications (AOTA) Program Element is aligned with the Navy's maritime strategy to enhance the future mission capabilities of the Navy-Marine Corps Meteorological and Oceanographic (METOC) Team supporting naval warfighters worldwide. New state-of-the art government and commercial technologies are identified, transitioned, demonstrated and then integrated into Combat Systems and programs of record to provide capabilities that provide real-time and near-real-time operational effects of the physical environment on the performance of combat forces and their new and emerging platforms, sensors, systems and munitions. The AOTA program element focuses on sensing and characterizing and predicting the littoral and deep-strike battlespace in the context of regional conflicts and crisis response scenarios. Projects in this program element transition state-of-the art sensing, assimilation, modeling and decision aid technologies from government and commercial sources. Unique project development efforts include atmospheric and oceanographic data assimilation techniques, forecast models, data base management systems and associated software for use in mainframe, desktop and laptop computers. Model data, products and services can be used by forward-deployed personnel or in a reach-back mode to optimize sensor placement and force allocation decisions. Global Geospatial Information and Services efforts within this program address the bathymetric needs of the Navy. Also developed are algorithms to process new satellite sensor data for integration into Navy and Marine Corps decision support systems and for display as part of the common operational and tactical pictures. In addition, the projects provide for demonstration and validation of specialized atmospheric and oceanographic instrumentation and measurement techniques, new sensors, communications and interfaces. Included are new capabilities to assess, predict and enhance the performance of current and emerging undersea warfare and mine warfare weapons systems. AOTA capabilities are designed to support the latest versions of the Global Command and Control System and specific unit-level combat systems. This program element develops technological upgrades for the U.S. Naval Observatory's Master Clock system to meet requirements of Department of Defense communications, cryptographic, intelligence, geolocation, and targeting systems; develops near-real-time earth orientation predictions; develops very precise determination of positions of both faint and bright stars; and supports satellite tracking and space debris studies.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*

Major emphasis areas include the Naval Integrated Tactical Environmental System Next Generation (NITES-Next) and the METOC Future Mission Capabilities, the METOC Space-Based Sensing Capabilities, the Precise Timing and Astrometry, the Fleet Synthetic Training, the Tactical Oceanographic Capabilities for Under Sea Warfare and the Earth System Prediction Capability projects.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	84.962	34.085	30.931	-	30.931
Current President's Budget	46.274	34.085	42.246	-	42.246
Total Adjustments	-38.688	0.000	11.315	-	11.315
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-37.898	0.000			
• SBIR/STTR Transfer	-0.790	0.000			
• Program Adjustments	0.000	0.000	7.905	-	7.905
• Rate/Misc Adjustments	0.000	0.000	3.410	-	3.410

Change Summary Explanation

Technical: Added funding to Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program development efforts in FY14.
FY14 funding added for technical development, shipboard installation, and additional personnel required to conduct Fleet Synthetic Training (FST) at sea for Ballistic Missile Defense (BMD).
Beginning in FY14 the Ocean Observing System Security Group (OOSSG) will begin to design, develop, demonstrate and transition a geospatially-enabled global ocean observing system database designed to characterize national and international ocean observatories locations, sensor grid capabilities and mitigations to address potential U.S. submarine security vulnerabilities.
Schedule: The schedule for the NITES-Next program of record has been updated to reflect the programs development efforts after FY13.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2341: *METOC Data Acquisition*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2341: *METOC Data Acquisition*	143.699	5.921	6.702	6.336	-	6.336	6.909	6.838	6.990	7.087	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

Littoral Battlespace Sensing, Unmanned Undersea Vehicles (LBS-UUV) FY 2012 efforts continued in PE 0604218N (Air/Ocean Equipment Engineering) project 2345 (Fleet METOC Equipment).

A. Mission Description and Budget Item Justification

The major thrust of the Meteorology and Oceanography (METOC) Data Acquisition Project is to provide future mission capabilities to warfighters that will allow them to detect and monitor the conditions of the physical environment throughout the entire battlespace. New sensor technologies (including unmanned vehicles, tactical sensor exploitation, in-situ sensors) identified as the most promising candidates are transitioned from the government's and commercial industry's technology base. These new sensor technologies are demonstrated, validated and integrated into operational programs for warfighters. These new sensor capabilities provide timely and accurate METOC data and products to operational and tactical commanders. METOC data requirements have likewise evolved as the emphasis on naval warfare has evolved from blue water operations to the littoral and deep strike battlespace. The littoral and deep strike regions typically have dynamic and complex oceanographic and atmospheric conditions. The need to accurately characterize these conditions is more crucial than ever in planning and executing warfare operations and effectively allocating force weapon and sensor systems. Routinely available data sources, such as climatology, oceanographic and meteorological numerical models, and satellite remote sensing are necessary but not sufficient to support these warfare areas in the littoral and deep strike regions. Operational sensors are deployed great distances from the target area of interest. The challenge is to collect and disseminate METOC data in variable and dynamic littoral environmental conditions or in denied, remote or inaccessible areas over extended periods of time. This project: 1) provides the means to rapidly and automatically acquire a broad array of METOC data using both off-board and on-board sensors; 2) provides an on-scene assessment capability for the tactical commander; 3) provides the tactical commander with real-time METOC data and products for operational use; 4) demonstrates and validates the use of tactical workstations and desktop computers for processing and display of METOC data and products; 5) demonstrates and validates techniques which employ data compression, connectivity and interface technologies to obtain, store, process, distribute and display these METOC data and products; 6) develops new charting and bathymetric survey techniques necessary to reduce the existing shortfall in coastal hydrographic survey requirements; 7) develops an expanded database for predictive METOC models in areas of interest; and 8) supports the development of radar weather using through-the-sensor techniques.

Major emphasis areas include the METOC Future Mission Capabilities (FMC) and the Tactical Oceanographic Capabilities project.

FY 2014 request provides for continued advanced development of software and hardware component and prototype efforts associated with acquiring environmental data, and METOC data dissemination, storage, delivery, design, development efforts, and develop METOC network integration capability.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2341: *METOC Data Acquisition*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	5.609	6.390	5.984
Articles:	0	0	0
FY 2012 Accomplishments: Continued advanced component and prototype efforts associated with acquiring environmental data. Continued to develop advanced data measurement and survey techniques that capture measurement uncertainties in order to provide warfare commanders with an accurate assessment of uncertainty in sensor performance prediction products and services. Continued development of improved data quality control technologies and the automation of data acquisition processes. Continued to develop advanced technologies and techniques to improve Geospatial Information and Services (GI&S) capabilities within Navy Meteorological & Oceanography (METOC) production centers and throughout the fleet user base. Developed advanced data acquisition, data processing and analysis techniques for GI&S, oceanographic and atmospheric data and information. Developed METOC data and product delivery technologies.			
FY 2013 Plans: Continue advanced component and prototype development efforts associated with acquiring environmental data and develop advanced techniques for data measurement and survey techniques that capture measurement uncertainties in order to provide warfare commanders with an accurate assessment of uncertainty in sensor performance prediction products and services. Continue development of improved data quality control technologies and the automation of data acquisition processes and develop advanced technologies and techniques to improve GI&S capabilities within Navy METOC product production centers and throughout the fleet user base. Continue to develop technologies that use tactical detection systems where applicable to characterize undersea and atmospheric environment in the battlespace. Begin Through-the-Sensor (TTS) development and demonstration. Develop METOC network integration capability and continue to develop systems engineering plans, requirements, standards, studies, and other documentation supporting integration of these products.			
FY 2014 Plans: Continue advanced component and prototype development efforts associated with acquiring environmental data and develop advanced techniques for data measurement and survey techniques that capture measurement uncertainties in order to provide warfare commanders with an accurate assessment of uncertainty in sensor performance prediction products and services. Continue to develop technologies that use tactical detection systems where applicable to characterize undersea and atmospheric environment in the battlespace. Develop and demonstrate in-situ sampling techniques to support adaptive and advance measurement technologies. Develop techniques to improve delivery of GI&S within Navy METOC product production centers and throughout the fleet user base. Continue TTS development and demonstration. Continue to develop METOC systems engineering plans, requirements, standards, studies, and other documentation supporting integration of these products.			
Title: Tactical Oceanography Capabilities / Undersea Warfare (USW)	0.312	0.312	0.352
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2341: *METOC Data Acquisition*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: Continued to transition models, algorithms and databases that either calculate accurate acoustic transmission loss (TL) or characterize environmental parameters that affect TL and developed TL calculation implementations. Continued to develop capabilities to calculate acoustic transmission loss (TL) values in tactical timeframes to include uncertainty quantification of those values. The Navy has canceled all previously funded Ocean Bottom Characterization Initiative (OBCI) activities. ***FY 2013 Plans:*** Continue to transition models, algorithms and databases that either calculate accurate acoustic TL or characterize environmental parameters that affect TL and develop TL calculation implementations. Continue to develop capabilities to calculate acoustic TL values in tactical timeframes to include uncertainty quantification of those values. ***FY 2014 Plans:*** Continue to transition models, algorithms and databases that calculate accurate acoustic TL and characterize environmental parameters that affect TL. Develop TL calculation implementations to be used in the Navy's Anti-Submarine Warfare (ASW) Tactical Decision Aids (TDAs) and sonar trainers. Continue to develop capabilities to rapidly calculate acoustic TL values within tactical timeframes to include environmental uncertainty quantification of those values.			
Accomplishments/Planned Programs Subtotals	5.921	6.702	6.336

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/4226: *METEOROLOGICAL EQUIPMENT*	30.278	18.339	19.118		19.118	19.107	20.297	19.429	21.303	Continuing	Continuing
• RDTEN/0604218N/2345: *FLEET METOC EQUIPMENT*	4.143	2.615	2.611		2.611	2.880	2.824	2.885	2.926	Continuing	Continuing
• RDTEN/0603207N/2342: *METOC DATA ASSIMILATION AND MOD*	10.295	11.127	10.250		10.250	10.890	10.816	11.036	11.170	Continuing	Continuing
• RDTEN/0604218N/2346: *METOC SENSOR ENGINEERING*	1.349	1.445	1.415		1.415	1.513	1.519	1.551	1.570	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603207N: *Air/Ocean Tactical Applications*	**PROJECT** 2341: *METOC Data Acquisition*

D. Acquisition Strategy

Acquisition, management and contracting strategies are to support the meteorological and oceanographic (METOC) Data Acquisition Project to develop, demonstrate, and validate METOC data collection methods and sensors, and to evolve the ability to provide timely and accurate METOC data and products to the Tactical Commander, all with management oversight by the Navy.

E. Performance Metrics

Goal: Develop techniques and tools to acquire METOC data in order to improve the accuracy of global and regional scale meteorological and oceanographic forecast models. Advanced sensor component, data collection, and meteorological, oceanographic and hydrographic survey technique development tasks are directed by Resource Sponsor, with input from external Systems Commands and/or Type Commanders, in response to validated capability gaps or operational fleet requirements. Wherever applicable, and based on favorable Science & Technology (S&T) assessments, tasks shall leverage or transition existing Small Business Innovative Research and/or RDT&E Budget Activity 6.2 - 6.3 S&T work.

Metric -- Tasks will address no less than 75% of applicable capability gaps and requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2341: *METOC Data Acquisition*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	WR	Naval Research Laboartory:Washington, DC	60.501	4.099	Oct 2011	4.790	Oct 2012	4.384	Oct 2013	-		4.384	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	WR	SSC PAC:California	22.033	0.000		0.000		0.000		-		0.000	0.000	22.033	
METOC Future Mission Capabilities	Various	Various:Various	42.421	0.000		0.000		0.000		-		0.000	0.000	42.421	
LBS-G	C/CPIF	Teledyne Brown Eng:Alabama	6.557	0.000		0.000		0.000		-		0.000	0.000	6.557	
METOC Future Mission Capabilities	WR	NPGS:Monterey, CA	0.200	0.200	Oct 2011	0.200	Oct 2012	0.200	Oct 2013	-		0.200	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	C/FP	Penn State University:PA	0.300	0.000		0.000		0.000		-		0.000	0.000	0.300	
Tactical Oceanography Capabilities / Undersea Warfare (TOC USW)	WR	NRL:Washington, DC	1.400	0.000		0.000		0.000		-		0.000	0.000	1.400	
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	C/FP	Hydroid INC:Pocasset, MA	1.865	0.000		0.000		0.000		-		0.000	0.000	1.865	
Tactical Oceanography Capabilities / Undersea Warfare (TOC USW)	C/FP	Univ. of Texas:Texas	1.300	0.000		0.000		0.000		-		0.000	0.000	1.300	
Tactical Oceanography Capabilities / Undersea Warfare (TOC USW)	WR	SSC PAC:California	2.754	0.000		0.000		0.000		-		0.000	0.000	2.754	
Tactical Oceanography Capabilities / Undersea Warfare (TOC USW)	WR	NSWC:Bethesda, MD	0.000	0.112	Dec 2011	0.120	Oct 2012	0.135	Oct 2013	-		0.135	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare (TOC USW)	C/FP	SAIC:Virginia	0.000	0.200	Mar 2012	0.192	Dec 2012	0.217	Dec 2013	-		0.217	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2341: *METOC Data Acquisition*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	C/FP	University of Washington:Seattle, WA	0.000	0.190	Apr 2012	0.250	Dec 2012	0.250	Dec 2013	-		0.250	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	C/FP	Applied Science Associates (ASA):Rhode Island	0.600	0.570	May 2012	0.400	Dec 2012	0.400	Dec 2013	-		0.400	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	C/FP	SAIC:Virginia	0.000	0.350	Dec 2011	0.500	Dec 2012	0.500	Dec 2013	-		0.500	Continuing	Continuing	Continuing
		Subtotal	139.931	5.721		6.452		6.086		0.000		6.086			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	C/CPIF	Various:Various	2.672	0.000		0.000		0.000		-		0.000	0.000	2.672	
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	C/FP	SAIC:Virginia	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	
		Subtotal	3.272	0.000		0.000		0.000		0.000		0.000	0.000	3.272	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	WR	OPTEVFOR:Virginia	0.160	0.000		0.000		0.000		-		0.000	0.000	0.160	
METOC Future Mission Capabilities	MIPR	JITC:Arizona	0.040	0.000		0.000		0.000		-		0.000	0.000	0.040	
		Subtotal	0.200	0.000		0.000		0.000		0.000		0.000	0.000	0.200	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2341: *METOC Data Acquisition*	

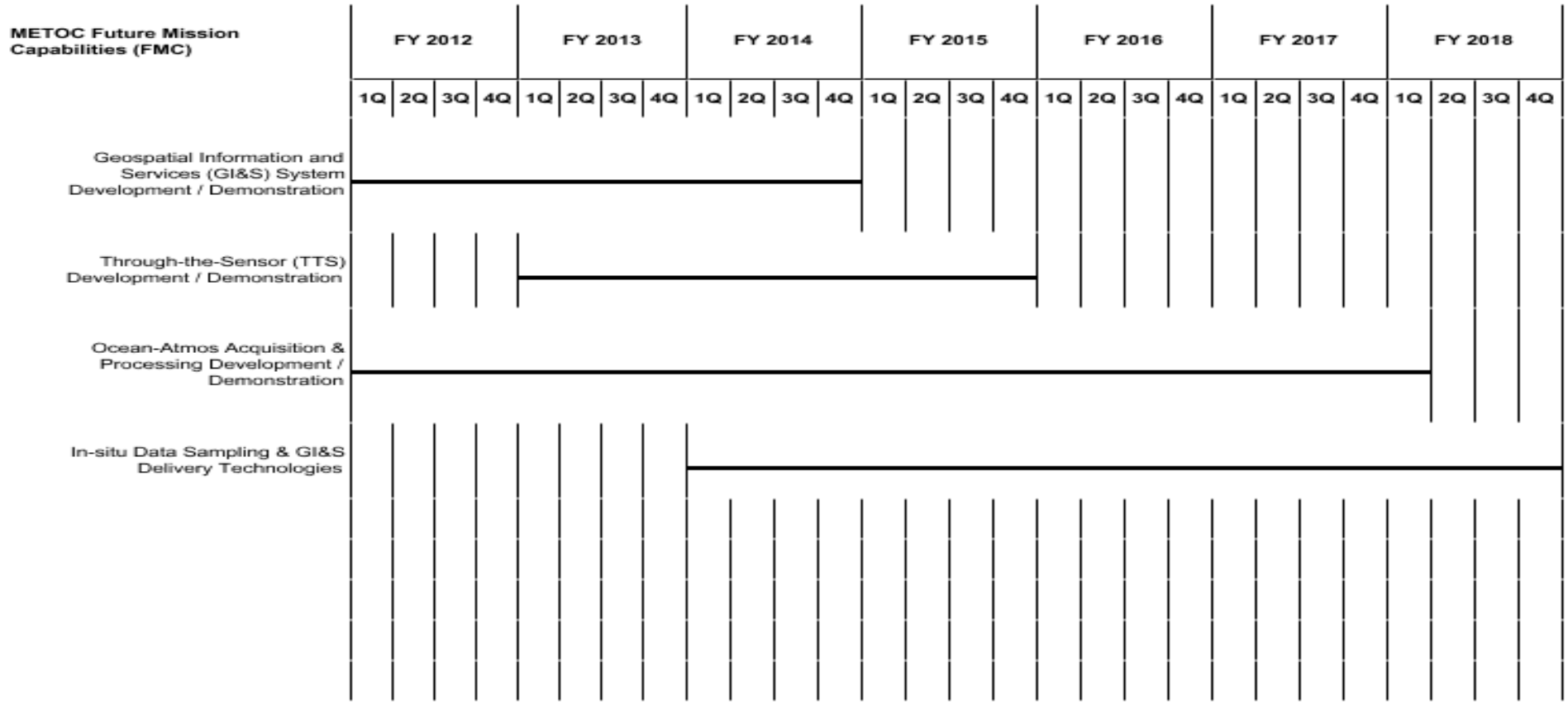
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	Various	Not Specified:Not Specified	0.096	0.000		0.000		0.000		-		0.000	0.000	0.096	
METOC Future Mission Capabilities Management Support	C/FP	BAH:Virginia	0.200	0.200	Nov 2011	0.250	Nov 2012	0.250	Nov 2013	-		0.250	Continuing	Continuing	Continuing
		Subtotal	0.296	0.200		0.250		0.250		0.000		0.250			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	143.699	5.921		6.702		6.336		0.000		6.336			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603207N: *Air/Ocean Tactical Applications*	**PROJECT** 2341: *METOC Data Acquisition*



2014DON - 0603207N - 2341

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603207N: *Air/Ocean Tactical Applications*	**PROJECT** 2341: *METOC Data Acquisition*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
METOC Future Mission Capabilities (FMC)				
Geospatial Information and Services (GI&S) System Development / Demonstration:	1	2012	4	2014
Through-the-Sensor (TTS) Development / Demonstration: FY13-15	1	2013	4	2015
Ocean-Atmos Acquisition & Processing Development / Demonstration: Schedule Detail	1	2012	1	2018
In-situ Data Sampling & GI&S Delivery Technologies: Schedule Detail	1	2014	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2342.: *METOC Data Assimilation and Mod*	164.133	10.295	14.127	15.235	-	15.235	18.646	19.072	21.637	21.961	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Meteorological and Oceanographic (METOC) Data Assimilation Project is a multi-faceted project that provides future mission capabilities for warfighters to characterize the physical environment within their battlespace. This project includes: 1) development, demonstration and validation of software associated with atmospheric and oceanographic data assimilation forecast models and database management systems for use in both mainframe and tactical scale computers. Included are numerical oceanographic and atmospheric models for the Large Scale Computers at the Navy Fleet Numerical Meteorology and Oceanography Center (FNMOC), Monterey, CA and the Naval Oceanographic Office (NAVO), Stennis Space Center, MS. These models, combined with a global communications network for data acquisition and distribution, form a prediction system which provides METOC data and products necessary to support naval operations worldwide in virtually every mission area; 2) other software models, which focus on ocean thermal structure and circulation, and surf and tide prediction; 3) software to process and manage satellite remotely-sensed environmental data at Oceanography Centers ashore and on ships equipped with the AN/SMQ-11 satellite receiver/recorder; 4) future METOC and environmental satellite data readiness and risk reduction preparations to develop hardware and software that will allow ground stations to receive, ingest and exploit satellite data including payload sensor data from the National Polar Orbiting Operational Environmental Satellite System (NPOESS) Preparatory Project (NPP), the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) Polar Systems' Meteorological Operational satellites A & B (METOP-A & B), Joint Polar Satellite System (JPSS), and Defense Meteorological Satellite Program (DMSP). This software allows for the integration and tactical application of significant oceanographic and atmospheric data derived from satellite-borne sensors. Satellite and unmanned sensor data, combined with manned platform data are foundational to a robust numerical weather and oceanographic modeling capability that predicts battlespace conditions impacting fleet and adversary weapon and sensor performance. Included are software and algorithms for the processing of sensor measurements, conversion of raw signal data to geophysical information, analysis schemes encompassing Artificial Intelligence and Expert Systems, and other satellite data applications and field validation of end products; and, 5) a family of acoustic system performance models beginning with active system models and databases in the low-, mid-, and high-frequency regimes and culminating with high fidelity simulation products. As weapons and sensors become more sophisticated and complex, the marine environment has an increasingly significant impact on system performance. Operational limitations induced by the ocean and atmosphere must be understood, and the resulting constraints on mission effectiveness and system employment minimized. Hence, the operating forces require more accurate worldwide forecasts of METOC conditions with increased temporal and spatial resolution. An additional challenge is posed by the emergence of new satellite sensor data. In order to fully exploit this dynamic and massive volume of data, modern Data Base Management Systems are required, and must be tailored for individual computer configurations at both FNMOC and NAVO. Improved representation of smaller-scale phenomena, particularly in the littoral, is also an important consideration. Intelligence Preparation of the Environment Sensor R&D to meet Chief of Naval Operations and Commander, Fleet Forces Command requirements for remote autonomous, clandestine, littoral battlespace sensing in near shore areas in support of Sea Shield & Sea Basing.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603207N: *Air/Ocean Tactical Applications*	**PROJECT** 2342.: *METOC Data Assimilation and Mod*

Major emphasis areas include the METOC Future Mission Capabilities (FMC), the METOC Space-Based Sensing Capabilities, and the Tactical Oceanographic Capabilities / Under Sea Warfare projects (TOC/USW).

FY 2014 request provides for continued advanced software component development and prototype efforts associated with advanced data assimilation into environmental prediction systems (to include development of tactical decision aids and asset allocation tools software), the continued development of advanced oceanographic and atmospheric prediction systems software and architectures to provide improved forecasts and estimates of product accuracies, continued development of improved data fusion techniques, data quality control technologies and accelerate the automation prediction processes, and the development of data assimilation and fusion software technologies for tactical radars, remote sensing and undersea sensor systems.
The Earth System Prediction Capability (ESPC) program provides a more accurate global ocean and atmospheric forecast system with longer skillful forecast times through integrating and coupling atmosphere, ocean, ice, land and near-space forecast models into a seamless prediction system that reduces errors in the current modeling suite. Additionally it will develop a National common modeling architecture to improve cross-Agency collaboration, and a greatly more efficient computational architecture to allow for real-time operational prediction.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	4.558	4.795	4.199
Articles:	0	0	0

FY 2012 Accomplishments:
Continued advanced component development and prototype efforts associated with advanced data assimilation into environmental prediction systems, to include development of tactical decision aids and asset allocation tools. Continued development of advanced oceanographic and atmospheric prediction systems and architectures to provide improved forecasts and estimates of product accuracies. Continued development of improved data fusion techniques, data quality control technologies and accelerate the automation of prediction processes. Continued to develop data assimilation and fusion techniques and technologies for tactical sensors, remote sensing and undersea sensor systems. Continued to develop METOC and Geospatial Information & Services (GI&S) fusion algorithms and demonstrate reach-back fusion capability.

FY 2013 Plans:
Continue development of advanced oceanographic and atmospheric prediction systems and architectures to provide improved forecasts and estimates of product accuracies. Continue development of improved data fusion techniques, data quality control technologies and accelerate the automation of prediction processes using data from tactical sensors, remote sensing and undersea sensor systems. Continue to develop METOC and GI&S fusion algorithms and demonstrate reach-back capability.

FY 2014 Plans:
Continue development of advanced oceanographic and atmospheric prediction systems and architectures to provide improved forecasts and estimates of product accuracies. Continue development of improved data fusion and assimilation techniques, data quality control technologies and accelerate the automation of prediction processes using data from tactical sensors, remote

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
sensing and undersea sensor systems. Continue to develop METOC and GI&S fusion algorithms and demonstrate reach-back capability.			
Title: Meteorological and Oceanographic (METOC) Space-Based Sensing Capabilities	2.787	3.264	2.170
Articles:	0	0	0
FY 2012 Accomplishments: Continued development of the data processing and data assimilation algorithms using National Polar-orbiting Operational Environmental Satellite System Preparatory Project (NPP), Meteorological Operational satellite program (MetOp), and Defense Meteorological Satellite Program (DMSP) satellite data. Continued development of techniques for the assimilation of data from current and future civil, military and international earth observing systems. Conducted research and development of data processing techniques, data assimilation processes and advanced modeling methodologies utilizing satellite sensor data to generate Meteorological & Oceanography (METOC) products. Utilized data from follow-on DoD Satellites to develop METOC products.			
FY 2013 Plans: Continue research and development of data processing and data assimilation algorithms utilizing National Polar-orbiting Operational Environmental Satellite System Preparatory Project (NPP), Meteorological Operational satellite program (MetOp), and Defense Meteorological Satellite Program (DMSP) satellite data. Begin assimilation of Meteorological satellite data from other Federal non-DOD, commercial, and foreign earth observing satellite systems. Prepare to ingest data from Joint Polar Satellite System (JPSS) and Defense Weather Satellite System (DWSS) program satellites.			
FY 2014 Plans: Continue research and development of data processing and data assimilation algorithms utilizing NPP, MetOp, and DMSP satellite data. Continue assimilation of Meteorological satellite data from other Federal non-DOD, commercial, and foreign earth observing satellite systems. Continue preparation to ingest data from JPSS program satellites. Begin research and development of data processing and data assimilation algorithms for the Geostationary Operational Environmental Satellite (GOES) program.			
Title: Tactical Oceanographic Capabilities (TOC) / Undersea Warfare (USW)	2.950	3.068	3.881
Articles:	0	0	0
FY 2012 Accomplishments: Continued visualization and decision tool development that assist USW warfighters to optimally deploy assets equipped with both acoustic and non-acoustic sensors and to take advantage of prevailing environmental conditions. Continued to refine and validate USW-related performance surface and decision products for use afloat and at reachback cells to determine appropriate tactical Courses of Action (COAs) in Anti-Submarine Warfare (ASW). Continued population/upgrade of oceanographic, acoustic and geoacoustic databases in Combatant Commanders' (COCOM) areas of interest. Transitioned algorithms that capture and			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
communicate variability and uncertainty contained in the output of underlying model and data base components of ASW Tactical Decision Aids (TDAs). Expanded capabilities and increased access speed of acoustic surface scattering and loss modules. Populated/upgraded oceanographic and acoustic databases in COCOM areas of interest. Continued development of an ASW Reachback Cell (RBC) ocean model assessment toolkit. Developed methodologies that characterize and forecast bioacoustic volume attenuation and scatter functions as observed by the Navy's active hull-mounted sonar systems. Developed and transition the environmental components of Mine Warfare (MIW) TDAs in use by the U.S. Navy's MIW Forces and Naval Oceanography enterprise (NOe) personnel supporting them. Documented autonomous underwater vehicle (AUV) technology demonstrations that measure in-situ geoacoustic data. Delivered a prototype bottom backscatter database to the Naval Oceanographic Office (NAVOCEANO). Provided technical support to NAVOCEANO in updating bottom loss data bases for sonar performance predictions.			
FY 2013 Plans: Continue decision tool development that assist Undersea Warfare (USW) warfighters to optimally deploy assets equipped with acoustic sensors and to take advantage of prevailing environmental conditions. Continue to refine and validate USW-related performance surface and decision products for use afloat and at reachback cells to determine appropriate tactical COAs in ASW. Continue population/upgrade of oceanographic, acoustic and geoacoustic databases in Combatant Commanders' (COCOM) areas of interest. Transition algorithms that capture and communicate variability and uncertainty contained in the output of underlying model and data base components of ASW Tactical Decision Aids (TDAs). Expand capabilities and increase access speed of acoustic surface scattering and loss modules. Continue development of an Anti-Submarine Warfare (ASW) Reachback Cell (RBC) ocean model assessment toolkit. Continue development of methodologies that characterize and forecast bioacoustic volume attenuation and scatter functions as observed by the Navy's active hull-mounted sonar systems. Continue to develop and transition the environmental components of Mine Warfare (MIW) TDAs in use by the U.S. Navy's MIW Forces and Naval Oceanography enterprise (NOe) personnel supporting them.			
FY 2014 Plans: Continue to develop the underlying acoustic and environmental software components of Navy decision tools that assist USW warfighters to optimally deploy assets equipped with acoustic sensors and to take advantage of prevailing environmental conditions. Verify, validate and transition this software technology through the Oceanographic and Atmospheric Master Library (OAML). Continue to refine and validate USW-related performance surface and decision support software applications for use afloat and at ASW RBCs to determine appropriate tactical COAs in ASW. Continue population/upgrade of oceanographic, acoustic and geoacoustic databases in COCOM areas of interest. Transition software algorithms that capture and communicate variability and uncertainty contained in the output of underlying model and data base components of ASW TDAs. Expand capabilities and increase access speed of acoustic surface scattering and loss modules. Continue development of an ASW RBC ocean software model assessment toolkit. Continue development of software-based methodologies that characterize and forecast bioacoustic volume attenuation and scatter functions as observed by the Navy's active hull-mounted sonar systems. Continue to develop and			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
transition the environmental software components of MIW TDAs in use by the U.S. Navy's MIW Forces and Naval NOe personnel supporting them. Provide technical support to the Naval Oceanographic Office (NAVOCEANO) in updating geoacoustic bottom loss & scatter, as well as acoustic clutter data bases for sonar performance predictions. Begin to design, develop, demonstrate and transition a geospatially-enabled global ocean observing system database through the Ocean Observing System Security Group (OOSSG) designed to characterize national and international ocean observatories locations, sensor grid capabilities and mitigations to address potential U.S. submarine security vulnerabilities.			
Title: Earth System Prediction Capability (ESPC) ***Articles:*** ***FY 2013 Plans:*** The Earth System Prediction Capability (ESPC) program provides a more accurate global ocean and atmospheric forecast system with common modeling architecture to improve cross-Agency collaboration, and a greatly more efficient computational architecture to allow for real-time operational prediction. In 2013, a common model architecture and standards will be initiated, demonstration plans will be developed, and science workshops and early benchmark testing will be conducted. Long range program goal is advanced skillful forecast (relative to averaged climatology) from the operational capability, currently 7-10 days, to 30 days and longer. Provides the Navy component to match a National R&D initiative across the major U.S. National Operational Prediction Centers at Navy, NOAA, and DOE. ***FY 2014 Plans:*** -Continue all efforts from FY2013. -Continue to develop a National common environmental computing architecture to improve cross-Agency collaboration, and a greatly more efficient computational architecture to allow for real-time operational prediction. -Continue common environmental model architecture and standards, and prediction demonstration plans and science workshops, and initiate benchmark testing. -Continue efforts towards advanced skillful environmental forecasts and decision guidance (relative to averaged climatology) to improve from the operational capability, currently 7-10 days, to 30 days and longer. -Continue the Navy component to the National R&D initiative for Environmental Prediction across the major U.S. National Operational Prediction Centers at Navy, NOAA, NASA, and DOE.	0.000 0	3.000 0	4.985 0
Accomplishments/Planned Programs Subtotals	10.295	14.127	15.235

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/4226: *METEOROLOGICAL EQUIPMENT*	30.278	18.339	19.118		19.118	19.107	20.297	19.429	21.303	Continuing	Continuing
• RDTEN/0604218N/2345: *FLEET METOC EQUIPMENT*	4.143	2.615	2.611		2.611	2.880	2.824	2.885	2.926	Continuing	Continuing
• RDTEN/0603207N/2341: *METOC DATA ACQUISITION*	5.921	6.702	6.336		6.336	6.909	6.838	6.990	7.087	Continuing	Continuing
• RDTEN/0604218N/2346: *METOC SENSOR ENGINEERING*	1.349	1.445	1.415		1.415	1.513	1.519	1.551	1.570	Continuing	Continuing
• RDTEN/0305160N/0524: *NAVY METOC SUPPORT (SPACE)*	0.820	0.810	0.742		0.742	0.885	0.890	0.902	0.919	Continuing	Continuing

Remarks

D. Acquisition Strategy

Acquisition, management and contracting strategies to support the Meteorological & Oceanography (METOC) Data Assimilation Project which is a multi-faceted program which includes: 1) development, demonstration and validation of software associate with atmospheric and oceanographic data assimilation forecast models and database management systems for use in both mainframe and tactical scale computers; 2) other software models, which focus on ocean thermal structure and circulation, and surf and tide prediction; 3) software to process and manage satellite remotely-sensed environmental data at Oceanography Centers ashore and on ships equipped with the AN/SMQ-11 satellite receiver/recorder; and, 4) a family of acoustic system performance models beginning with active system models and databases in the low-, mid-, and high-frequency regimes and culminating with high fidelity simulation products.

Acquisition, management and contracting strategies to support the Earth System Prediction Capability Project, a multi-faceted program which includes: 1) development, demonstration and validation of atmospheric, sea ice and oceanographic data assimilation techniques, forecast models, database management systems, and associated software for use in teraflop to petaflop scale computers; 2) other models, which focus on decision products and quantifying thresholds, forecast uncertainty, and risk for Navy and DoD resource and mission planning using non-Navy models as input; 3) techniques to improve computational and data dissemination efficiency for environmental information dominance.

E. Performance Metrics

Goal: Develop techniques and tools to assimilate Meteorological and Oceanographic (METOC) data in order to improve the accuracy of global and regional scale meteorological and oceanographic forecast models. Data assimilation is expanded to include new in-situ and remotely-sensed data types, based on operational need. Tasks are directed toward advanced software enabling assimilation of disparate sources on non-synoptic time scales. Acoustic, atmospheric, and oceanographic model development, prototyping and transition is focused on improved model physics, increased resolution, and computational efficiency.

Metric: Tasks will address no less than 75% of applicable capability gaps and requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*

Goal (ESPC): Develop a more accurate global ocean, atmosphere, wave and sea ice forecast system with longer skillful forecast times from weeks to seasons through integrating and coupling atmosphere, ocean, ice, land and near-space forecast models into a seamless prediction system that reduces errors in the current modeling suite. Additionally develop a common modeling architecture to improve cross-Agency collaboration, and a greatly more efficient computational architecture to allow for real-time operational prediction.

Metrics: Long term trends show a globally averaged gain of skill of 1 day per decade of RDT&E investment, i.e. today's 5-day forecast is as accurate as the 3-day forecast available in the early 1990's. This program will implement new technological approaches to improve 7-14 day predictions to the level of current 5-7 day forecasts and will seek to provide quantifiable skill above long term seasonal averages for 14-90 day lead times for mission planning.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	WR	NRL:Washington DC	108.619	3.518	Oct 2011	4.055	Oct 2012	3.524	Oct 2013	-		3.524	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	WR	SSCs:California, South Carolina	2.272	0.000		0.000		0.000		-		0.000	0.000	2.272	
METOC Future Mission Capabilities	Various	Various:Various	41.183	0.000		0.000		0.000		-		0.000	0.000	41.183	
METOC Future Mission Capabilities	C/FP	Univ. S. Miss.:Mississippi	2.413	0.000		0.000		0.000		-		0.000	0.000	2.413	
METOC Space-Based Sensing Capabilities	WR	NRL:Washington, DC	4.608	2.487	Oct 2011	2.939	Oct 2012	1.955	Oct 2013	-		1.955	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare	WR	NRL:Washington, DC	2.130	1.651	Oct 2011	1.491	Oct 2012	1.861	Oct 2013	-		1.861	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare	C/FP	University of Texas:TX	0.700	0.100	Mar 2012	0.120	Dec 2012	0.160	Dec 2013	-		0.160	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare	WR	NSWC Carderock:West Bethesda, MD	0.450	0.000		0.000		0.000		-		0.000	0.000	0.450	
Tactical Oceanography Capabilities / Undersea Warfare	WR	NAVOCEANO:Mississippi	0.300	0.249	Oct 2011	0.245	Oct 2012	0.325	Oct 2013	-		0.325	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare	C/FP	University of Washington:Seattle, WA	0.000	0.320	Mar 2012	0.115	Dec 2012	0.153	Dec 2013	-		0.153	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare	C/FP	Johns Hopkins University:MD	0.000	0.050	Mar 2012	0.100	Dec 2012	0.130	Dec 2013	-		0.130	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare	C/FP	SAIC:Virginia	0.000	0.600	Nov 2011	0.727	Nov 2012	0.967	Nov 2013	-		0.967	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	C/FP	SAIC:Virginia	0.000	0.400	Dec 2011	0.440	Dec 2012	0.400	Dec 2013	-		0.400	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	C/FP	Johns Hopkins University:MD	0.000	0.200	Dec 2011	0.200	Dec 2012	0.175	Dec 2013	-		0.175	Continuing	Continuing	Continuing
Earth Systems Prediction Capability (ONR)	WR	NRL:Washington DC	0.000	0.000		2.100	Oct 2012	3.835	Oct 2013	-		3.835	Continuing	Continuing	Continuing
ESPC	Various	Various:Various	0.000	0.000		0.900	Oct 2012	0.950	Oct 2013	-		0.950	Continuing	Continuing	Continuing
		Subtotal	162.675	9.575		13.432		14.435		0.000		14.435			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	C/CPIF	SSA/CSC:MISC	0.295	0.000		0.000		0.000		-		0.000	0.000	0.295	
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	C/FP	SAIC:Virginia	0.473	0.000		0.000		0.000		-		0.000	0.000	0.473	
METOC Future Mission Capabilities	C/FP	SAIC:Virginia	0.200	0.150	Nov 2011	0.100	Nov 2012	0.100	Nov 2013	-		0.100	Continuing	Continuing	Continuing
Program Support and Subject Matter Expertise	Various	UW-APL:Seattle, WA	0.000	0.000		0.000		0.200	Oct 2013	-		0.200	0.000	0.200	
		Subtotal	0.968	0.150		0.100		0.300		0.000		0.300			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	Various	Not Specified:Not Specified	0.090	0.000		0.000		0.000		-		0.000	0.000	0.090	
METOC Space-Based Sensing Capabilities	C/FP	BAH:Virginia	0.400	0.300	Nov 2011	0.325	Nov 2012	0.215	Nov 2013	-		0.215	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*

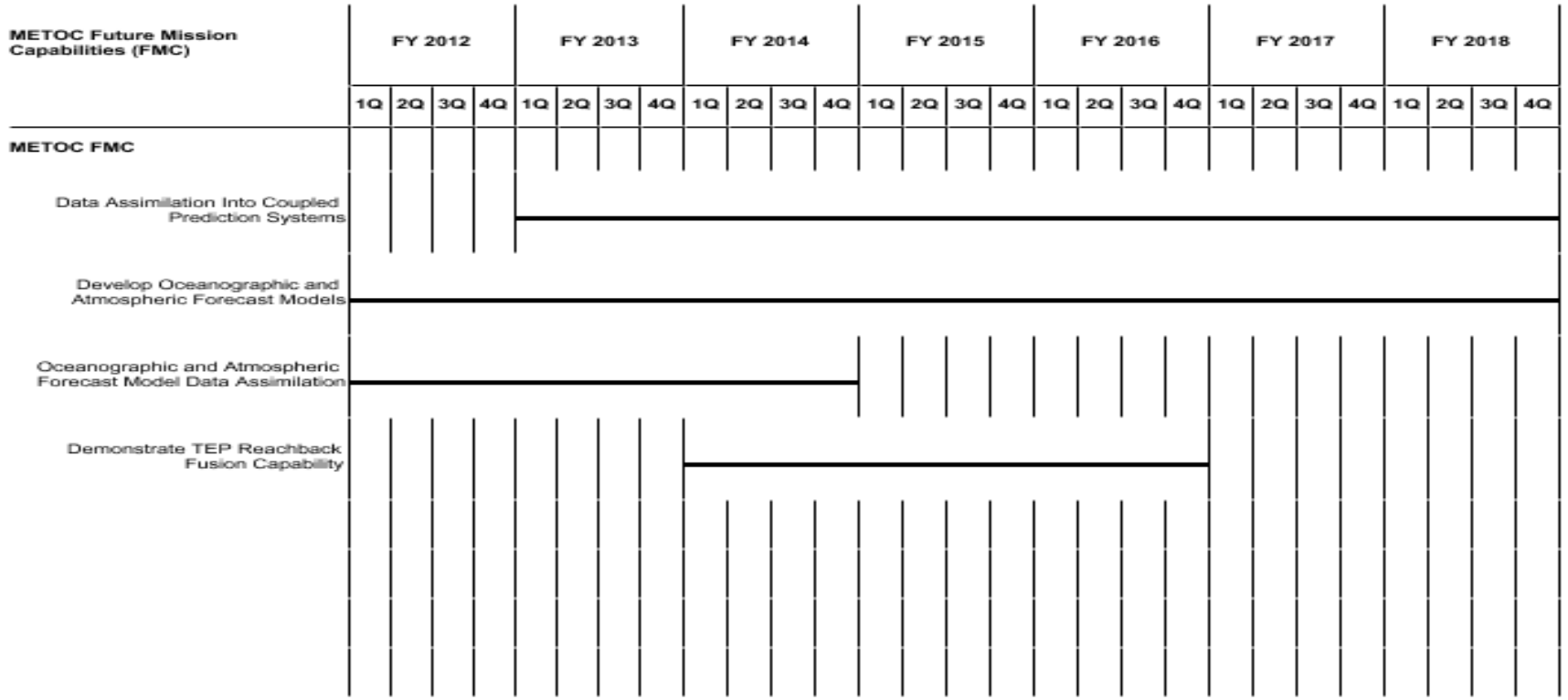
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Tactical Oceanography Capabilities / Undersea Warfare	WR	SSC PAC:San Diego, CA	0.000	0.270	Oct 2011	0.270	Oct 2012	0.285	Oct 2013	-		0.285	Continuing	Continuing	Continuing
		Subtotal	0.490	0.570		0.595		0.500		0.000		0.500			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	164.133	10.295		14.127		15.235		0.000		15.235			

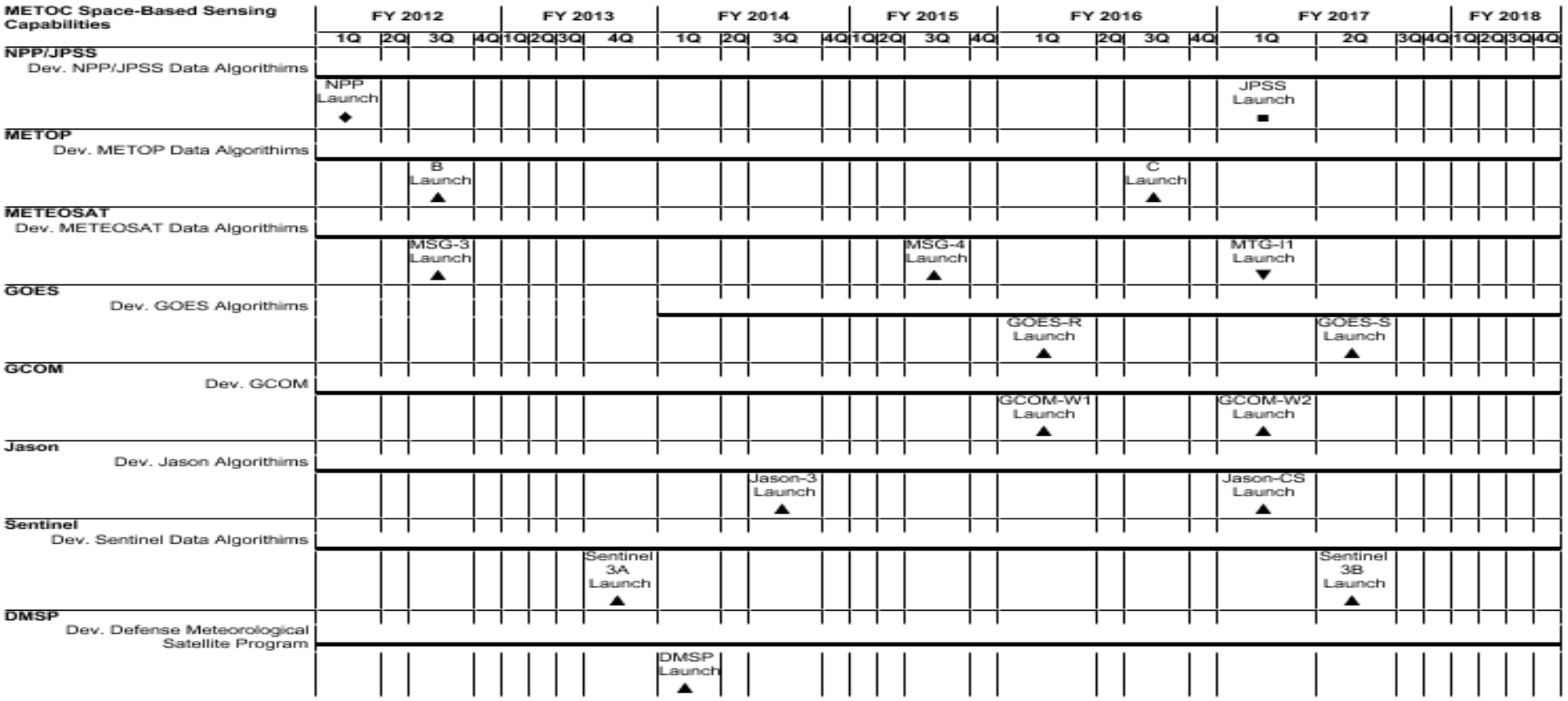
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*



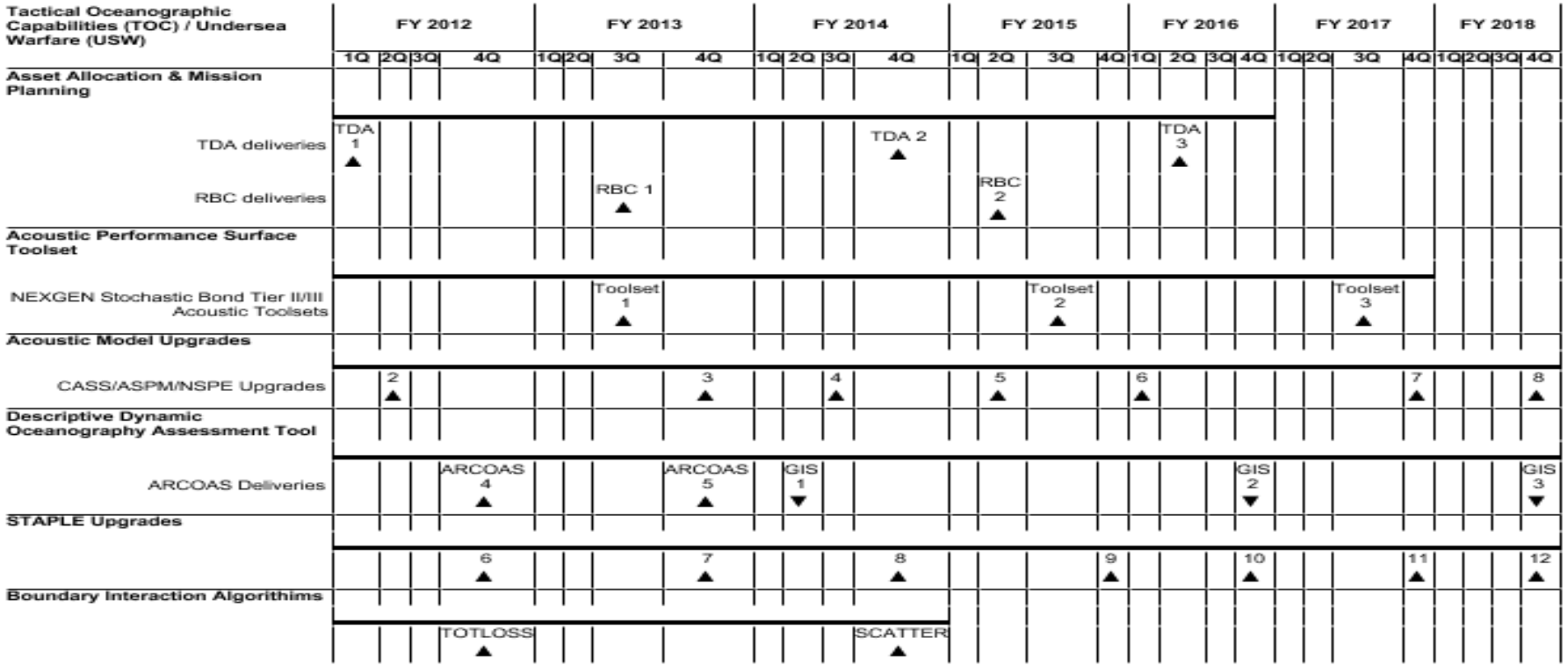
2014DON - 0603207N - 2342.L39

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*



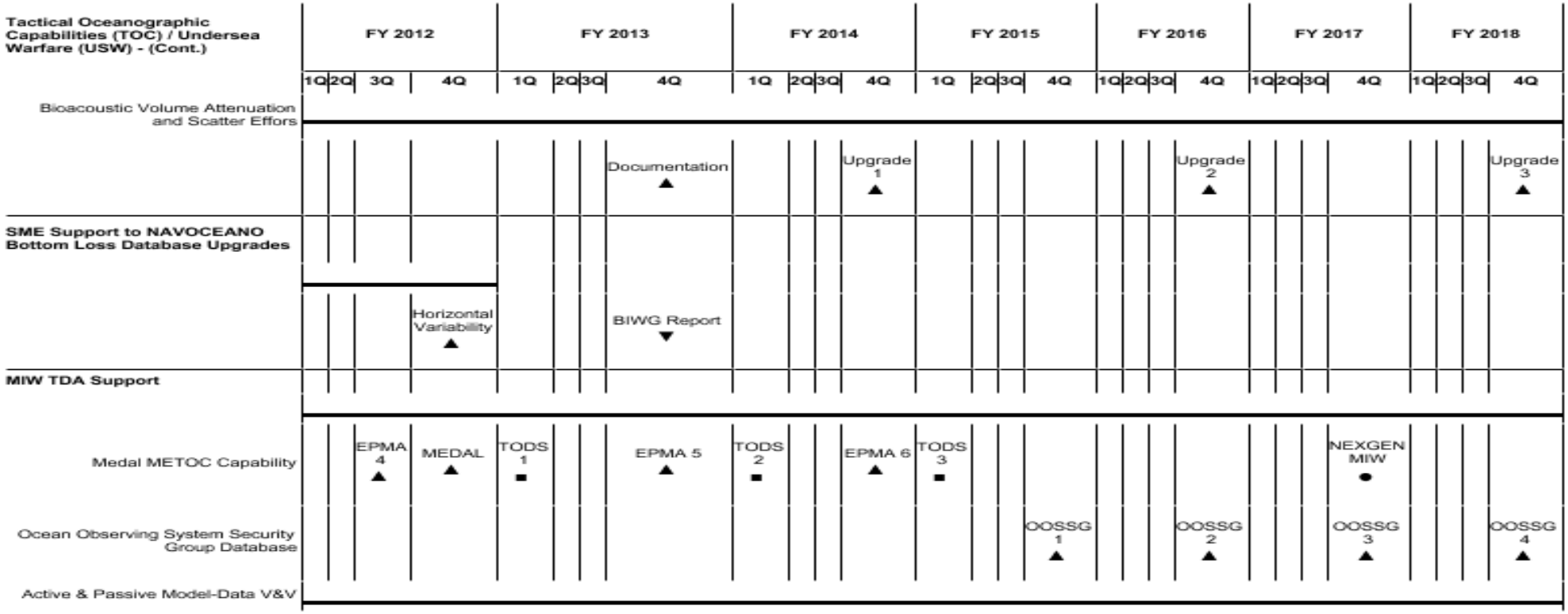
2014DON - 0603207N - 2342.L39

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*



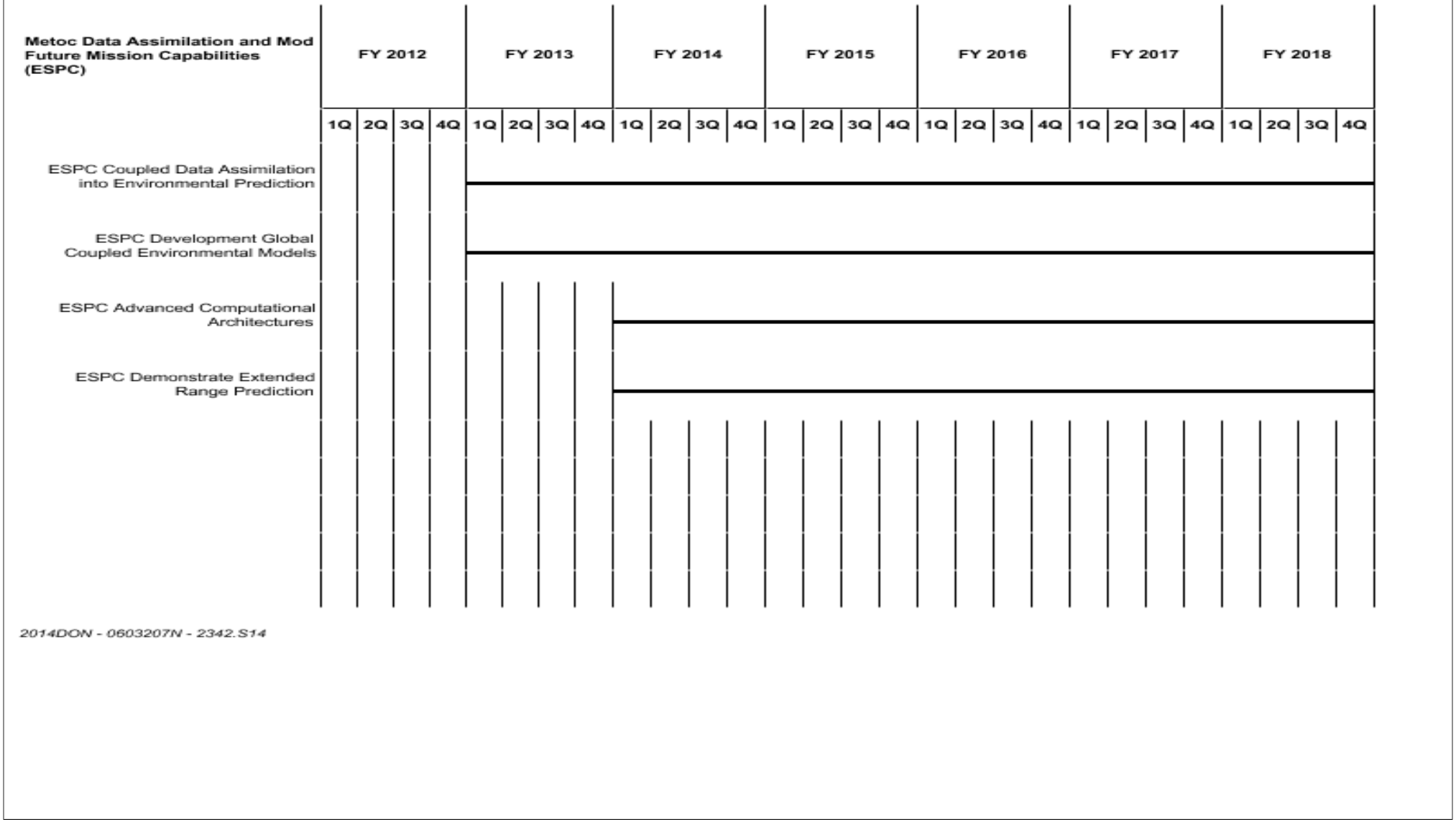
2014DON - 0603207N - 2342.L39

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*



2014DON - 0603207N - 2342.L39

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*



2014DON - 0603207N - 2342.S14

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603207N: *Air/Ocean Tactical Applications*	**PROJECT** 2342.: *METOC Data Assimilation and Mod*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
METOC Future Mission Capabilities (FMC)				
METOC FMC: Data Assimilation Into Coupled Prediction Systems:	1	2013	4	2018
METOC FMC: Develop Oceanographic and Atmospheric Forecast Models:	1	2012	4	2018
METOC FMC: Oceanographic and Atmospheric Forecast Model Data Assimilation:	1	2012	4	2014
METOC FMC: Demonstrate TEP Reachback Fusion Capability:	1	2014	4	2016
METOC Space-Based Sensing Capabilities				
NPP/JPSS: Dev. NPP/JPSS Data Algorithims:	1	2012	4	2018
NPP/JPSS: Dev. NPP/JPSS Data Algorithims: NPP Launch	1	2012	1	2012
NPP/JPSS: Dev. NPP/JPSS Data Algorithims: JPSS-1 Launch	1	2017	1	2017
METOP: Dev. METOP Data Algorithims:	1	2012	4	2018
METOP: Dev. METOP Data Algorithims: METOP-B Launch	3	2012	3	2012
METOP: Dev. METOP Data Algorithims: METOP-C Launch	3	2016	3	2016
METEOSAT: Dev. METEOSAT Data Algorithims:	1	2012	4	2018
METEOSAT: Dev. METEOSAT Data Algorithims: MSG-3 Launch	3	2012	3	2012
METEOSAT: Dev. METEOSAT Data Algorithims: MSG-4 Launch	3	2015	3	2015
METEOSAT: Dev. METEOSAT Data Algorithims: MTG-I1 Launch	1	2017	1	2017
GOES: Dev. GOES Algorithims:	1	2014	4	2018
GOES: Dev. GOES Algorithims: GOES-R Launch	1	2016	1	2016
GOES: Dev. GOES Algorithims: GOES-S Launch	2	2017	2	2017
GCOM: Dev. GCOM:	1	2012	4	2018
GCOM: Dev. GCOM: GCOM-W1 Launch	1	2016	1	2016
GCOM: Dev. GCOM: GCOM-W2 Launch	1	2017	1	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Jason: Dev. Jason Algorithims:	1	2012	4	2018
Jason: Dev. Jason Algorithims: Jason-3 Launch	3	2014	3	2014
Jason: Dev. Jason Algorithims: Jason-CS Launch	1	2017	1	2017
Sentinel: Dev. Sentinel Data Algorithims:	1	2012	4	2018
Sentinel: Dev. Sentinel Data Algorithims: Sentinel 3A Launch	4	2013	4	2013
Sentinel: Dev. Sentinel Data Algorithims: Sentinel 3B Launch	2	2017	2	2017
DMSP: Dev. Defense Meteorological Satellite Program:	1	2012	4	2018
DMSP: Dev. Defense Meteorological Satellite Program: DMSP-19 Launch	1	2014	1	2014
Tactical Oceanographic Capabilities (TOC) / Undersea Warfare (USW)				
Asset Allocation & Mission Planning:	1	2012	4	2016
Asset Allocation & Mission Planning: TDA deliveries: ASW TDA Delivery 1	1	2012	1	2012
Asset Allocation & Mission Planning: TDA deliveries: ASW TDA Delivery 2	4	2014	4	2014
Asset Allocation & Mission Planning: TDA deliveries: ASW TDA Delivery 3	2	2016	2	2016
Asset Allocation & Mission Planning: RBC deliveries: ASW RBC Delivery 1	3	2013	3	2013
Asset Allocation & Mission Planning: RBC deliveries: ASW RBC Delivery 2	2	2015	2	2015
Acoustic Performance Surface Toolset:	1	2012	4	2017
Acoustic Performance Surface Toolset: NEXGEN Stochastic Bond Tier II/III Acoustic Toolsets: NEXGEN Stochastic Bond Tier II/III Acoustic Toolset 1	3	2013	3	2013
Acoustic Performance Surface Toolset: NEXGEN Stochastic Bond Tier II/III Acoustic Toolsets: NEXGEN Stochastic Bond Tier II/III Acoustic Toolset 2	3	2015	3	2015
Acoustic Performance Surface Toolset: NEXGEN Stochastic Bond Tier II/III Acoustic Toolsets: NEXGEN Stochastic Bond Tier II/III Acoustic Toolset 3	3	2017	3	2017
Acoustic Model Upgrades: Schedule Detail	1	2012	4	2018
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 2	2	2012	2	2012
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 3	4	2013	4	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 4	3	2014	3	2014
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 5	2	2015	2	2015
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 6	1	2016	1	2016
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 7	4	2017	4	2017
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 8	4	2018	4	2018
Descriptive Dynamic Oceanography Assessment Tool: Schedule Detail	1	2012	4	2018
Descriptive Dynamic Oceanography Assessment Tool: ARCOAS Deliveries: ARCOAS Delivery 4	4	2012	4	2012
Descriptive Dynamic Oceanography Assessment Tool: ARCOAS Deliveries: ARCOAS Delivery 5	4	2013	4	2013
Descriptive Dynamic Oceanography Assessment Tool: ARCOAS Deliveries: NEXGEN ASW RBC GIS Toolset 1	2	2014	2	2014
Descriptive Dynamic Oceanography Assessment Tool: ARCOAS Deliveries: NEXGEN ASW RBC GIS Toolset 2	4	2016	4	2016
Descriptive Dynamic Oceanography Assessment Tool: ARCOAS Deliveries: NEXGEN ASW RBC GIS Toolset 3	4	2018	4	2018
STAPLE Upgrades:	1	2012	4	2018
STAPLE Upgrades: STAPLE Delivery 6	4	2012	4	2012
STAPLE Upgrades: STAPLE Delivery 7	4	2013	4	2013
STAPLE Upgrades: STAPLE Delivery 8	4	2014	4	2014
STAPLE Upgrades: STAPLE Delivery 9	4	2015	4	2015
STAPLE Upgrades: STAPLE Delivery 10	4	2016	4	2016
STAPLE Upgrades: STAPLE Delivery 11	4	2017	4	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
STAPLE Upgrades: STAPLE Delivery 12	4	2018	4	2018
Boundary Interaction Algorithims:	1	2012	4	2014
Boundary Interaction Algorithims: TOTLOSS Algorithm	4	2012	4	2012
Boundary Interaction Algorithims: TOTLOSS/SCATTER Algorithm Delivery	4	2014	4	2014
Tactical Oceanographic Capabilities (TOC) / Undersea Warfare (USW) - (Cont.)				
Bioacoustic Volume Attenuation and Scatter Effors:	1	2012	4	2018
Bioacoustic Volume Attenuation and Scatter Effors: Documentation Delivery	4	2013	4	2013
Bioacoustic Volume Attenuation and Scatter Effors: VSS Database Upgrade 1	4	2014	4	2014
Bioacoustic Volume Attenuation and Scatter Effors: VSS Database Upgrade 2	4	2016	4	2016
Bioacoustic Volume Attenuation and Scatter Effors: VSS Database Upgrade 3	4	2018	4	2018
SME Support to NAVOCEANO Bottom Loss Database Upgrades:	1	2012	4	2012
SME Support to NAVOCEANO Bottom Loss Database Upgrades: HFBL Horizontal Variability	4	2012	4	2012
SME Support to NAVOCEANO Bottom Loss Database Upgrades: Bottom Interaction Working Group Report	4	2013	4	2013
MIW TDA Support: Schedule Detail	1	2012	4	2018
MIW TDA Support: Medal METOC Capability: MEDAL METOC Capability	4	2012	4	2012
MIW TDA Support: Medal METOC Capability: EPMA Build 4	3	2012	3	2012
MIW TDA Support: Medal METOC Capability: EPMA Build 5	4	2013	4	2013
MIW TDA Support: Medal METOC Capability: EPMA Build 6	4	2014	4	2014
MIW TDA Support: Medal METOC Capability: TODS Components 1	1	2013	1	2013
MIW TDA Support: Medal METOC Capability: TODS Components 2	1	2014	1	2014
MIW TDA Support: Medal METOC Capability: TODS Components 3	1	2015	1	2015
MIW TDA Support: Medal METOC Capability: NEXGEN MIW Environmental Application	4	2017	4	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2342.: *METOC Data Assimilation and Mod*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MIW TDA Support: Ocean Observing System Security Group Database: OOSSG Database Delivery #1	4	2015	4	2015
MIW TDA Support: Ocean Observing System Security Group Database: OOSSG Database Delivery #2	4	2016	4	2016
MIW TDA Support: Ocean Observing System Security Group Database: OOSSG Database Delivery #3	4	2017	4	2017
MIW TDA Support: Ocean Observing System Security Group Database: OOSSG Database Delivery #4	4	2018	4	2018
MIW TDA Support: Active & Passive Model-Data V&V: Schedule Detail	1	2012	4	2018
Metoc Data Assimilation and Mod Future Mission Capabilities (ESPC)				
ESPC Coupled Data Assimilation into Environmental Prediction:	1	2013	4	2018
ESPC Development Global Coupled Environmental Models:	1	2013	4	2018
ESPC Advanced Computational Architectures:	1	2014	4	2018
ESPC Demonstrate Extended Range Prediction:	1	2014	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2343: *Tactical METOC Applications*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2343: *Tactical METOC Applications*	108.168	9.323	9.172	8.908	-	8.908	11.195	15.690	15.500	16.529	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Tactical Meteorological and oceanographic (METOC) Applications Project provides future operational effects decision aid capabilities for Navy and Marine Corps warfighters in the context of Joint Operations in a net-centric environment. This project identifies and transitions state-of-the-art decision support software technologies from the government's and commercial Industry's technology base and then demonstrates and validates these capabilities before fielding. These software decision support tools provide platform, sensor, communications, and weapon systems performance assessments for warfighters in terms of their littoral and deep-strike battlespace environments. These assessments allow mission planners and warfighters, from the unit to theater level, to optimize their sensor employment on airborne, surface, and subsurface platforms in support of all Naval Composite Warfare mission areas including Undersea Warfare (USW), Anti-Submarine Warfare (ASW), Mine Warfare, Amphibious Warfare (AMW), Anti-Surface Warfare (ASUW), Anti-Air Warfare (AAW), Strike Warfare (STW), and Naval Special Warfare (NSW). Performance assessments leading to improvements in operational and tactical control are conducted through a two-tiered approach: 1) METOC Decision Aids (MDAs) and, 2) Operational Effects Decision Aids (OEDAs). MDAs consist of a series of analysis tools which characterize the physical environment conditions of the battlespace based on the best set of physical environment data available at the time (i.e., some combination of historical and/or real-time (or near real-time) in-situ, and numerically modeled forecast data). OEDAs then use the MDA information by fusing it with relevant, often-classified sensor and target data to predict how own-force weapons and sensor systems will perform against hostile targets. Performance results are displayed in tabular and graphic formats integrated into net-centric visualization tools for use by mission planners and combat/weapon system operators to develop localization plans, USW/AAW/ASUW screens, STW profiles, AMW ingress and egress points, and for other warfare considerations. MDAs and OEDAs typically use data derived from sensors developed in Project 2341 (METOC Data Acquisition) and assimilated by software produced by Project 2342 (METOC Data Assimilation and Modeling). MDAs and OEDAs also use data obtained through direct interfaces to Navy combat systems. A current emphasis area of the project is capabilities required to characterize and/or predict sensor and weapons system performance in the highly complex littoral environments in support of regional conflict scenarios. It addresses multi-warfare areas, particularly shallow water ASW, NSW, and missile and air defense/strike capabilities.

The major emphasis of this project is the software only Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program of record.

FY 2014 request provides for the continuation of NITES-Next Release 2 software development efforts including extensive system architecture, and testing efforts.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Naval Integrated Tactical Environmental System Next Generation (NITES-Next)	9.323	9.172	8.908

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2343: *Tactical METOC Applications*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0	0	0
FY 2012 Accomplishments: NITES-Next was designated as an IT Streamline "Pilot" by the Milestone Decision Authority (MDA) on 5 March 2012. NITES-Next was directed by the MDA to develop a new acquisition strategy as an IT Pilot and report back for a Build Decision (BD). Conducted a NITES-Next Fleet Capability Release-1 (FCR-1) Design Review (DR). Completed the design and documentation of NITES-Next FCR-1, including the software architecture design; and began the Naval Integrated Tactical Environmental System Next Generation (NITES-Next) Fleet Capability Release-1 (FCR-1) software development. Began preparation for all Consolidated Afloat Networks and Enterprise Services (CANES) System Integration Test (SIT), Test Readiness Reviews (TRR), and Developmental Test and Evaluation (DT&E) efforts scheduled for FY 2013. Awarded the NITES-Next FCR-1 development contract task order.			
FY 2013 Plans: Continue developing FCR-1 software. Obtain Limited Deployment Decision (LDD) for FCR-1. Coordinate with Naval Command Operational Test and Evaluation Force (COMOPTEVFOR) for test events. Conduct FCR-1 System Integration Test #1 (SIT). Obtain interim authority to operate (IATO) for live network testing. Obtain authority to operate (ATO) for FCR-1. Begin and complete the planning and documentation (including Requirements Definition Package (RDP), Cost Analysis Requirements Description (CARD) and Acquisition Program Baseline (APB)) for NITES-Next FCR-2. Conduct System Engineering Technical Review (SETR) Build Decision Review (BDR) for FCR-2. Update Technology Readiness Assessment (TRA) for FCR-1 and FCR-2. Obtain FCR-2 Build Decision. Generate FCR-2 task order and contract package.			
FY 2014 Plans: Conduct SIT #2, System Qualification Test (SQT), DT&E, Operational Assessment (OA), and Operational Test (OT) for FCR-1. Coordinate with COMOPTEVFOR and complete OA report in support of FCR-1 LDD. Complete Navy Training System Plan (NTSP), Independent Logistics Assessment (ILA) for FCR-1. Plan the FCR-2 test activities. Award task order and start development and coding of FCR-2. Begin documentation and preparation (including RDP, CARD and APB) for FCR-3.			
Accomplishments/Planned Programs Subtotals	9.323	9.172	8.908

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Acquisition, management and contracting strategies are to support the Tactical Meteorological & Oceanographic (METOC) Applications project to continue the development of state-of-the-art software capabilities that provide sensor, communication, and weapon system performance assessments across the full spectrum of

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2343: *Tactical METOC Applications*

open ocean and littoral operating environments, meteorology and oceanography , all with management oversight incorporating these into the Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program under Joint Capabilities Integration and Development System (JCIDS) by the Department of the Navy (DoN).

E. Performance Metrics

Goal: Develop METOC future operational effects decision aid capabilities for Navy and Marine Corps war fighters in order to facilitate the characterization and prediction of the entire battle space.

Metric: Improve the accuracy of meteorological and oceanographic tactical decision aids and applications in order to address no less than 75% of applicable capability gaps and requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2343: *Tactical METOC Applications*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NITES/NITES-Next	WR	NRL:Washington, DC	3.893	0.000		0.000		0.000		-		0.000	0.000	3.893	
NITES/NITES-Next	WR	SSCs:California, South Carolina	8.673	0.000		0.000		0.000		-		0.000	0.000	8.673	
NITES/NITES-Next	Various	Various:Various	5.775	0.000		0.000		0.000		-		0.000	0.000	5.775	
NITES	Various	Various:Various	61.400	0.000		0.000		0.000		-		0.000	0.000	61.400	
NITES-Next	C/CPIF	GD-IT:Virginia	25.551	0.000		0.000		0.000		-		0.000	0.000	25.551	
NITES-Next	WR	NAVOCEANO:Mississippi	0.125	0.000		0.000		0.000		-		0.000	0.000	0.125	
NITES-Next	WR	SSC Pacific:San Diego, CA	0.000	4.168	Oct 2011	3.850	Oct 2012	3.837	Oct 2013	-		3.837	Continuing	Continuing	Continuing
NITES-Next	C/FP	SAIC:Virginia	0.000	0.980	Nov 2011	1.600	Nov 2012	1.406	Nov 2013	-		1.406	Continuing	Continuing	Continuing
NITES-Next	C/FP	FSI:San Diego, CA	0.000	3.100	Jun 2012	2.500	Nov 2012	2.420	Nov 2013	-		2.420	Continuing	Continuing	Continuing
NITES-Next	WR	SSC Atlantic:South Carolina	0.000	0.200	Jun 2012	0.347	Mar 2013	0.335	Mar 2014	-		0.335	Continuing	Continuing	Continuing
		Subtotal	105.417	8.448		8.297		7.998		0.000		7.998			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Cost	C/CPIF	IPD:Various	0.595	0.000		0.000		0.000		-		0.000	0.000	0.595	
NITES-Next	C/FP	SAIC:Virgina	1.600	0.475	Nov 2011	0.325	Nov 2012	0.335	Nov 2013	-		0.335	Continuing	Continuing	Continuing
NITES-Next	C/FP	NAVAIR:Maryland	0.125	0.000		0.000		0.000		-		0.000	0.000	0.125	
NITES-Next	C/FP	COMOPTEVFOR:Norfolk, VA	0.000	0.000		0.100	Nov 2012	0.100	Nov 2013	-		0.100	Continuing	Continuing	Continuing
		Subtotal	2.320	0.475		0.425		0.435		0.000		0.435			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2343: *Tactical METOC Applications*	

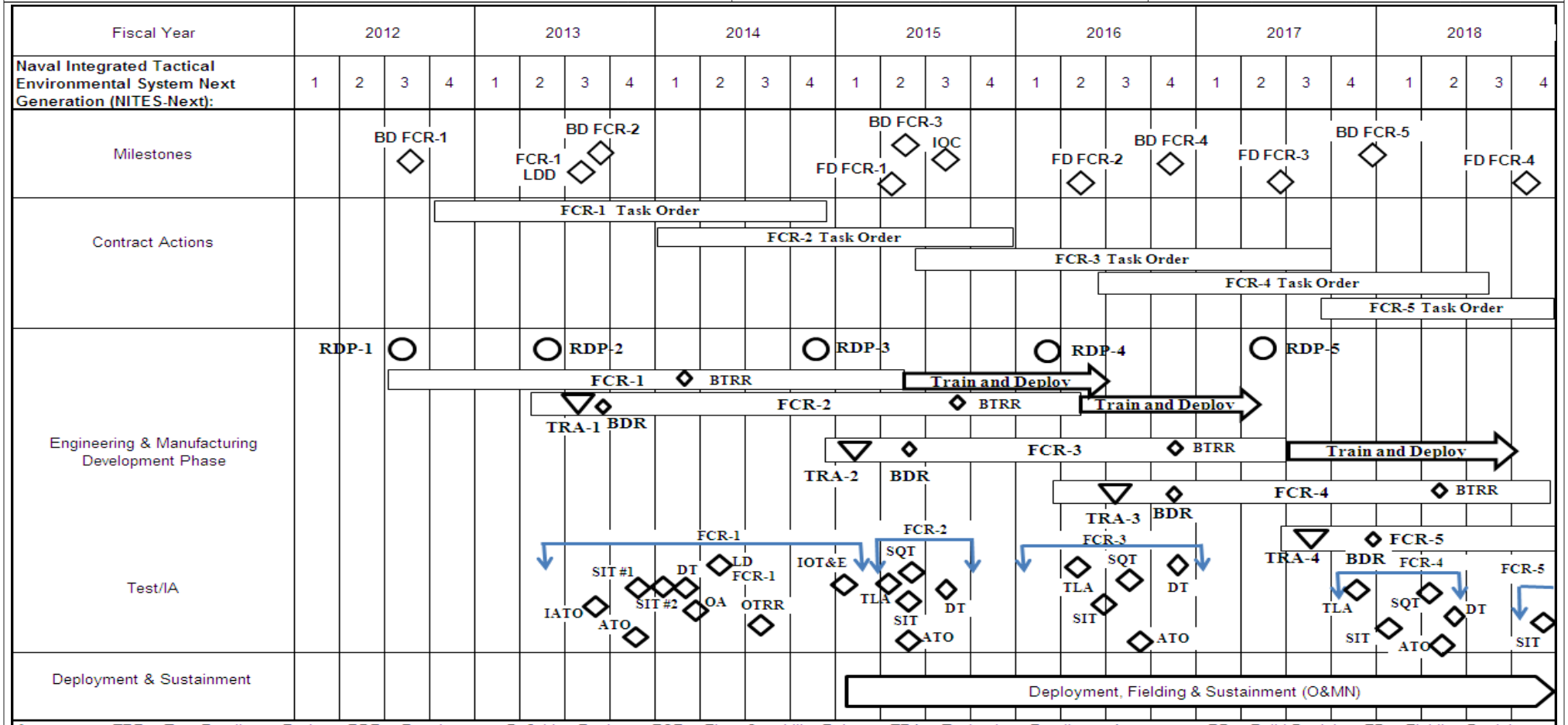
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	Various	Various:Various	0.031	0.000		0.000		0.000		-		0.000	0.000	0.031	
NITES-Next	WR	SSC Pacific:San Diego, CA	0.000	0.100	Oct 2011	0.200	Oct 2012	0.225	Oct 2013	-		0.225	Continuing	Continuing	Continuing
NITES-Next	C/FP	BAH:Virgina	0.400	0.300	Nov 2011	0.250	Nov 2012	0.250	Nov 2013	-		0.250	Continuing	Continuing	Continuing
		Subtotal	0.431	0.400		0.450		0.475		0.000		0.475			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	108.168	9.323		9.172		8.908		0.000		8.908			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2343: *Tactical METOC Applications*



Acronyms: TRR = Test Readiness Review. RDP = Requirements Definition Package FCR = Fleet Capability Release. TRA = Technology Readiness Assessment BD = Build Decision. FD = Fielding Decision. Limited Deployment Decision = LDD. IOC= Initial Operational Capability. IATO = Interim Authority to Operate. ATO = Authority to Operate. LD = Limited Deployment. OA = Operational Assessment. BDR = Build Decision Review. SIT = System Integration Test. SQT = System Qualification Test. TLA = Test Level Assessment. DT = Developmental Test

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603207N: *Air/Ocean Tactical Applications*	**PROJECT** 2343: *Tactical METOC Applications*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Naval Integrated Tactical Environmental System Next Generation (NITES-Next)				
Milestones: Build Decision Fleet Capability Release - 1	3	2012	3	2012
Milestones: Build Decision Fleet Capability Release - 2	3	2013	3	2013
Milestones: Initial Operational Capability	3	2015	3	2015
Milestones: Fielding Decision Fleet Capability Release - 1	2	2015	2	2015
Milestones: Build Decision Fleet Capability Release - 3	2	2015	2	2015
Milestones: Fielding Decision Fleet Capability Release - 2	2	2016	2	2016
Milestones: Build Decision Fleet Capability Release - 4	4	2016	4	2016
Milestones: Fielding Decision Fleet Capability Release - 3	2	2017	2	2017
Milestones: Build Decision Fleet Capability Release - 5	4	2017	4	2017
Milestones: Fielding Decision Fleet Capability Release - 4	4	2018	4	2018
Milestones: Limited Deployment Decision Fleet Capability Release - 1	3	2013	3	2013
Contract Actions: FCR-1 Task Order	4	2012	4	2014
Contract Actions: FCR-2 Task Order	1	2014	4	2015
Contract Actions: FCR-3 Task Order	2	2015	3	2017
Contract Actions: FCR-4 Task Order	2	2016	3	2018
Contract Actions: FCR-5 Task Order	3	2017	4	2018
Engineering & Manufacturing Development Phase: Requirements Definition Package - 1	3	2012	3	2012
Engineering & Manufacturing Development Phase: Requirements Definition Package - 2	2	2013	2	2013
Engineering & Manufacturing Development Phase: Requirements Definition Package - 3	4	2014	4	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2343: *Tactical METOC Applications*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Engineering & Manufacturing Development Phase: Requirements Definition Package - 4	1	2016	1	2016
Engineering & Manufacturing Development Phase: Requirements Definition Package - 5	2	2017	2	2017
Engineering & Manufacturing Development Phase: Build Design Review FCR-2	3	2013	3	2013
Engineering & Manufacturing Development Phase: Build Design Review FCR-3	2	2015	2	2015
Engineering & Manufacturing Development Phase: Build Design Review FCR-4	4	2016	4	2016
Engineering & Manufacturing Development Phase: Build Design Review FCR-5	4	2017	4	2017
Engineering & Manufacturing Development Phase: Technology Readiness Assessment - 1	3	2013	3	2013
Engineering & Manufacturing Development Phase: Technology Readiness Assessment - 2	1	2015	1	2015
Engineering & Manufacturing Development Phase: Technology Readiness Assessment - 3	3	2016	3	2016
Engineering & Manufacturing Development Phase: Technology Readiness Assessment - 4	3	2017	3	2017
Engineering & Manufacturing Development Phase: Build Test Readiness Review FCR-1	1	2014	1	2014
Engineering & Manufacturing Development Phase: Build Test Readiness Review FCR-2	3	2015	3	2015
Engineering & Manufacturing Development Phase: Build Test Readiness Review FCR-3	4	2016	4	2016
Engineering & Manufacturing Development Phase: Build Test Readiness Review FCR-4	2	2018	2	2018
Test/IA: Fleet Capability Release - 1	2	2013	1	2015
Test/IA: Fleet Capability Release - 2	1	2015	4	2015
Test/IA: Fleet Capability Release - 3	1	2016	1	2017
Test/IA: Fleet Capability Release - 4	4	2017	2	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2343: *Tactical METOC Applications*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test/IA: System Integration Test - 1 (FCR-1)	4	2013	4	2013
Test/IA: System Integration Test - 2 (FCR-1)	1	2014	1	2014
Test/IA: System Integration Test - 3 (FCR-2)	2	2015	2	2015
Test/IA: System Integration Test - 4 (FCR-3)	2	2016	2	2016
Test/IA: System Integration Test - 5 (FCR-4)	1	2018	1	2018
Test/IA: System Integration Test - 6 (FCR-5)	4	2018	4	2018
Test/IA: Interim Authority to Operate	3	2013	3	2013
Test/IA: Initial Operational Test and Evaluation	1	2015	1	2015
Test/IA: Authority to Operate FCR-1	4	2013	4	2013
Test/IA: Authority to Operate FCR-2	2	2015	2	2015
Test/IA: Authority to Operate FCR-3	3	2016	3	2016
Test/IA: Authority to Operate FCR-4	2	2018	2	2018
Test/IA: Operational Test Readiness Review	3	2014	3	2014
Test/IA: System Qualification Test FCR-2	2	2015	2	2015
Test/IA: System Qualification Test FCR-3	3	2016	3	2016
Test/IA: System Qualification Test FCR-4	2	2018	2	2018
Test/IA: Developmental Test Fleet Capability Release - 1	1	2014	1	2014
Test/IA: Developmental Test Fleet Capability Release - 2	3	2015	3	2015
Test/IA: Developmental Test Fleet Capability Release - 3	4	2016	4	2016
Test/IA: Developmental Test Fleet Capability Release - 4	2	2018	2	2018
Test/IA: Test Level Assessment FCR-2	2	2015	2	2015
Test/IA: Test Level Assessment FCR-3	2	2016	2	2016
Test/IA: Test Level Assessment FCR-4	4	2017	4	2017
Test/IA: Operational Assessment	1	2014	1	2014
Test/IA: Limited Deployment FCR-1	2	2014	2	2014

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2344.: *Precise Time and Astrometry*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2344.: *Precise Time and Astrometry*	37.915	0.999	3.043	8.914	-	8.914	7.223	1.682	1.299	1.317	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Precise Timing and Astrometry (PTA) project funds research and development of improvements for the U.S. Master Clock (MC) System, the DoD Time Transfer capability, the Earth Orientation System, and the Astrometric Observation System. The MC System and Time Transfer provides precise time for use in modern military and National Technical Means (NTM) navigation, guidance, positioning, and tracking systems. The Earth Orientation System provides precise Earth Orientation Parameters for use by the DoD and the national civilian infrastructure to establish the specific orientation of the Earth and to provide input to the terrestrial reference frame. The Astrometric Observation System provides the basic data needed to generate the celestial reference frame which is the standard for calibrating all inertial navigation systems, satellite orbits, and earth rotation determinations. Improvement to the MC System, Time Transfer, Earth Orientation, and Astrometric Observation Systems are needed to ensure that new and upgraded DoD and NTM capabilities meet their performance requirements. By DoD Directive (CJCSI 6130.01D, encl J, of 13 Apr 2007), the U.S. Naval Observatory (USNO), Washington, D.C., is responsible for coordinating Precise Time and Time Interval (PTTI) requirements and for maintaining a PTTI reference standard (astronomical and atomic) for use by all DoD, Federal agencies, and related scientific laboratories. The Navy is also responsible for providing astronomical data for military and NTM navigation, positioning, and guidance capabilities that are space-based.

The PTA research and development efforts are focused on several areas relating to timing and time transfer: (1) Development of Rubidium Fountain Atomic Clocks and development of improved GPS Timing Receivers in order to meet the precise timing requirements for the GPS III system; (2) Research & development of the capability of distributing timing signals via Optical fiber lines, as an alternative and backup to GPS time distribution; and (3) Research & development into Optical Clock technology, which is expected to be required for future DoD systems. The PTA research and development effort is also focused on the following areas related to Earth Orientation Parameter (EOP) determination: (1) Upgrade of the Very Long Baseline Interferometry (VBLI) data acquisition system / radio telescope at Kokee Park HI; (2) Development of a Software (SW) Correlator for processing of VLBI data, necessary for the generation of Earth Orientation Parameter (EOP) data; (3) Development of the capability for electronic transmission of the VLBI data from remote VLBI sites to the USNO correlator. The new SW Correlator and the eVLBI infrastructure upgrades are necessary in order to support daily updates of EOP data required by GPS III; (4) Development of an automated end-to-end EOP processing system, which combines input from multiple data sets (e.g. VLBI data, GPS orbit data, and laser ranging data, etc.). This process is currently very labor intensive and costly. Automation is necessary to meet future DoD and GPS requirements; and (5) Modifications to the EOP system for compatibility with the new international standard -'VLBI2010'.

The Critical Time Dissemination (CTD) aspect of the PTA program develops enhanced methods of distributing and verifying precise time back to the Master Clock, UTC (USNO). The development aspect of this project has four parts: (1) Development of a mobile time link; (2) Refinement of and modernization of the Hydrogem Maser

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2344.: *Precise Time and Astrometry*

and Auxilary Offset Generator (AOG); (3) Customize a timing system to develop a Site Verification System; and (4) Produce a fiber link system to transfer the Master Clock down long-haul fiber.

In response to these DoD requirements, this project transitions Research and Exploratory Development efforts, as well as developments in the civilian sector, into the operational capabilities of the USNO.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Precise Timing and Astronomy	0.000	3.043	8.914
Articles:		0	0
Description: Research and development of improvements for the U.S. Master Clock (MC) System, the DoD Time Transfer capability, the Earth Orientation System, and the Astrometric Observation System. ***FY 2013 Plans:*** * Full Operation Capability (FOC) completed for Rb Fountains at USNO DC. * Develop test optical fiber link. * Conduct parallel SW and HW correlator operations/testing. * Contract awarded for VLBI Data Acquisitions System at Kokee Park, HI. Starting in FY13, the Precise Timing and Astrometry (PTA) Program will focus on replacement and upgrade of the aging VLBI Data Acquisition System (DAS) at Kokee Park, HI. The system will be converted to the new upgraded international standard (VLBI2010). The Data Acquisition System at Kokee Park, HI is a critical US-based member of an international network of VLBI radio telescopes and associated electronic systems. The VLBI radio telescope data from this telescope is needed for generation of Earth Orientation Parameters and for the Celestial Reference Frame. ***FY 2014 Plans:*** * Will achieve Initial Operation Capability (IOC) for Rb Fountains at AMC. * Antenna installation at Kokee Park, HI, and develop RFP for Radio receiver electronics and data formatting system. * Begin work on automating the Earth Orientation Parameters (EOP) processing system. * Lab demonstration of Optical Fiber timing link. * Develop a unit utilizing previously demonstrated technology to provide a mobile time link. * Create some design solutions to improve the commercially available hydrogen maser. * Produce some design and production improvements in a timing system. * Create a long haul fiber link system to produce better than 1 ns level timing system.			
Title: Precision Timing and Astronomy	0.999	0.000	0.000
Articles:	0		
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2344.: *Precise Time and Astrometry*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Transfered Rb Fountain Master Clocks (MC) to the United States Naval Observatory (USNO) Alternate Master Clock (AMC) site. Completed IOC of Rb Fountain MC. Conducted Operational Testing (OT) on the first production of GPS M-Code timing receiver. Completed Critical Design Review (CDR) of software (SW) on correlator VLBI Earth Orientation Parameters and demonstrate SW correlator utilizing wide-band internet transmission of VLBI data from all VLBI sites.			
Accomplishments/Planned Programs Subtotals	0.999	3.043	8.914

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/0305112N/LI 8126: *Oceanography (USNO Astrometric Telescope Subsystem funds for purchase of Software Correlator*	0.000	1.156	0.290		0.290	0.000	0.000	0.000	0.000	0.000	1.446

Remarks

D. Acquisition Strategy

The included technology developments are primarily in-house with selected contractor participation. However, the Kokee Park, HI radio telescope upgrade and the SW Correlator (OPN-funded) contract will involve substantial non-Navy contract support.
Management oversight by Program Executive Officer for Command, Control, Communications, Computers, and Intelligence.

E. Performance Metrics

(1) The Software Correlator will complete Phase 2 and will achieve Initial Operational Capability (IOC).
(2) Antenna will be installed at Kokee Park, HI.
(3) Rb Fountain System will reach FOC at AMC in FY15.
Metric: Measurable progress toward stated GPS-III requirement to meet or exceed a 2 sigma accuracy of 0.5 nanoseconds (ns) for the M Code Rx error and 0.1ns Master Clock error. Improve star position accuracy to within 10 milliarcseconds in support of National Technical Means (classified) program requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2344.: *Precise Time and Astrometry*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development (Antenna Procurement)	SS/CPFF	TBD:Kokee Park, HI	0.000	0.000		1.783	Jun 2013	0.000		-		0.000	Continuing	Continuing	Continuing
Primary Hardware Development (Site Prep)	TBD	TBD:TBD	0.000	0.000		0.000		0.750	Feb 2014	-		0.750	0.000	0.750	
Primary Hardware Development (Antenna Receiver Electronics)	MIPR	TBD:TBD	0.000	0.000		0.000		1.000	May 2014	-		1.000	0.000	1.000	
Primary Hardware Development for CTD (Critical Mobil Pod)	MIPR	Classified:Not Specified	0.000	0.000		0.000		1.500	Oct 2013	-		1.500	0.000	1.500	
Primary Hardware Development for CTD (Maser & AOG Upgrade)	C/IDIQ	Federated IT:Not Specified	0.000	0.000		0.000		0.200	Dec 2013	-		0.200	0.000	0.200	
Primary Hardware Development for CTD (Develop Site Verification System)	C/IDIQ	Federated IT:Not Specified	0.000	0.000		0.000		1.000	Dec 2013	-		1.000	0.000	1.000	
Primary Hardware Development for CTD (Fiber Link System)	SS/FFP	Linear Photonics:Not Specified	0.000	0.000		0.000		2.600	Mar 2014	-		2.600	0.000	2.600	
Ancillary Hardware Development 1	Various	U.S. Naval Observatory:Washington, DC	0.000	0.000		0.140	Jan 2013	0.040	Oct 2013	-		0.040	0.000	0.180	
Ancillary Hardware Development 2	Various	U.S. Naval Observatory:Washington, DC	0.000	0.000		0.000		0.040	Jan 2014	-		0.040	0.000	0.040	
Ancillary Hardware Development 3	Various	U.S. Naval Observatory:Washington, DC	0.000	0.000		0.000		0.084	Apr 2014	-		0.084	0.000	0.084	
Product Development	WR	The Naval Observatory:Washington, DC	18.672	0.999	Oct 2011	0.000		0.000		-		0.000	0.000	19.671	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2344.: *Precise Time and Astrometry*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Precise Timing & Astrometry	Various	Various:Various	19.144	0.000		0.000		0.000		-		0.000	0.000	19.144	
		Subtotal	37.816	0.999		1.923		7.214		0.000		7.214			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support (All PTA - Labor) 1	TBD	U.S. Naval Observatory (Civilian Labor):Washington, DC	0.000	0.000		0.100	Oct 2012	0.195	Oct 2013	-		0.195	Continuing	Continuing	Continuing
Development Support (All PTA - Labor) 2	TBD	U.S. Naval Observatory (Civilian Labor):Washington, DC	0.000	0.000		0.200	Jan 2013	0.195	Jan 2014	-		0.195	Continuing	Continuing	Continuing
Development Support (All PTA - Labor) 3	TBD	U.S. Naval Observatory (Civilian Labor):Washington, DC	0.000	0.000		0.200	Apr 2013	0.195	Apr 2014	-		0.195	Continuing	Continuing	Continuing
Development Support (All PTA - Labor) 4	TBD	U.S. Naval Observatory (Civilian Labor):Washington, DC	0.000	0.000		0.200	Jul 2013	0.195	Jul 2014	-		0.195	Continuing	Continuing	Continuing
Software Development (SW Correlator GUI)	SS/FFP	CPI:Not Specified	0.000	0.000		0.130	Feb 2013	0.000		-		0.000	0.000	0.130	
Software Development (EOP Automation)	C/FFP	TBD:Not Specified	0.000	0.000		0.000		0.600	Dec 2013	-		0.600	0.000	0.600	
Travel 1	TBD	U.S. Naval Observatory (Civilian Travel):Varies	0.000	0.000		0.000		0.017	Oct 2013	-		0.017	0.000	0.017	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2344.: *Precise Time and Astrometry*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel 2	TBD	U.S. Naval Observatory (Civilian Travel):Varies	0.000	0.000		0.000		0.017	Jan 2014	-		0.017	0.000	0.017	
Travel 3	TBD	U.S. Naval Observatory (Civilian Travel):Varies	0.000	0.000		0.020	Apr 2013	0.018	Apr 2014	-		0.018	0.000	0.038	
Travel 4	TBD	U.S. Naval Observatory (Civilian Travel):Varies	0.000	0.000		0.020	Jul 2013	0.018	Jul 2014	-		0.018	0.000	0.038	
		Subtotal	0.000	0.000		0.870		1.450		0.000		1.450			

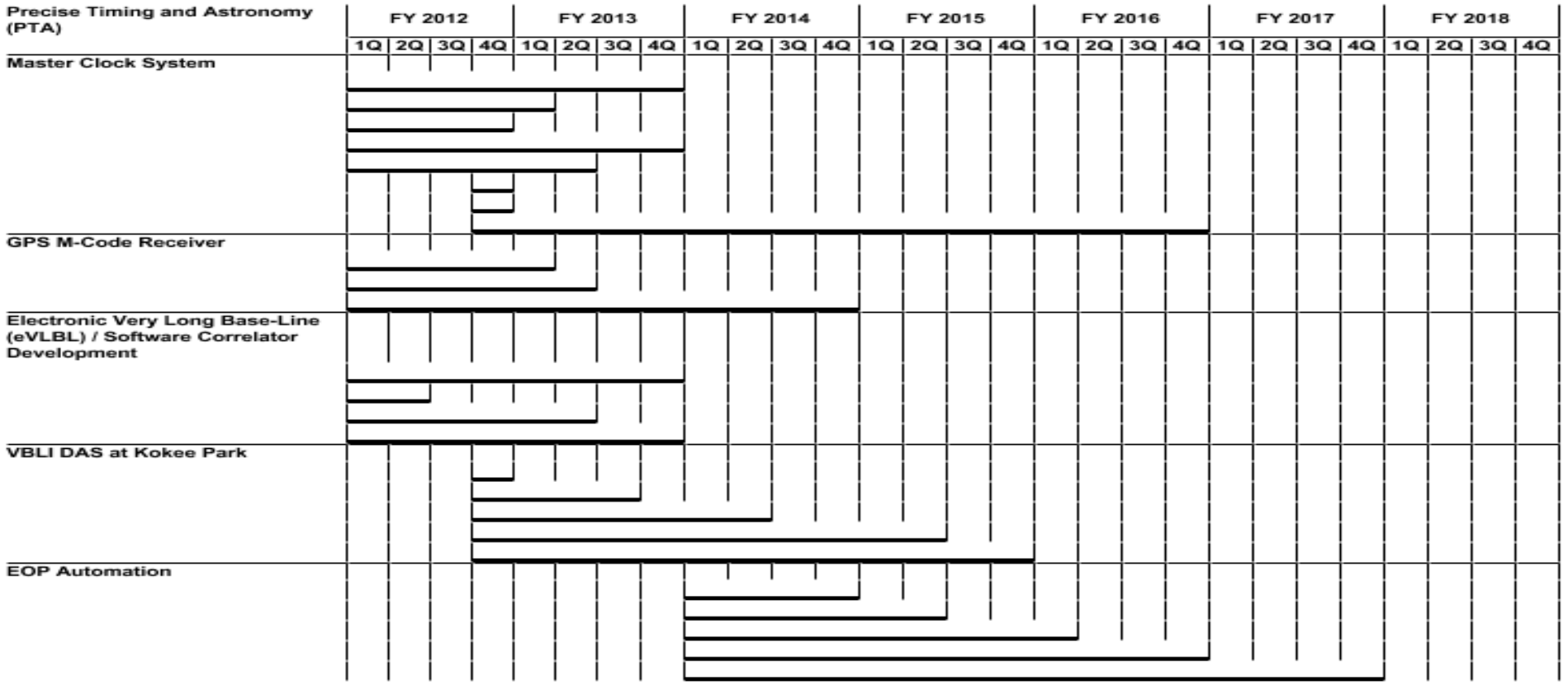
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Management Contractor Services (Kokee Park Antenna Project)	C/FFP	TBD:TBD	0.000	0.000		0.250	Jun 2013	0.250	Jun 2014	-		0.250	Continuing	Continuing	Continuing
Acquisition Workforce	Various	Various:Various	0.099	0.000		0.000		0.000		-		0.000	0.000	0.099	
		Subtotal	0.099	0.000		0.250		0.250		0.000		0.250			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	37.915	0.999		3.043		8.914		0.000		8.914			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2344.: *Precise Time and Astrometry*



2014DON - 0603207N - 2344.L60

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603207N: *Air/Ocean Tactical Applications*	**PROJECT** 2344.: *Precise Time and Astrometry*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Precise Timing and Astronomy (PTA)				
Master Clock System: Rubidium (Rb) Fountain	1	2012	4	2013
Master Clock System: Rb Fountain Initial Operational Capability (IOC) - Milestone C (MC)	1	2012	1	2013
Master Clock System: IOC for Rb Fountain Clocks at AMC	1	2012	4	2012
Master Clock System: Rb Full Operational Capability (FOC) - MC	1	2012	4	2013
Master Clock System: Rb FOC - AMC	1	2012	2	2013
Master Clock System: Optical Fiber Time Transmission	4	2012	4	2012
Master Clock System: Fiber Time Transmission in Baltimore/DC Area	4	2012	4	2012
Master Clock System: Fiber Time Transmission - Urban Demo	4	2012	4	2016
GPS M-Code Receiver: AF OCX Project Critical Design Review (CDR)	1	2012	1	2013
GPS M-Code Receiver: M-Code IOC at USNO	1	2012	2	2015
GPS M-Code Receiver: M-Code FOC at USNO	1	2012	4	2018
Electronic Very Long Base-Line (eVLBL) / Software Correlator Development: Wide Band eVBLI Operations Start	1	2012	4	2013
Electronic Very Long Base-Line (eVLBL) / Software Correlator Development: CDR Software COR	1	2012	2	2012
Electronic Very Long Base-Line (eVLBL) / Software Correlator Development: IOC - Software COR	1	2012	2	2013
Electronic Very Long Base-Line (eVLBL) / Software Correlator Development: FOC - SW COR Upgrade	1	2012	4	2014
VBLI DAS at Kokee Park: Finalize System Design	4	2012	4	2012
VBLI DAS at Kokee Park: Antenna Procurement Contract	4	2012	3	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 2344.: *Precise Time and Astrometry*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
VBLI DAS at Kokee Park: Kokee Park Site Preparation	4	2012	2	2014
VBLI DAS at Kokee Park: Contract to procure receiver and electronic infrastructure	4	2012	3	2014
VBLI DAS at Kokee Park: IOC	4	2012	4	2015
VBLI DAS at Kokee Park: FOC	4	2012	3	2016
EOP Automation: PDR	1	2014	4	2014
EOP Automation: Preliminary Automated SW	1	2014	1	2016
EOP Automation: IOC	1	2014	2	2017
EOP Automation: FOC	1	2014	3	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 3207: *Fleet Synthetic Training*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3207: *Fleet Synthetic Training*	0.943	0.936	1.041	2.853	-	2.853	2.889	1.105	1.124	1.144	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Fleet Synthetic Training (FST) provides naval forces with an enhanced in-port training capability. Integrating embedded shipboard training devices, aircraft and submarine simulators into an interoperable network with joint, coalition and interagency partners will provide more effective training for our deploying naval forces.

A key factor in achieving this new way of training our naval forces is to ensure that the required training is based on realistic characterizations of the physical environment. This project develops and delivers software that characterizes the ocean and atmospheric environments; adjusts to meet fleet-required training scenarios; allows synthetic training to be conducted in areas of planned and contingency operations; and, provides sufficient detail to simulate the real-world conditions of the physical environment in those areas of interest.

Ballistic Missile Defense (BMD) FST at Sea funding will provide the capability to conduct integrated Live, Virtual and Constructive (LVC) single or multi-ship exercises with ships at sea using the Navy Continuous Training Environment (NCTE). This capability will support BMD mission area Fleet training and mission rehearsal in theater, allow ships to participate in Combatant Command (COCOM) mandated BMD exercises while pierside or underway, as well as enhance BMD training objective accomplishment in current Fleet Requirements Training Plan (FRTP) underway training events such as Composite Training Unit Exercises (COMPTUEX) and Joint Task Force Exercises (JTFEX). The NCTE and FST directly support Fleet training readiness and strike group and BMD platform deployment certifications.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Ballistic Missile Defense Fleet Synthetic Training	0.000	0.000	1.883
Articles:			0
Description: Develop a distributed training capability to provide simulation data via a satellite network to the ship underway to stimulate the combat systems. Coordinate efforts with NAVSEA, SPAWAR, and NAVAIR.			
FY 2014 Plans: * Develop a distributed training capability to provide simulation data via a satellite network to the ship underway to stimulate the combat systems.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 3207: *Fleet Synthetic Training*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
* Coordinate efforts with Naval Air Warfare Center Training System Division (NAWC TSD) and Naval Surface Warfare Center (NSWC). Develop BMD FST at Sea capability to support BMD Mission Area training and Mission Rehearsal in Theater. Test and certification of the capability will be conducted FY 2015.			
Title: Fleet Synthetic Training	0.936	1.041	0.970
Articles:	0	0	0
Description: Develop and deliver software that characterizes the ocean and atmospheric environments; adjusts to meet fleet-required training scenarios; allows synthetic training to be conducted in areas of planned and contingency operations; and, provides sufficient detail to simulate the real-world conditions of the physical environment in those areas of interest. Accomplishments include development of meteorological and oceanographic environmental databases for total of 10 of 14 Navy Continuous Training Environment (NCTE) exercise areas. Conducted data and architecture testing between Commander, Naval Meteorology and Oceanography Command (CNMOC) data and the Environmental Data Cube Support system. Integrated environmental database hosting at the Naval Oceanographic Office. Developed capability to realistically simulate bathythermograph data collection based on synthetic ocean environment for total of 6 of 14 NCTE areas. Enhanced realism of training environment by providing synthetic satellite/radar imagery based on synthetic enviromental data. Made improvements in generating acoustic performance products used by Anti-Submarine Warfare (ASW) white cell and ASW commander staff. Conducted verification and validation of acoustic performance products. ***FY 2012 Accomplishments:*** Developed meteorological and oceanographic environmental databases for total of 14 Navy Continuous Training Environment (NCTE) exercise areas. Conducted data and architecture testing between CNMOC data and the Environmental Data Cube Support system. Integrated environmental database hosting at the Naval Oceanographic Office. Developed capability to realistically simulate bathythermograph data collection based on synthetic ocean environment for total of 14 NCTE areas. Enhanced realism of training environment by expanding major training areas to provide better upstream data and providing synthetic satellite/radar imagery based on synthetic environmental data. Made improvements in generating acoustic performance products used by Anti-Submarine Warfare (ASW) white cell and ASW commander staff. Conducted verification and validation of acoustic performance products. Initiated study to measure effectiveness of meteorologic and oceanographic products during FST events to better support exercises and real world operations. ***FY 2013 Plans:*** * Develop/implement Environmental Data Cube Support System (EDCSS) production capability at Navy Warfare Development Command (NWDC) * Develop Live Virtual Constructive capability in support of Fleet Synthetic training events * Research "Modeling on Demand" capability via EDCSS			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 3207: *Fleet Synthetic Training*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
* Research Modeling on Demand capability using High Performance Computing at Defense Shared Resource Center ***FY 2014 Plans:*** * Research/Implement automated Tactical Oceanographic Forecast products * Develop additional performance surface capability enhancements * Complete development of Machine-to-Machine (M2M) capability for Environmental Data Cube Support System (EDCSS) interface in support of environmental product generation * Implement "Modeling on Demand" capability			
Accomplishments/Planned Programs Subtotals	0.936	1.041	2.853

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The included technology developments are primarily in-house with contractor participation through existing vehicles.

E. Performance Metrics

1) CNMOC will produce meteorological and oceanographic environmental databases for all Navy Continuous Training Environment (NCTE) exercise areas. Will implement, test, and integrate with JSAF and other federates in accordance with requirements.

2) CNMOC will complete data and architecture integration, including information assurance compliance for provision of synthetic Meteorological and Oceanographic Command (METOC) data to the NCTE. Data and products will be available via NEP-Oc, DVD and/or Machine-to-Machine (M2M) during planning and execution of FST events.

3) CNMOC will produce products based on synthetic ocean environment and synthetic satellite/radar imagery based on meteorological environmental data for all NCTE exercise areas. Products are utilized in planning and execution of FST events.

4) NWDC, in FY14, will develop, in coordination with Naval Air Warfare Center Training System Division (NAWC TSD) and Naval Surface Warfare Center (NSWC), the capability to provide simulation data to the ship underway to stimulate the combat systems.

5) NWDC, in FY15, will lead, in coordination with NAWC TSD and NSWC, the test and certification of the capability for BMD FST at Sea.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 3207: *Fleet Synthetic Training*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NAWC TSD:Orlando, FL	0.000	0.000		0.248	Jun 2013	0.000		-		0.000	0.248	0.496	
		Subtotal	0.000	0.000		0.248		0.000		0.000		0.000	0.248	0.496	

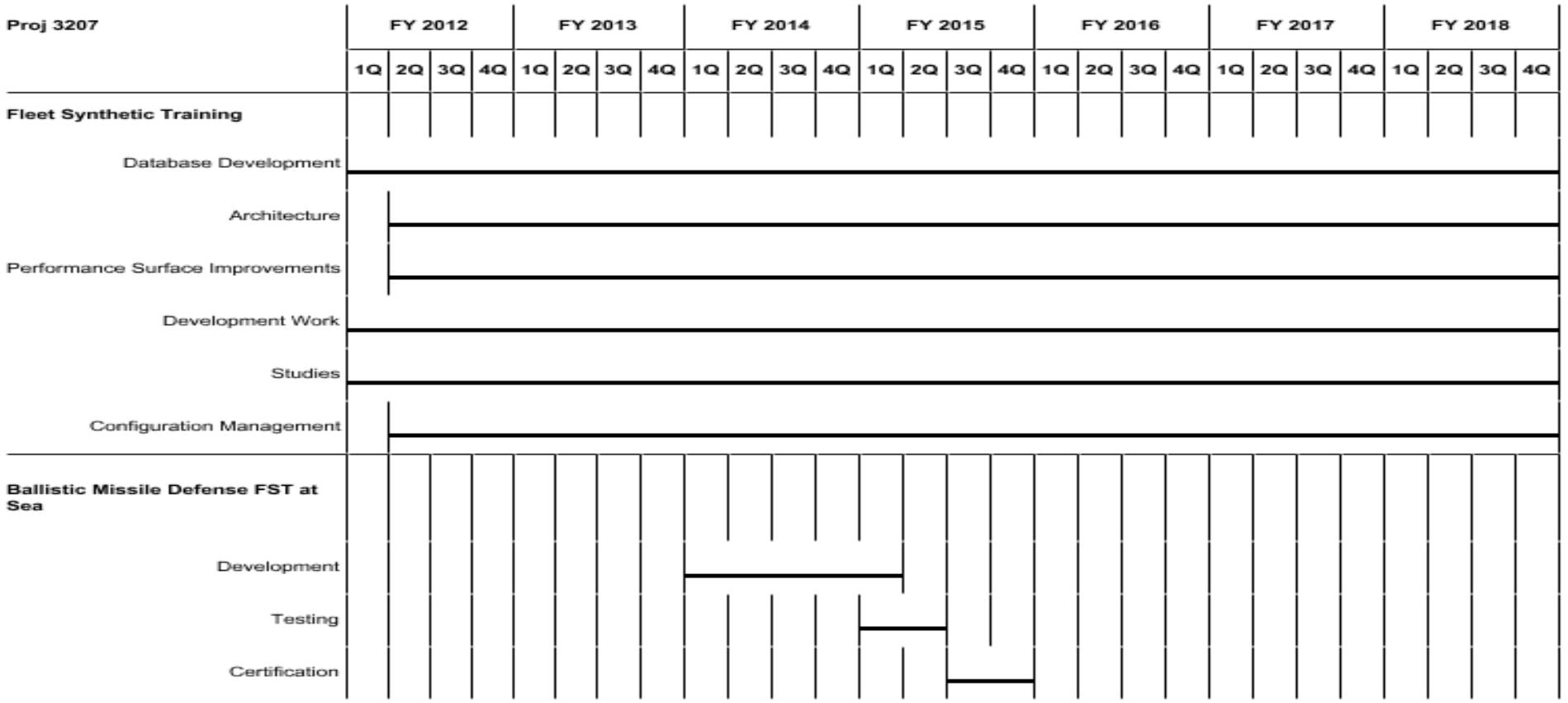
Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NRL / AER:MS / CA / VA	0.471	0.083	Nov 2011	0.300	Nov 2012	0.500	Nov 2013	-		0.500	Continuing	Continuing	Continuing
Software Development	SS/CPFF	AER / GEOCENT:VA / MS	0.237	0.480	Nov 2011	0.493	Jan 2013	0.370	Jan 2014	-		0.370	Continuing	Continuing	Continuing
Configuration Management	WR	AER / GEOCENT:VA / MS	0.135	0.247	Feb 2012	0.000		0.100	Mar 2014	-		0.100	0.000	0.482	
Studies and Analysis	Various	Various:Various	0.100	0.126	Jun 2012	0.000		0.000		-		0.000	0.000	0.226	
Software Development	MIPR	Alion Science & Technology:Norfolk, VA	0.000	0.000		0.000		1.133	Nov 2013	-		1.133	0.000	1.133	
Testing/Certification	WR	NSWC:Dahlgren, VA	0.000	0.000		0.000		0.250	Nov 2013	-		0.250	0.000	0.250	
TCSS Development	WR	NAWC TSD:Orlando, FL	0.000	0.000		0.000		0.500	Nov 2013	-		0.500	0.000	0.500	
		Subtotal	0.943	0.936		0.793		2.853		0.000		2.853			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.943	0.936		1.041		2.853		0.000		2.853			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 3207: *Fleet Synthetic Training*



2014DON - 0603207N - 3207

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603207N: *Air/Ocean Tactical Applications*	**PROJECT** 3207: *Fleet Synthetic Training*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3207				
Fleet Synthetic Training: Database Development:	1	2012	4	2018
Fleet Synthetic Training: Architecture:	2	2012	4	2018
Fleet Synthetic Training: Performance Surface Improvements:	2	2012	4	2018
Fleet Synthetic Training: Development Work:	1	2012	4	2018
Fleet Synthetic Training: Studies:	1	2012	4	2018
Fleet Synthetic Training: Configuration Management:	2	2012	4	2018
Ballistic Missile Defense FST at Sea: Development: Schedule Detail	1	2014	1	2015
Ballistic Missile Defense FST at Sea: Testing: Schedule Detail	1	2015	2	2015
Ballistic Missile Defense FST at Sea: Certification: Schedule Detail	3	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 3229: *JMAPS*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3229: *JMAPS*	117.885	18.800	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	136.685
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Joint Milli-Arcsecond Pathfinder Survey (JMAPS) program. Joint strike operations require extremely accurate Positioning, Navigation, and Timing (PNT) systems in order to locate hostile threats with space-borne Intelligence Surveillance and Reconnaissance (ISR) systems, and then to deliver ordnance on precisely selected targets. The Navy provides a key component of PNT - the Celestial Reference Frame. This reference frame is defined in star catalogs that are used in conjunction with star trackers to determine orientation of space-based sensors to minimize target location error and the resultant weapon system accuracy. The accuracy of star positions (hence ability to hit desired target) is degrading with time due to the movement of stars since the last highly accurate space-based measurements of star positions (order of 1 milli-arcsecond) were made in 1991. The JMAPS initiative was to satisfy the emerging requirements for a new high accuracy star catalog through a space-based. However, the program was ahead of current war-fighter requirements and was terminated by Navy eliminating funding in FY13 and out.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: JMAPS	18.800	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: JMAPS closed out all Preliminary Design Review (PDR) activities, with the exception of the ground segment, and began advance design and engineering activities. Completed spacecraft bus component fabrication and delivered in place. Completed instrument design including detector and partial instrument electronics, finalized the optical telescope design, and initialized telescope production. Final deliveries of the sensor chip assemblies occured and chip integration into the Focal Plane Assembly (FPA) began. Delivery of the engineering model for FPA occured. Updated Mission performance analysis based on instrument and bus design and available test data. All design and development completed captured program state at time of termination or enabled transition of selected components to leverage current investment in technology development.			
Accomplishments/Planned Programs Subtotals	18.800	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 3229: *JMAPS*

D. Acquisition Strategy

The program was ahead of current war-fighter requirements and was terminated by Navy eliminating funding in FY13 and out.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 3229: *JMAPS*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Instrument Development & Integration	WR	Naval Research Laboratory:Washington, DC	54.110	6.482	Dec 2011	0.000		0.000		-		0.000	0.000	60.592	
Space Bus	SS/CPFF	AeroAstro, Inc.:Ashburn, VA	30.749	5.707	Dec 2011	0.000		0.000		-		0.000	0.000	36.456	
Optical Telescope	SS/CPFF	L3 Communications SSG:Tinsley, Wilmington, MA	6.799	3.604	Jan 2012	0.000		0.000		-		0.000	0.000	10.403	
Sensor Chip Assembly	SS/CPFF	Teledyne Scientific & Imaging (AKA Rockwell Intl.):Camarillo, CA	1.998	1.977	Jan 2012	0.000		0.000		-		0.000	0.000	3.975	
Mission Analysis	WR	United States Naval Observatory:Washington, DC	2.769	0.625	Jan 2012	0.000		0.000		-		0.000	0.000	3.394	
Algorithm Development	WR	United States Naval Observatory:Washington, DC	6.018	0.000		0.000		0.000		-		0.000	0.000	6.018	
System Requirements	Various	Various:Various	13.244	0.000		0.000		0.000		-		0.000	0.000	13.244	
		Subtotal	115.687	18.395		0.000		0.000		0.000		0.000	0.000	134.082	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Requirements and Performance Analysis, Systems Engineering	C/CPFF	MANDEX, Inc.:Arlington, VA	0.358	0.199	Nov 2011	0.000		0.000		-		0.000	0.000	0.557	Continuing
Trade-Off Studies	C/CPFF	AEROSPACE:Albuquerque, NM	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	0.200
Systems and Technical Support	Various	Universities/ Colleges:Various	0.150	0.000	Feb 2012	0.000		0.000		-		0.000	0.000	0.150	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 3229: *JMAPS*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.708	0.199		0.000		0.000		0.000		0.000	0.000	0.907	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMO Support	SS/CPFF	BAH:San Diego, CA	0.365	0.206	Dec 2011	0.000		0.000		-		0.000	0.000	0.571	
PMO Support	SS/CPFF	ITS:Arlington, VA	1.125	0.000		0.000		0.000		-		0.000	0.000	1.125	Continuing
		Subtotal	1.490	0.206		0.000		0.000		0.000		0.000	0.000	1.696	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	117.885	18.800		0.000		0.000		0.000		0.000	0.000	136.685	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603207N: *Air/Ocean Tactical Applications*	PROJECT 3229: *JMAPS*

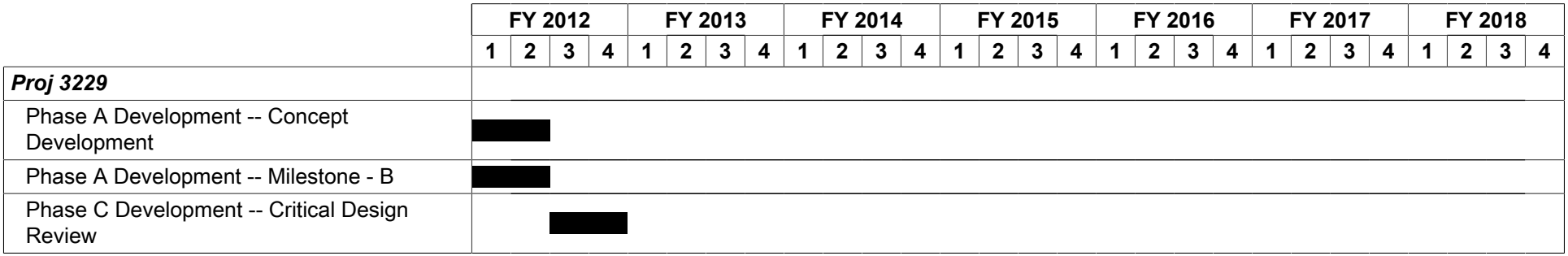


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603207N: *Air/Ocean Tactical Applications*	**PROJECT** 3229: *JMAPS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3229				
Phase A Development -- Concept Development	1	2012	2	2012
Phase A Development -- Milestone - B	1	2012	2	2012
Phase C Development -- Critical Design Review	3	2012	4	2012

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	147.922	10.720	8.783	5.591	-	5.591	5.750	5.862	6.146	6.242	Continuing	Continuing
0584: *Acft Protective Clothing*	80.275	6.993	5.049	2.461	-	2.461	2.593	2.633	2.725	2.769	Continuing	Continuing
0591: *Acft Survivability, Vulnerability & Safety*	37.945	1.616	1.616	1.447	-	1.447	1.473	1.521	1.588	1.612	Continuing	Continuing
0592: *Acft & Ordnance Safety*	29.637	1.395	1.401	1.068	-	1.068	1.066	1.079	1.170	1.188	Continuing	Continuing
1819: *CV Acft Fire Suppress System*	0.065	0.716	0.717	0.615	-	0.615	0.618	0.629	0.663	0.673	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Aviation Survivability addresses the issues of aircrew and platform survivability, focusing on enhancing overall opportunity for aircrew and platform protection and enhanced performance. The capabilities addressed under this program element counter emerging threats of next generation operational weapons systems and enhance combat effectiveness in future operational mission scenarios.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	10.893	8.783	6.640	-	6.640
Current President's Budget	10.720	8.783	5.591	-	5.591
Total Adjustments	-0.173	0.000	-1.049	-	-1.049
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.078	0.000			
• SBIR/STTR Transfer	-0.095	0.000			
• Rate/Misc Adjustments	0.000	0.000	-1.049	-	-1.049

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*

Change Summary Explanation

Technical: Not applicable.

Schedule: 0584 Advanced Helmet Vision System Laboratory Testing extended to 4th quarter 2014 to allow for integration into the helmet system.

Schedule: 0591 Rotary Wing Prototype Hardware and Rotary Wing Ballistic Testing were extended to 4th quarter 2018 due to deficiencies found as a result of biofuel/self-sealing fuel cell testing in FY12. Additional time is required to ensure mature technology is developed and available from vendors before government testing. Rotary Wing Signature Tests were extended due to identification of new threat type (as a result of the advanced threat line item) and the corresponding development of suitable mature technologies to mitigate the threat effects. Prototype Hardware Tests have been extended to allow for the maturation of suitable polymers to be used as fluid mitigation materials.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0584: *Acft Protective Clothing*	80.275	6.993	5.049	2.461	-	2.461	2.593	2.633	2.725	2.769	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Project 0584 develops, demonstrates, and validates technologies designed to enhance warfighter performance, protection, mission effectiveness, and survivability. The project addresses life support equipment, advanced helmet vision systems, escape systems technology, crew centered cockpit design, and control stations. Integrate and use alternative and new technologies for the Pilot Vehicle Integration, optimization of Intelligence Surveillance and Reconnaissance (ISR), and Forward Air Control-Air mission areas. Demonstrate innovative tools / approaches to improve situational awareness, new ISR technologies, and Graphical User Interfaces (new symbology and optimized logic for system employment). It responds to a number of operational requirements documents, including OR# 210-05-88 for Chemical and Biological protection, OR# 099-05-087 for Laser Eye Protection, and the joint Air Force/Navy (CAF-208-93) for an Aerospace Control Helmet Mounted Cueing System.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Advanced Technology Crew Station	5.504	3.982	1.575
Articles:	0	0	0
FY 2012 Accomplishments: Expand capability of rotary system to accommodate tactical platforms, begin integration of high resolution 4 megapixel cameras. Begin collaborative experimental data collection with the Netherlands under the signed Memorandum of Agreement to determine optimal scan patterns. Studies will occur in both the United States and Netherlands Ministry of Defense simulators. Continue the development and testing of the smart controllers for cockpit and external airbag deployment.			
FY 2013 Plans: Improve manufacturability of digital, high resolution (4 megapixel) night cameras. Begin development of high resolution (4 megapixel) displays. Continue safety of flight testing on a tactical platform for the Advanced Helmet Vision System (AHVS). Begin integrating smart controllers for crashworthy seating and external airbag deployment into the Joint Multi Role Future Vertical Lift platforms.			
FY 2014 Plans: Continue high resolution and micro display development. Continue lab and ground testing of AHVS. Begin integration of high resolution cameras in AHVS. Explore development of integrated short wave infrared and near infrared cameras.			
Title: Advanced Integrated Life Support System	1.489	1.067	0.886

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0	0	0
FY 2012 Accomplishments: Develop prototype personal mounted cooling device for initial testing. Modify visor / spectacle laser protective technologies to include color balancing. Color balancing will improve cockpit compatibility by reducing spectral distortion.			
FY 2013 Plans: Work jointly with Air Force and Army to expand the anthropometric database. Use injury data and Navy aircrew anthropometry to further improve aircrew accommodation (seating and protective personal equipment) and injury analysis / mitigation. Finish study of adding corrective prescriptions to laser eye protection.			
FY 2014 Plans: Develop test methodology to assess optical performance of multiple stacked optical elements (e.g., spectacle behind visor on Helmet Mounted Display). Begin integrating anthropometric software and models into modeling for design of optimized protective equipment. Continue working with the Army to document and define methodologies to mitigate head/neck injury.			
Accomplishments/Planned Programs Subtotals	6.993	5.049	2.461

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

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

E. Performance Metrics

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	Gentex:Simpson, PA	7.628	0.704	Jan 2012	1.960	Jan 2013	0.128	Jun 2014	-		0.128	0.000	10.420	10.420
Systems Engineering	WR	NAWCAD:Pax River MD	29.664	1.090	Dec 2011	0.589	Dec 2012	0.373	Dec 2013	-		0.373	Continuing	Continuing	Continuing
Licenses	WR	NAWCAD:Pax River MD	1.085	0.211	Dec 2011	0.211	Dec 2012	0.100	Dec 2013	-		0.100	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPFF	Intevac:San Jose CA	0.000	1.000	May 2012	1.192	Jan 2013	0.560	Jun 2014	-		0.560	0.000	2.752	2.752
Primary Hardware Development	MIPR	US Army CERDEC:Ft. Belvoir VA	0.000	2.500	May 2012	0.000		0.470	Mar 2014	-		0.470	0.000	2.970	2.970
Prior Year Prod Dev no Longer Funded in Budget Year or Outyears	Various	Various:Various	13.900	0.000		0.000		0.000		-		0.000	0.000	13.900	
		Subtotal	52.277	5.505		3.952		1.631		0.000		1.631			

Remarks

FY 2012 execution changes reduced the Gentex contract by $3.5M due to decision to partner with the Army to use their Color Low Light Imaging contract and the promotion of Intevac from Gentex sub contractor to Prime. In FY 2013 the Gentex contract will be reduced by $800K and sent to the Army to continue development of the micro display. The Army contract will continue through FY15.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Configuration Management	WR	NAWCAD:Pax River MD	1.228	0.596	Dec 2011	0.110	Dec 2012	0.110	Dec 2013	-		0.110	Continuing	Continuing	Continuing
Prior Year Support no Longer Funded in Budget Year or Outyears	Various	Various:Various	3.232	0.000		0.000		0.000		-		0.000	0.000	3.232	
		Subtotal	4.460	0.596		0.110		0.110		0.000		0.110			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD:Pax River MD	2.783	0.502	Dec 2011	0.545	Dec 2012	0.387	Dec 2013	-		0.387	Continuing	Continuing	Continuing
Prior Year T&E no Longer Funded in Budget Year or Outyears	Various	Various:Various	18.240	0.000		0.000		0.000		-		0.000	0.000	18.240	
		Subtotal	21.023	0.502		0.545		0.387		0.000		0.387			

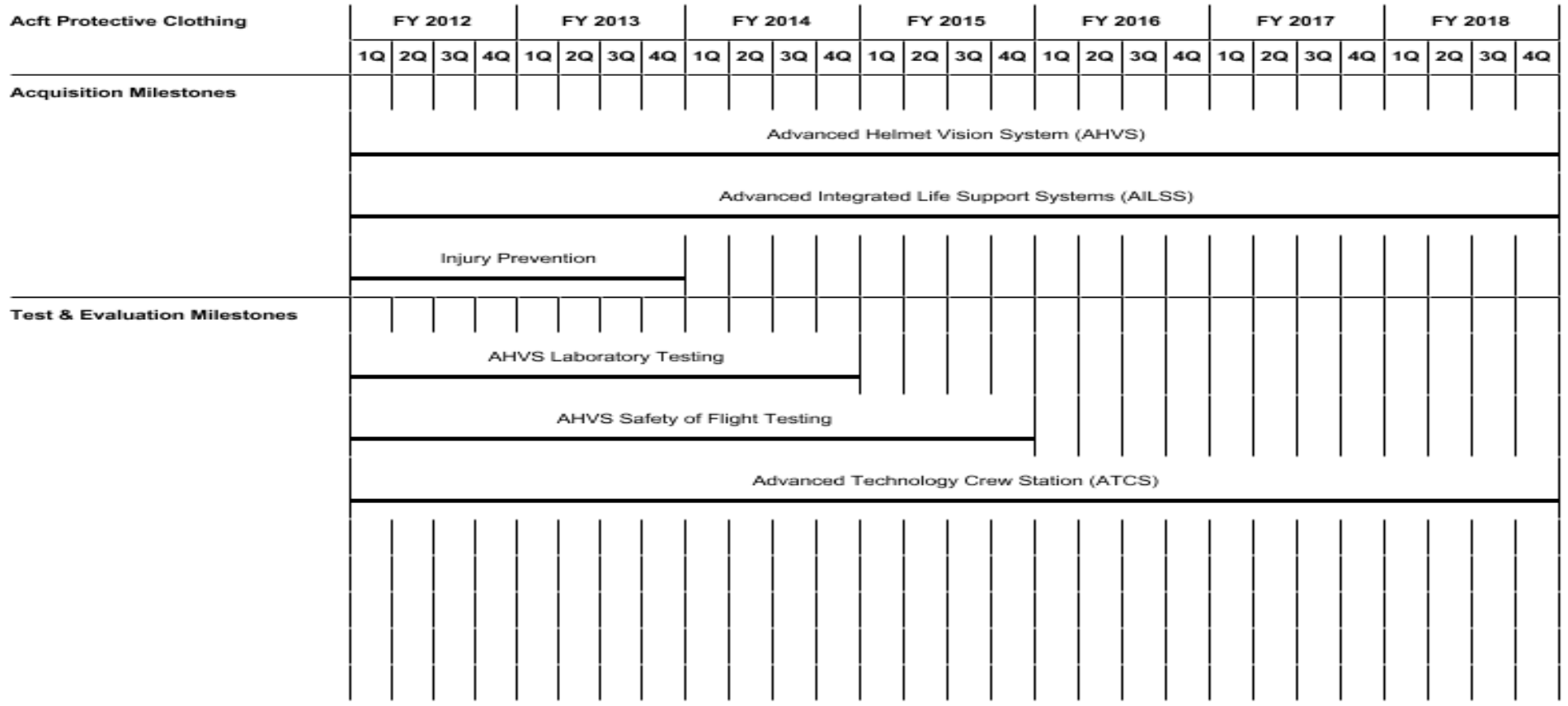
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Pax River MD	2.120	0.340	Dec 2011	0.392	Dec 2012	0.303	Dec 2013	-		0.303	Continuing	Continuing	Continuing
Travel	PO	NAVAIR:Pax River MD	0.385	0.050	Oct 2011	0.050	Oct 2012	0.030	Oct 2013	-		0.030	Continuing	Continuing	Continuing
Prior Year Mgmt Svcs no Longer Funded in Budget Year or Outyears	Various	Various:Various	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	
		Subtotal	2.515	0.390		0.442		0.333		0.000		0.333			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	80.275	6.993		5.049		2.461		0.000		2.461			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*



2014OSD - 0603216N - 0584

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acft Protective Clothing				
Acquisition Milestones: Advanced Helmet Vision System (AHVS)	1	2012	4	2018
Acquisition Milestones: Advanced Integrated Life Support Systems	1	2012	4	2018
Acquisition Milestones: Injury Prevention	1	2012	4	2013
Test & Evaluation Milestones: AHVS Laboratory Testing	1	2012	4	2014
Test & Evaluation Milestones: AHVS Safety of Flight Testing	1	2012	4	2015
Test & Evaluation Milestones: Advanced Technology Crew Station	1	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0591: *Acft Survivability, Vulnerability & Safety*	37.945	1.616	1.616	1.447	-	1.447	1.473	1.521	1.588	1.612	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Technology Requirements	0.273	0.259	0.215
Articles:	0	0	0
FY 2012 Accomplishments: Update program master plan based on trade studies to determine future technology requirements. Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, fire protection technologies, threat systems analysis, and biofuels impacts to survivability systems.			
FY 2013 Plans: Update program master plan based on trade studies to determine future technology requirements. Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, threat systems analysis, and biofuels impacts to survivability systems.			
FY 2014 Plans: Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, threat systems analysis, and biofuels impacts to survivability systems.			
Title: Technology Design & Development	0.905	0.956	0.782
Articles:	0	0	0
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Develop prototype materials to reduce infrared footprint of operational platforms. Develop and demonstrate/validate phase II prototype of transparent armor canopy and egress system. Develop platform-specific gearbox polymer modifications. Develop biofuels-compatible fuel bladders for testing. ***FY 2013 Plans:*** Evaluate equipment/technologies to reduce infrared footprint of operational platforms. Evaluate alternate transparent armor materials for canopy upgrades. Develop platform specific gearbox polymer modifications. Develop biofuels-compatible fuel bladders for testing. Develop alternate O2 bottles. ***FY 2014 Plans:*** Assess technologies to address acoustic and infrared signature reduction of operational platforms. Assess low gloss paint scheme impacts to signature reduction of aircraft. Assess nuclear, biological, and chemical decontamination materials to enhance crew survivability. Develop polymer applications for self-sealing fuel systems applications that are biofuels-compatible. Assess advancements in lightweight armor technologies for integration onto operational platforms.			
Title: Technology Test & Evaluation	0.438	0.401	0.450
Articles:	0	0	0
FY 2012 Accomplishments: Flight test armored canopy. Perform live fire testing on platform specific gearbox polymer modifications. Perform live fire test on biofuels-compatible fuel bladder. ***FY 2013 Plans:*** Perform live fire testing on platform specific gearbox polymer modifications. Perform live fire test on biofuels-compatible fuel bladder. Perform live fire test on alternate O2 bottles. ***FY 2014 Plans:*** Perform live fire testing on polymer-coated hardware. Perform live fire testing on lightweight armor coupon samples. Perform biofuels compatibility testing of polymer samples. Perform testing on signature reduction technologies.			
Accomplishments/Planned Programs Subtotals	1.616	1.616	1.447

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*

E. Performance Metrics

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary hardware Development	SS/CPFF	Bell Helicopter:Dallas, TX	0.934	0.150	Mar 2012	0.000		0.000		-		0.000	0.000	1.084	1.084
Primary Hardware Development	WR	NAWCAD:Pax River, MD	10.342	0.296	Oct 2011	0.195	Oct 2012	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD:Pax River, MD	11.239	0.336	Oct 2011	0.653	Oct 2012	0.633	Oct 2013	-		0.633	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCWD:China Lake, CA	0.000	0.056	Oct 2011	0.108	Oct 2012	0.049	Oct 2013	-		0.049	Continuing	Continuing	Continuing
Technology Design	C/CPFF	TBD:TBD	0.000	0.000		0.000		0.100	Jan 2014	-		0.100	0.000	0.100	0.100
Prior Year Prod Dev cost no longer funded in FYDP	Various	Various:Various	4.770	0.000		0.000		0.000		-		0.000	0.000	4.770	
		Subtotal	27.285	0.838		0.956		0.782		0.000		0.782			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Support cost no longer funded in FYDP	Various	Various:Various	4.569	0.000		0.000		0.000		-		0.000	0.000	4.569	
		Subtotal	4.569	0.000		0.000		0.000		0.000		0.000	0.000	4.569	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD:Pax River, MD	2.148	0.156	Oct 2011	0.113	Oct 2012	0.105	Oct 2013	-		0.105	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	MIPR	Army Research Lab:Aberdeen, MD	0.405	0.200	Mar 2012	0.122	Nov 2012	0.050	Nov 2013	-		0.050	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	WR	NAWCWD:China Lake, CA	1.647	0.185	Oct 2011	0.166	Oct 2012	0.154	Oct 2013	-		0.154	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Test & Evaluation	WR	NAWCAD:Pax River, MD	0.000	0.000		0.000		0.141	Oct 2013	-		0.141	Continuing	Continuing	Continuing
Prior Year T&E cost no longer funded in FYDP	Various	Various:Various	0.348	0.000		0.000		0.000		-		0.000	0.000	0.348	
		Subtotal	4.548	0.541		0.401		0.450		0.000		0.450			

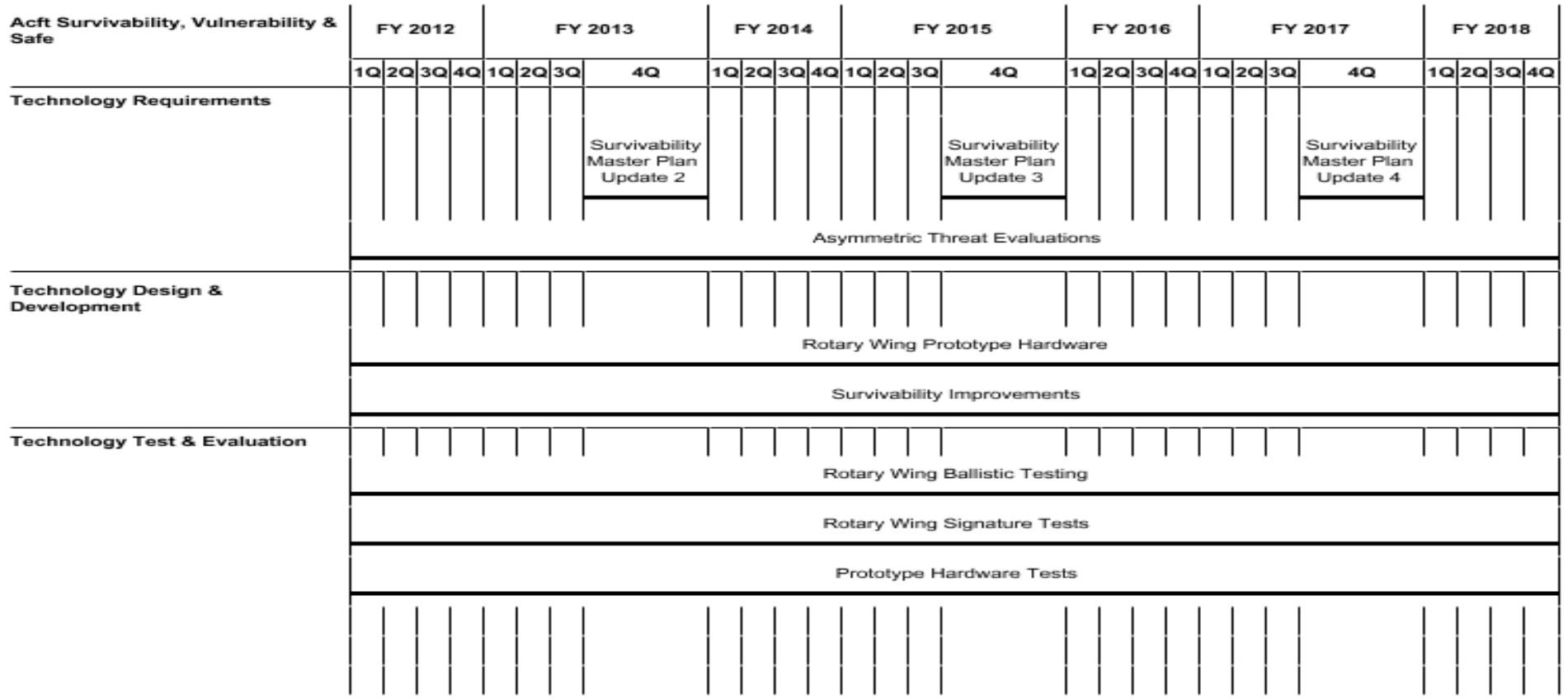
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Pax River, MD	0.879	0.216	Oct 2011	0.239	Oct 2012	0.202	Oct 2013	-		0.202	Continuing	Continuing	Continuing
Travel	PO	NAVAIR:Patuxent River, MD	0.324	0.021	Dec 2011	0.020	Oct 2012	0.013	Oct 2013	-		0.013	Continuing	Continuing	Continuing
Prior Year Mgmt cost no longer funded in FYDP	Various	Various:Various	0.340	0.000		0.000		0.000		-		0.000	0.000	0.340	
		Subtotal	1.543	0.237		0.259		0.215		0.000		0.215			

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	37.945	1.616		1.616		1.447		0.000		1.447			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*



2014OSD - 0603216N - 0591

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603216N: *Aviation Survivability*	**PROJECT** 0591: *Acft Survivability, Vulnerability & Safety*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acft Survivability, Vulnerability & Safe				
Technology Requirements: Survivability Master Plan Update 2	4	2013	4	2013
Technology Requirements: Survivability Master Plan Update 3	4	2015	4	2015
Technology Requirements: Survivability Master Plan Update 4	4	2017	4	2017
Technology Requirements: Asymmetric Threat Evaluations	1	2012	4	2018
Technology Design & Development: Rotary Wing Prototype Hardware	1	2012	4	2018
Technology Design & Development: Survivability Improvements	1	2012	4	2018
Technology Test & Evaluation: Rotary Wing Ballistic Testing	1	2012	4	2018
Technology Test & Evaluation: Rotary Wing Signature Tests	1	2012	4	2018
Technology Test & Evaluation: Prototype Hardware Tests	1	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0592: *Acft & Ordnance Safety*	29.637	1.395	1.401	1.068	-	1.068	1.066	1.079	1.170	1.188	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Insensitive Munitions (IM)	1.395	1.401	1.068
Articles:	0	0	0

FY 2012 Accomplishments:

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

Improve Air-Launched Weapons: Continue reactive liner evaluation in support of current transition efforts in bombs (Bomb Live Union ((BLU) 110/111). Continue IM evaluation for Tomahawk tandem warhead. Initiate minimum smoke propellant demonstration for rockets (transition out of Joint Service IM Technology Program).

Advanced Containment/Case/Warhead Materials: Continue Tomahawk hybrid case Mk 135 design/demonstration. Initiate IM evaluation of new Mk 135 propellant in composite case.

Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Continue Advanced Anti-Radiation Guided Missile (AARGM) container design/demonstration for PMA 242 planned transition (finalize design/initiate IM testing). Initiate shape charge jet test/evaluation for NAVAIR priority IM weapons.

FY 2013 Plans:

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Improve Air-Launched Weapons: Continue IM technical evaluation/demonstration for BLU 110 in support of current transition efforts and the PMA 201 plan of action and milestones. Continue IM evaluation for Tomahawk tandem (Joint Multi-Effects Warhead System) warhead, and initiate demonstration. Continue minimum smoke propellant demonstration for rockets (transition out of Joint Service Insensitive Munitions (IM) Technology Program). Advanced Containment/Case/Warhead Materials: Continue Tomahawk Mk 135 hybrid case design/demonstration with evaluation of new propellant designed to improve slow cook-off and operational performance. Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Finalize Advanced Anti-Radiation Guided Missile (AARGM) container IM testing for PMA 242. Initiate shape charge jet test/evaluation for NAVAIR priority IM weapons. Initiate Sidewinder Block III container design/demonstration to support PMA 259 transition. Continue alternative barrier evaluation for ballistic and shock mitigation. ***FY 2014 Plans:*** Improve Air-to-Air Demonstration: Continue Sidewinder warhead/rocket motor evaluation in support of PMA 259 FY16 planned transition. Continue IM technology demonstration for metal matrix composite rocket motor IM demonstration. Improve Air-Launched Weapons: Continue IM technical evaluation/demonstration for Bomb Live Unit (BLU) 110 reactive liner technology with performance enhancement (i.e., cast ductile iron, net explosive transitions from Joint Service IM Technology Program (JIMTP)) in support of current PMA 201 plan of action and milestones in the FY13/14 IM Strategic Plan. Continue minimum smoke propellant demonstration for rockets (transition out of JIMTP). Advanced Containment/Case/Warhead Materials: Continue Tomahawk Mk 135 hybrid case design/demonstration with evaluation of baseline propellant and evaluation of new propellant (JIMTP transition) designed to improve slow cook-off and operational performance. Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Finalize evaluation of AARGM container and warhead in tactical configuration to establish IM signature, based on current IM test standards, for PMA 242. Initiate evaluation of material structure and design for shape charge jet mitigation.			
Accomplishments/Planned Programs Subtotals	1.395	1.401	1.068

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCWD:China Lake, CA	29.629	1.395	Nov 2011	1.401	Nov 2012	1.068	Nov 2013	-		1.068	Continuing	Continuing	Continuing
		Subtotal	29.629	1.395		1.401		1.068		0.000		1.068			

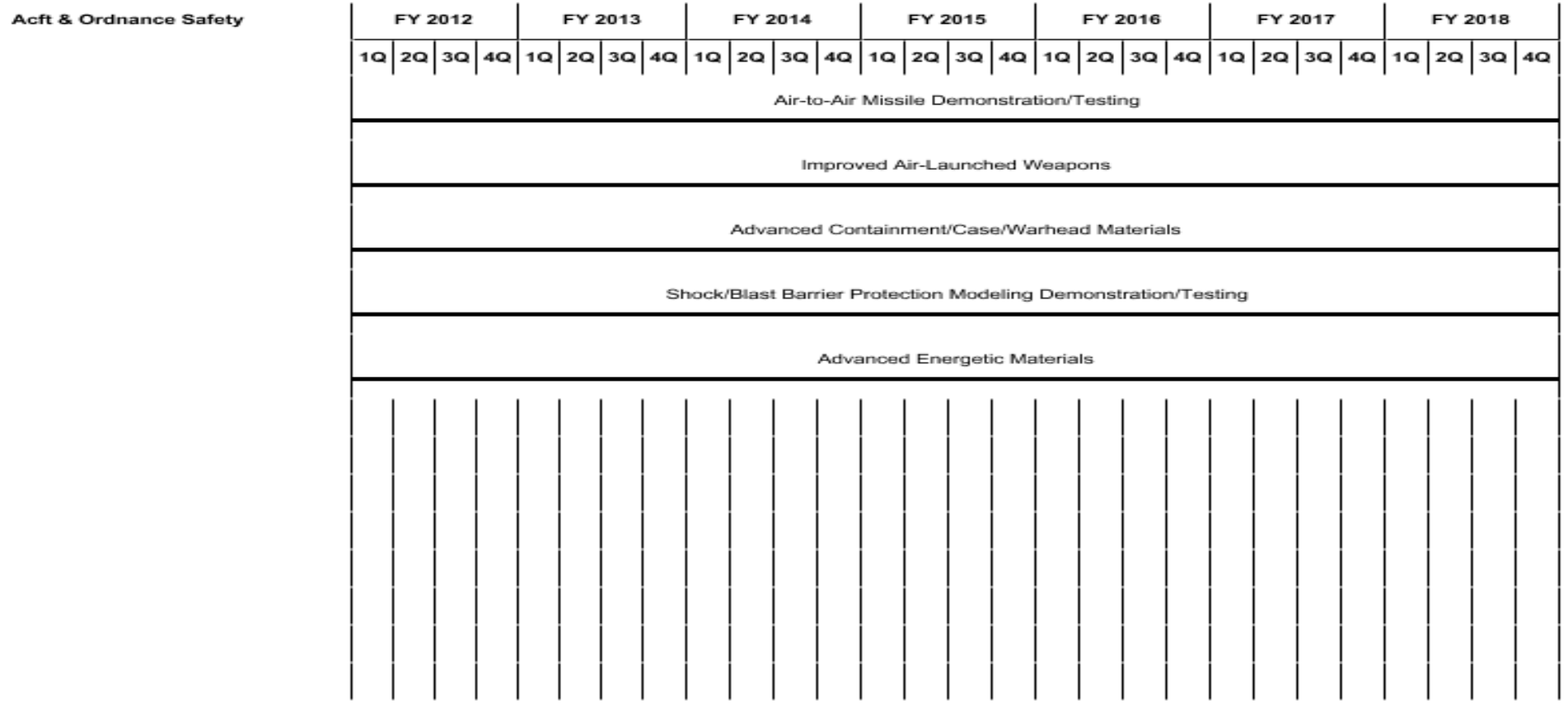
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce Fund	Various	Various:Various	0.008	0.000		0.000		0.000		-		0.000	0.000	0.008	
		Subtotal	0.008	0.000		0.000		0.000		0.000		0.000	0.000	0.008	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.637	1.395		1.401		1.068		0.000		1.068			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*



2014OSD - 0603216N - 0592

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603216N: *Aviation Survivability*	**PROJECT** 0592: *Acft & Ordnance Safety*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acft & Ordnance Safety				
Air-to-Air Missile Demonstration/Testing	1	2012	4	2018
Improved Air-Launched Weapons	1	2012	4	2018
Advanced Containment/Case/Warhead Materials	1	2012	4	2018
Shock/Blast Barrier Protection Modeling Demonstration/Testing	1	2012	4	2018
Advanced Energetic Materials	1	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 1819: *CV Acft Fire Suppress System*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1819: *CV Acft Fire Suppress System*	0.065	0.716	0.717	0.615	-	0.615	0.618	0.629	0.663	0.673	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Fire-Fighting	0.716	0.717	0.615
Articles:	0	0	0

FY 2012 Accomplishments:

Continue to test hardware for cooling of Joint Strike Fighter (JSF) internally carried ordnance. Continue development of Aqueous Film-Forming Foam (AFFF) application nozzle and procedures for Electromagnetic Aircraft Launch System (EMALS). Finalize procedures for cooling of JSF internally carried ordnance. Provide subject matter expert support to the Aircraft Fire Fighting Naval Air Training and Operating Procedures Standardization (NATOPS) (80R-14) model manager during the upcoming 80R-14 NATOPS Rewrite Conference. Evaluate the effectiveness of and economies afforded by intermittent weapons cooling streams (vice constant). Continue participation in development/testing of new environmentally friendly AFFF concentrates.

FY 2013 Plans:

Continue development of AFFF application nozzle and procedures for EMALS. Research means to prevent aircraft loss due to lithium ion battery runaway casualty. Initiate study to determine crash and fire procedures necessary for large-frame unmanned air vehicles (e.g., Navy Unmanned Combat Air System). Begin development of a composite filtering flash hood. Conclude evaluation of the effectiveness of and economies afforded by intermittent weapons cooling streams (vice constant). Develop doctrine and tactics to address hazardous material pile fire threatening aircraft in hangar.

FY 2014 Plans:

Conclude research to prevent aircraft loss due to Li-ion battery runaway casualty. Conclude development of guidance for crash and fire on large-frame unmanned air vehicle (Navy Unmanned Combat Air System). Conclude development of composite filtering flash hood. Study hazards and develop guidance for hot refuel of helicopters using zodiac bags. Analyze and quantify risk to flight

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 1819: *CV Acft Fire Suppress System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
deck firefighters from weapons in mishap scenarios. Perform risk analysis tools survey and capability gap assessment in support of mishap scenario task.			
Accomplishments/Planned Programs Subtotals	0.716	0.717	0.615

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 1819: *CV Acft Fire Suppress System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Thomas Associates:Stevensville, MD	0.065	0.061	Mar 2012	0.030	Dec 2012	0.050	Dec 2013	-		0.050	0.000	0.206	0.206
		Subtotal	0.065	0.061		0.030		0.050		0.000		0.050	0.000	0.206	0.206

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	C/CPFF	ICI:Virginia Beach, VA	0.000	0.035	Mar 2012	0.040	Apr 2013	0.025	Dec 2013	-		0.025	0.000	0.100	0.100
		Subtotal	0.000	0.035		0.040		0.025		0.000		0.025	0.000	0.100	0.100

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Test & Evaluation	WR	NAWCWD:China Lake, CA	0.000	0.303	Oct 2011	0.308	Oct 2012	0.250	Oct 2013	-		0.250	Continuing	Continuing	Continuing
Technology Test & Evaluation	WR	NSWC:Philadelphia, PA	0.000	0.080	Nov 2011	0.116	Apr 2013	0.052	Oct 2013	-		0.052	Continuing	Continuing	Continuing
Technology Test & Evaluation	C/CPFF	Thomas Associates:Stevensville, MD	0.000	0.044	Mar 2012	0.030	Dec 2012	0.045	Dec 2013	-		0.045	0.000	0.119	0.119
Technology Test & Evaluation	C/FFP	Hughes Associates:Baltimore, MD	0.000	0.135	Mar 2012	0.135	Jan 2013	0.135	Dec 2013	-		0.135	0.000	0.405	0.405
		Subtotal	0.000	0.562		0.589		0.482		0.000		0.482			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 1819: *CV Acft Fire Suppress System*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NAWCWD:China Lake, CA	0.000	0.058	Oct 2011	0.058	Oct 2012	0.058	Oct 2013	-		0.058	Continuing	Continuing	Continuing
		Subtotal	0.000	0.058		0.058		0.058		0.000		0.058			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.065	0.716		0.717		0.615		0.000		0.615			

Remarks

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy												DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603237N: *Deployable JT Cmd & Control*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	217.794	3.418	3.773	3.262	-	3.262	3.433	3.540	3.621	3.670	90.074	332.585
3050: *Deployable JT Command and Control*	217.794	3.418	3.773	3.262	-	3.262	3.433	3.540	3.621	3.670	90.074	332.585

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Deployable Joint Command and Control (DJC2) provides a self contained, standardized, rapidly deployable, modular, scaleable, and reconfigurable joint command and control (C2) capability to designated Geographic Combatant Commands (GCCs). DJC2 is the material solution to Defense Planning Guidance that called for the development of Standing Joint Task Forces (JTFs) with a deployable C2 capability. DJC2 will ensure that Joint Force Commanders (JFC) are equipped, as well as trained and organized, to carry out their C2 responsibilities. DJC2 provides GCCs and JFCs a mission critical, integrated family of systems with which to plan, control, coordinate, execute, and assess operations. It is designed to deploy rapidly, set up within hours, and quickly provide necessary C2 mission and collaboration functionality across the full spectrum of JTF operations. The DJC2 has also been deployed in support of Humanitarian Assistance and Disaster Relief (HA/DR) efforts. The capability is intended for all levels of conflict and will be reconfigurable to meet specific GCC and JTF mission requirements. This capability is interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	3.702	3.773	3.327	-	3.327
Current President's Budget	3.418	3.773	3.262	-	3.262
Total Adjustments	-0.284	0.000	-0.065	-	-0.065
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.191	0.000			
• SBIR/STTR Transfer	-0.093	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.065	-	-0.065

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603237N: *Deployable JT Cmd & Control*	PROJECT 3050: *Deployable JT Command and Control*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3050: *Deployable JT Command and Control*	217.794	3.418	3.773	3.262	-	3.262	3.433	3.540	3.621	3.670	90.074	332.585
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Deployable Joint Command and Control (DJC2) provides a self contained, standardized, rapidly deployable, modular, scaleable, and reconfigurable joint command and control (C2) capability to designated Geographic Combatant Commands (GCCs). DJC2 is the material solution to Defense Planning Guidance that called for the development of Standing Joint Task Forces (JTFs) with a deployable C2 capability. DJC2 will ensure that Joint Force Commanders (JFC) are equipped, as well as trained and organized, to carry out their C2 responsibilities. DJC2 provides GCCs and JFCs a mission critical, integrated family of systems with which to plan, control, coordinate, execute, and assess operations. It is designed to deploy rapidly, set up within hours, and quickly provide necessary C2 mission and collaboration functionality across the full spectrum of JTF operations. The DJC2 has also been deployed in support of Humanitarian Assistance and Disaster Relief (HA/DR) efforts. The capability is intended for all levels of conflict and will be reconfigurable to meet specific GCC and JTF mission requirements. This capability is interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces.

Note that DJC2 is not a follow-on or replacement system for the joint Global Command and Control Systems (GCCS); rather, DJC2 will utilize GCCS in its core suite of applications, ensuring interoperability with the worldwide-installed base of GCCS-J.

FY14 funds development of efforts for systems engineering and integration, and DJC2 Test Bed. Focus areas include communication and technology enhancement initiatives. Additionally, obsolescence and security posture enhancements will be addressed.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Systems Engineering & Integration	1.364	1.508	1.325
Articles:	0	0	0
FY 2012 Accomplishments: Identified and incorporated emerging/mandated Key Information Profiles required by the DJC2 Net Ready Key Performance Parameters (KPP) into system design. Obtained prototype equipment and conducted trades studies per the system engineering guidelines. Conducted Critical Design Reviews for upgrade plan upon design approval, prepared the mandatory Engineering			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603237N: *Deployable JT Cmd & Control*	**PROJECT** 3050: *Deployable JT Command and Control*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Change Proposals, and identified testing, training, and sparing requirements. Constructed, integrated and tested an alternative power scheme. ***FY 2013 Plans:*** Provide system enhancements to the communications system and validate through regression testing to support fielding decisions. Develop, test and evaluate a new Rapid Response Kit upgrade to include possible baseband solutions and various Super High Frequency (SHF) options. ***FY 2014 Plans:*** Continue to undertake development efforts for the communications system as well as information technology enhancements. Additionally, obsolescence and security posture enhancements will be addressed.			
Title: DJC2 RDT&E Test Bed	2.054	2.265	1.937
Articles:	0	0	0
FY 2012 Accomplishments: Incorporated fixes to the network system and validated through regression testing to support fielding decisions. Completed trade studies to identify the next generation client for DJC2. Identified and incorporated changes to the DJC2 test bed based on lessons learned from fielded systems and operational world events. ***FY 2013 Plans:*** Continue to incorporate fixes to the network system and validate through regression testing to support fielding decisions. Develop, design and integrate new information technology into the DJC2. Use DJC2 test bed for software testing and development of new capabilities. ***FY 2014 Plans:*** Continue to incorporate fixes to the network system and validate through regression testing to support fielding decisions. Develop, design and integrate new information technology into the DJC2. Use DJC2 test bed for software testing and development of new capabilities.			
Accomplishments/Planned Programs Subtotals	3.418	3.773	3.262

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN /2804: *DJC2*	8.657	9.064	3.249		3.249	3.453	3.252	3.354	3.393	144.033	335.344

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603237N: *Deployable JT Cmd & Control*	PROJECT 3050: *Deployable JT Command and Control*

D. Acquisition Strategy

This RDT&E line supports an evolutionary acquisition strategy. The intent of this strategy is to: develop a system based upon a current understanding of joint requirements; rapidly field systems based upon those requirements; analyze operational utilization of the systems; and roll the results of the analysis into periodic upgrades of the systems to maintain currency and maximize operational effectiveness. The baseline configuration is based upon existing Command, Control, Communications, Computers, & Intelligence (C4I) systems, scaled to the Combatant Command level. The follow-on configurations will include newly developed capabilities based on emergent, joint requirements and operational feedback based upon utilization of earlier delivered systems.

E. Performance Metrics

The Deployable Joint Command and Control (DJC2) program continues to identify, evaluate and test a minimum of 3 - 5 new technologies per year based on emergent / joint requirements for potential insertion into the DJC2 system upgrade plan.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603237N: *Deployable JT Cmd & Control*	PROJECT 3050: *Deployable JT Command and Control*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NSWC:PCD	45.811	0.803	Nov 2011	0.885	Dec 2012	0.778	Dec 2013	-		0.778	21.060	69.337	
Engineering Facility Development	WR	NSWC:PCD	33.931	1.130	Dec 2011	1.194	Dec 2012	0.997	Dec 2013	-		0.997	31.135	68.387	
Hardware Development	WR	NSWC:PCD	20.012	0.466	Dec 2011	0.516	Dec 2012	0.453	Dec 2013	-		0.453	7.270	28.717	
		Subtotal	99.754	2.399		2.595		2.228		0.000		2.228	59.465	166.441	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Integration	WR	NSWC:PCD	39.764	0.561	Nov 2011	0.623	Dec 2012	0.547	Dec 2013	-		0.547	4.783	46.278	
Technical Investigations	MIPR	MISC:VA	13.426	0.000		0.000		0.000		-		0.000	0.000	13.426	
Trade-off Studies & Analyses	MIPR	MISC:VA	9.000	0.000		0.000		0.000		-		0.000	0.000	9.000	
		Subtotal	62.190	0.561		0.623		0.547		0.000		0.547	4.783	68.704	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC:PCD	10.115	0.131	Dec 2011	0.159	Dec 2012	0.139	Dec 2013	-		0.139	6.170	16.714	
Operational Test & Evaluation	WR	NSWC:PCD	11.341	0.142	Dec 2011	0.173	Dec 2012	0.151	Dec 2013	-		0.151	7.365	19.172	
Test Assets	MIPR	MISC:MISC	4.000	0.000		0.000		0.000		-		0.000	0.000	4.000	
		Subtotal	25.456	0.273		0.332		0.290		0.000		0.290	13.535	39.886	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603237N: *Deployable JT Cmd & Control*	PROJECT 3050: *Deployable JT Command and Control*	

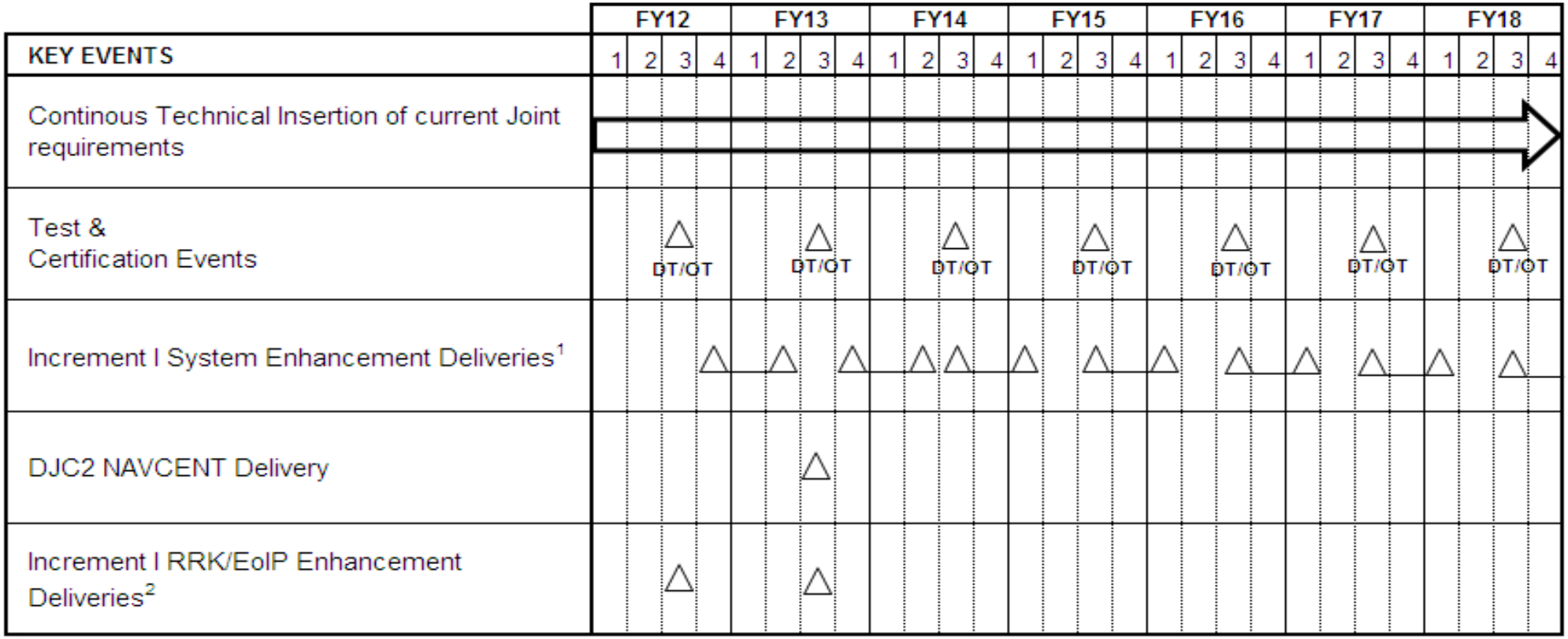
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NSWC:PCD	30.365	0.185	Nov 2011	0.223	Dec 2012	0.197	Dec 2013	-		0.197	12.291	43.261	
Acquisition Work Force	WR	NSWC:PCD	0.029	0.000		0.000		0.000		-		0.000	0.000	0.029	
		Subtotal	30.394	0.185		0.223		0.197		0.000		0.197	12.291	43.290	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	217.794	3.418		3.773		3.262		0.000		3.262	90.074	318.321	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603237N: *Deployable JT Cmd & Control*	**PROJECT** 3050: *Deployable JT Command and Control*



[1]Beginning in FY14, minor upgrades to all fielded systems at USSOUTHCOM Tampa, Florida, USEUCOM Stuttgart, Germany, US Army South, San Antonio, Texas, AFRICOM (SETAF) Vicenza, Italy, USPACOM Camp Smith, Hawaii, and Marine Expeditionary Force (III MEF) Camp Hensen, Japan will occur.

[2]Naval Mine and Anti Submarine Warfare Command (NMAWC) to receive two Increment I Rapid Response Kits (RRKs) in FY12 with upgrades in FY13.

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603237N: *Deployable JT Cmd & Control*	**PROJECT** 3050: *Deployable JT Command and Control*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3050				
Technical Insertion	1	2012	4	2018
Developmental Test/Operational Test a	3	2012	3	2012
Developmental Test/Operational Test b	3	2013	3	2013
Developmental Test/Operational Test c	3	2014	3	2014
Developmental Test/Operational Test d	3	2015	3	2015
Developmental Test/Operational Test e	3	2016	3	2016
Developmental Test/Operational Test f	3	2017	3	2017
Developmental Test/Operational Test g	3	2018	3	2018
Increment I System Enhancement Deliveries a	4	2012	2	2013
Increment I System Enhancement Deliveries b	4	2013	2	2014
Increment I System Enhancement Deliveries c	3	2014	1	2015
Increment I System Enhancement Deliveries d	3	2015	1	2016
Increment I System Enhancement Deliveries e	3	2016	1	2017
Increment I System Enhancement Deliveries f	3	2017	1	2018
Increment I System Enhancement Deliveries g	3	2018	4	2018
DJC2 NAVCENT Delivery	3	2013	3	2013
Increment I RRK/EoIP Enhancement Deliveries a	3	2012	3	2012
Increment I RRK/EoIP Enhancement Deliveries b	3	2013	3	2013

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	10.040	24.512	0.074	-	0.074	2.651	0.000	0.000	0.000	0.000	37.277
2777: *Highly Integrated Photonics (HIP)*	0.000	0.000	19.955	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	19.955
3331: *C-2 System Development*	0.000	10.040	4.557	0.074	-	0.074	2.651	0.000	0.000	0.000	0.000	17.322

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program element supports the study, evaluation, optimization and enhancements of fielded aircraft systems not supported by a system specific RDTEN program element. The supported efforts will provide a basis to recommend options for improved efficiency, minimization of life cycle cost, and other affordable options. As naval aircraft systems age, and analysis of the programmatic and /or reliability enhancements options allows the Department of the Navy to more effectively understand and manage system lifecycle costs and implications in future airborne platforms.

This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	10.497	24.512	2.736	-	2.736
Current President's Budget	10.040	24.512	0.074	-	0.074
Total Adjustments	-0.457	0.000	-2.662	-	-2.662
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.076	0.000			
• SBIR/STTR Transfer	-0.381	0.000			
• Program Adjustments	0.000	0.000	-0.006	-	-0.006
• Rate/Misc Adjustments	0.000	0.000	-2.656	-	-2.656

Change Summary Explanation

Technical: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*

Schedule: Schedule updated to reflect a change in the acquisition strategy. Schedule updated to reflect change in Validation, Verification and Kit Installation schedule due to reduction in funding allocation in FY14. Proj 2777 - funds were realigned from BSO14 to BSO19 in FY13. Schedule change for Developmental and Architectural Studies due to realignment.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 2777: *Highly Integrated Photonics (HIP)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2777: *Highly Integrated Photonics (HIP)*	0.000	0.000	19.955	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	19.955
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program element supports the requirements study, technology maturation, system design and demonstration of a general-purpose, future-proof avionics network that replaces copper with glass. As both analog and digital onboard information transport and processing requirements continue to grow, life cycle costs associated with maintaining and upgrading current stove-piped networks aboard naval aircraft systems becomes unsustainable. The size, weight, power, high data rate and scalability advantages of a single-mode fiber optic network have significant total ownership cost savings implications that will allow the Department of the Navy to more affordably and effectively meet mission requirements well into the future. The activities funded will provide a networking baseline or standard that can be incorporated into airborne platforms that maximize networking system capability while minimizing associated life cycle costs. While the development under this program does specifically address airborne platforms where size and weight of the cable plant is particularly important, ultimately the network technology developed will have broad applicability to shipboard and submarine platform network requirements as well.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Highly Integrated Photonics (HIP) Naval Networking	0.000	19.955	0.000
Articles:		0	
Description: The overarching objective of this activity is to develop and demonstrate a highly integrated Local Area Network (LAN) for airborne platforms incorporating an optical fiber network that uses wavelength division multiplexing (WDM) to address demanding military network re-configurability, scalability, and technology refresh challenges. The telecommunication network application of WDM technology is fully mature (TRL9) for commercial environments with little constraint on size, weight, and power (SWAP). The program will leverage and enhance the telecommunication standards for optical fiber networks while addressing the SWAP restrictions and severe environmental requirements of military airborne platforms. The functionality of the technology developed cannot be obtained through Commercial-Off-The-Shelf (COTS) components due to SWAP constraints and the military environment. Effort will involve understanding the properties of engineered optical fiber components and electronic semiconductors as they apply to highly integrated optical fiber networks. Ultimately these higher performance components and networks will address the needs for all classes of military platforms.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 2777: *Highly Integrated Photonics (HIP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Development and demonstration of highly integrated local area network for naval platforms.			
Accomplishments/Planned Programs Subtotals	0.000	19.955	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Highly Integrated Photonics Naval Networking strategy began as a joint effort with DARPA for development and demonstration of Analog and Digital Wavelength Division Multiplex Highly Integrated Photonics for aviation applications with the focus being a future technology refresh for the F-35 and, as an enterprise level technology, other applications. Funding extends the development and technology maturation to a technology/manufacturing readiness level compatible with transition to one, or more, Program(s) of Record.

E. Performance Metrics

Performance that adheres to the conventional Wavelength Division Multiplex optical network protocol standards, wavelengths and interface with Ethernet 10Gbit/s, MIL-STD-1553, and other protocols running concurrently on one or more single-mode fibers along with analog signals. Each critical component has a set of physical, environmental, and operational requirements driven by representative platform, systems, and operational metrics. Includes testing in a Systems/Software Integration Laboratory and in test aircraft.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 2777: *Highly Integrated Photonics (HIP)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental and Architectural Studies	C/FFP	APIC Corp:Culver, CA	0.000	0.000		0.500	Nov 2012	0.000		-		0.000	0.000	0.500	0.500
Primary Hardware Development	C/FFP	APIC Corp:Culver, CA	0.000	0.000		1.830	Nov 2012	0.000		-		0.000	0.000	1.830	1.830
Component Foundry & Fabrication	C/FFP	APIC Corp:Culver, CA	0.000	0.000		13.700	Jun 2013	0.000		-		0.000	0.000	13.700	13.700
Systems Engineering & Testing	C/FFP	APIC Corp:Culver, CA	0.000	0.000		2.670	Sep 2013	0.000		-		0.000	0.000	2.670	2.670
		Subtotal	0.000	0.000		18.700		0.000		0.000		0.000	0.000	18.700	18.700

Remarks

Changes due to BSO realignment from BSO14 to BSO19. Schedule change for Developmental and Architectural Studies due to realignment. Primary Hardware Development and Component Foundry & Fabrication fall under Design & Hardware Development on the R-4.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCAD:Pax River, MD	0.000	0.000		0.855	Oct 2012	0.000		-		0.000	0.000	0.855	
		Subtotal	0.000	0.000		0.855		0.000		0.000		0.000	0.000	0.855	

Management Services ($ in Millions)

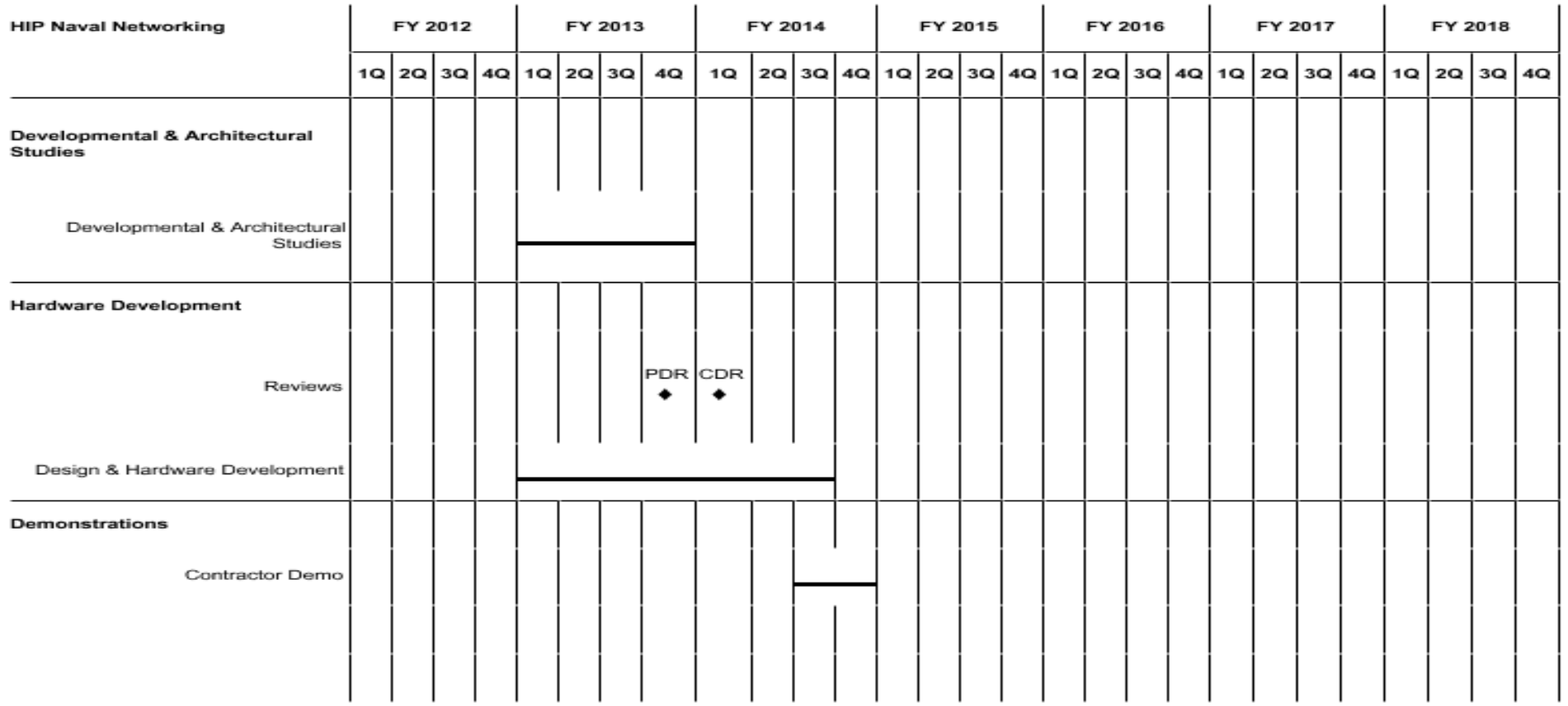
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NAWCAD:Pax River, MD	0.000	0.000		0.400	Oct 2012	0.000		-		0.000	0.000	0.400	
		Subtotal	0.000	0.000		0.400		0.000		0.000		0.000	0.000	0.400	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 2777: *Highly Integrated Photonics (HIP)*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		19.955		0.000		0.000		0.000	0.000	19.955	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 2777: *Highly Integrated Photonics (HIP)*



2014PB - 0603251N - 2777

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 2777: *Highly Integrated Photonics (HIP)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
HIP Naval Networking				
Developmental & Architectural Studies: Developmental & Architectural Studies:	1	2013	4	2013
Hardware Development: Reviews: Preliminary	4	2013	4	2013
Hardware Development: Reviews: Critical	1	2014	1	2014
Hardware Development: Design & Hardware Development:	1	2013	3	2014
Demonstrations: Contractor Demo:	3	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 3331: *C-2 System Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3331: *C-2 System Development*	0.000	10.040	4.557	0.074	-	0.074	2.651	0.000	0.000	0.000	0.000	17.322
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The C-2A Greyhound is a high wing monoplane, twin engine turbo-prop aircraft capable of operating from both a shore base and all operational United States Navy aircraft carrier classes. The mission of the C-2A is to provide rapid response Carrier Onboard Delivery of fleet essential supplies, repair parts, and personnel to sustain at sea operations of deployed battle groups. In addition, the C-2A provides airdrop delivery and mobilization support for special operations forces from land bases and carriers, Search and Rescue, and Humanitarian Relief.

This project will fund required development, analysis, and testing of a Critical Brake Upgrade to correct a deficiency related to the operational ground controllability of the C-2A.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Critical Brake Upgrade	10.040	4.557	0.074
Articles:	0	0	0
Description: Provides funding for development, design, integration and test of an anti-skid brake system for the C-2A aircraft. This will correct a deficiency related to the operational ground controllability of the C-2A.			
FY 2012 Accomplishments: Provides funding for development, design, integration and test of an anti-skid brake system for the C-2A aircraft.			
FY 2013 Plans: Funding is for on-going efforts to continue development, design, integration and test of anti-skid brake system for the C-2A aircraft.			
FY 2014 Plans: Funding is for on-going efforts to continue development, design, integration and test of anti-skid brake system for the C-2A aircraft.			
Accomplishments/Planned Programs Subtotals	10.040	4.557	0.074

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 3331: *C-2 System Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• APN/0556: *C-2A Series*	16.284	4.743	0.902		0.902	0.000	4.570	4.651	4.710	7.966	43.826

Remarks

D. Acquisition Strategy

The C-2 Operational Ground Controllability strategy will be exercised under an Engineering Change Proposal.

E. Performance Metrics

Validation is planned for first quarter FY15. Final Test Report is planned for fourth quarter FY15. Verification is planned for second quarter FY17.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 3331: *C-2 System Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPFF	NGC:Bethpage, NY	0.000	6.639	Sep 2012	2.685	May 2013	0.000		-		0.000	0.539	9.863	9.863
		Subtotal	0.000	6.639		2.685		0.000		0.000		0.000	0.539	9.863	9.863

Remarks

Totals may not add due to rounding.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCAD:Pax River, MD	0.000	3.198	Feb 2012	0.515	Nov 2012	0.000		-		0.000	0.358	4.071	
Government Engineering Support	WR	North Island:North Island, CA	0.000	0.188	Feb 2012	0.545	Nov 2012	0.029	Nov 2013	-		0.029	0.259	1.021	
		Subtotal	0.000	3.386		1.060		0.029		0.000		0.029	0.617	5.092	

Remarks

Totals may not add due to rounding.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD:Pax River, MD	0.000	0.000		0.600	Nov 2012	0.040	Nov 2013	-		0.040	1.485	2.125	
Test Assets	WR	NAWCAD:Pax River, MD	0.000	0.000		0.200	Nov 2012	0.000		-		0.000	0.000	0.200	
		Subtotal	0.000	0.000		0.800		0.040		0.000		0.040	1.485	2.325	

Remarks

Totals may not add due to rounding.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 3331: *C-2 System Development*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	Various:Various	0.000	0.015	Jan 2012	0.012	Oct 2012	0.005	Oct 2013	-		0.005	0.010	0.042	
		Subtotal	0.000	0.015		0.012		0.005		0.000		0.005	0.010	0.042	

Remarks

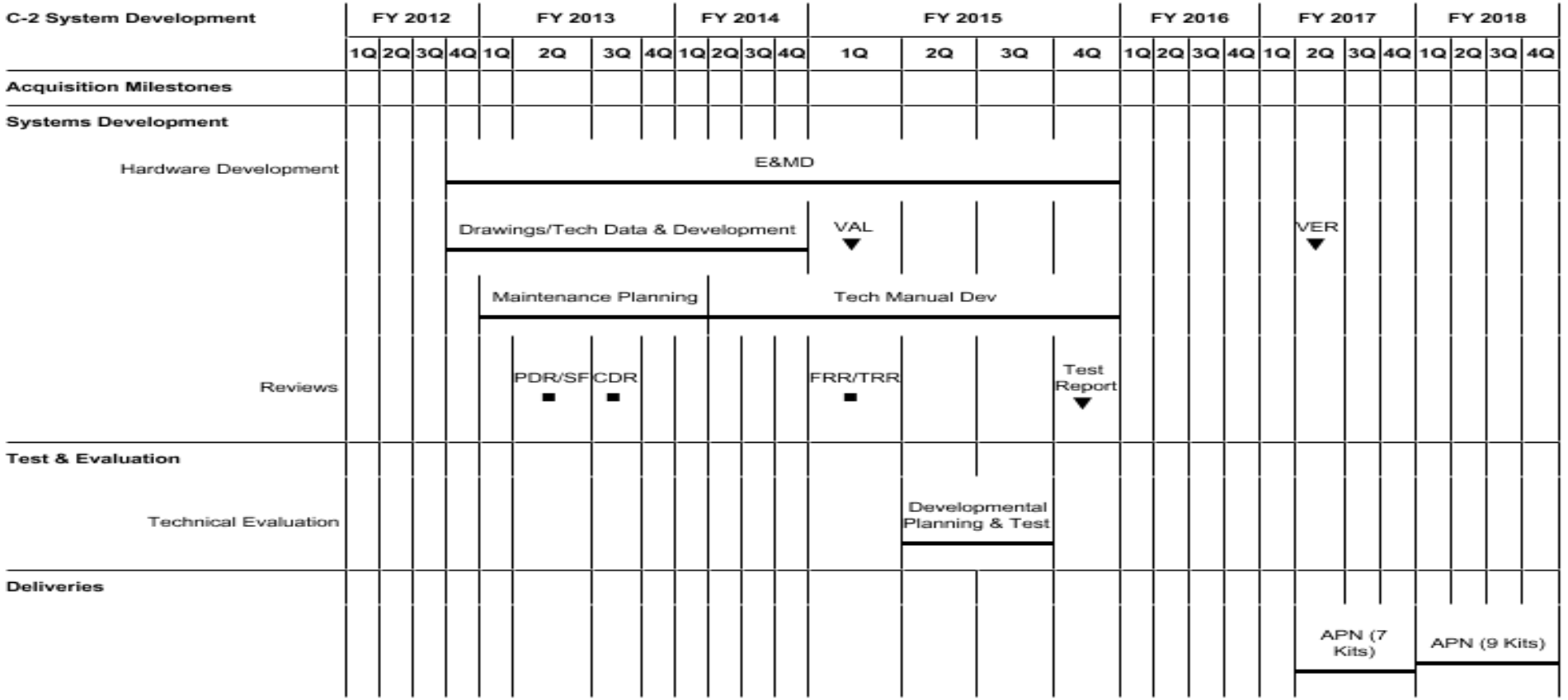
Totals may not add due to rounding.

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	10.040		4.557		0.074		0.000		0.074	2.651	17.322	

Remarks

Totals may not add due to rounding.

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 3331: *C-2 System Development*



2014PB - 0603251N - 3331

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603251N: *(U)AIRCRAFT SYSTEMS*	PROJECT 3331: *C-2 System Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
C-2 System Development				
Systems Development: Hardware Development: Engineering & Manufacturing Development	4	2012	4	2015
Systems Development: Hardware Development: Validation	1	2015	1	2015
Systems Development: Hardware Development: Verification Install	2	2017	2	2017
Systems Development: Hardware Development: Drawings/Technical Data Development	4	2012	4	2014
Systems Development: Hardware Development: Maintenance Planning	1	2013	1	2014
Systems Development: Hardware Development: Technical Manual Development	2	2014	4	2015
Systems Development: Reviews: Preliminary Design Review/System Functional Review	2	2013	2	2013
Systems Development: Reviews: Critical Design Review	3	2013	3	2013
Systems Development: Reviews: Funtional Readiness Review/Test Readiness Review	1	2015	1	2015
Systems Development: Reviews: Test Report	4	2015	4	2015
Test & Evaluation: Technical Evaluation: Developmental Planning & Test	2	2015	3	2015
Deliveries: Production Deliveries - APN (7 Kits)	2	2017	4	2017
Deliveries: Production Deliveries FY16 - APN (9 Kits)	1	2018	4	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603254N: *ASW Systems Development*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	103.171	7.610	8.090	7.964	-	7.964	8.141	8.195	8.392	8.490	Continuing	Continuing
1292: *Adv ASW Sensors & Proc*	97.984	5.239	5.648	5.601	-	5.601	5.778	5.818	5.962	6.039	Continuing	Continuing
3222: *Advanced High Altitude ASW*	5.187	2.371	2.442	2.363	-	2.363	2.363	2.377	2.430	2.451	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Includes RDT&E funds for advanced development and developmental testing of airborne anti-submarine warfare (ASW) systems, including aircraft, equipment, and devices for use against all types of submarine targets; and advanced, high-performance, underwater, mobile target for use in fleet ASW training exercises and for the operational evaluation of the MK-30 torpedo and the MK-48 torpedo weapons system improvement program.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	7.896	8.090	8.047	-	8.047
Current President's Budget	7.610	8.090	7.964	-	7.964
Total Adjustments	-0.286	0.000	-0.083	-	-0.083
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.057	0.000			
• SBIR/STTR Transfer	-0.229	0.000			
• Program Adjustments	0.000	0.000	-0.010	-	-0.010
• Rate/Misc Adjustments	0.000	0.000	-0.073	-	-0.073

Change Summary Explanation

Technical: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603254N: *ASW Systems Development*

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603254N: *ASW Systems Development*	PROJECT 1292: *Adv ASW Sensors & Proc*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1292: *Adv ASW Sensors & Proc*	97.984	5.239	5.648	5.601	-	5.601	5.778	5.818	5.962	6.039	Continuing	Continuing
Quantity of RDT&E Articles	0	100	100	100		100	100	100	100	100		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program provides Air Anti-Submarine Warfare (ASW) platform effectiveness through development and maturization of advanced hardware and software associated with airborne acoustic and non-acoustic systems. This includes sensors and components, processing, post-processing, data recording and display capabilities to address regional threat scenarios against surfaced or submerged conventionally and nuclear powered submarines. Key objectives are platform accommodations of advanced active and passive sensors and components, improved detection, classification, localization, tracking, and increased capacity and flexibility to handle multi-sensor data loads. Programs being funded during the FYDP will investigate technologies such as: Over the Horizon Communications, Distributed Netted Sensors, transient signals, and source and receiver improvement technologies that will enhance passive and Multi-static Active Sensor Systems capabilities. Other programs being funded during the FYDP will provide for the development and maturization of persistent tactical search technologies that will allow transition to the localization and attack phase in all operationally relevant environments. In addition, the program will provide for the development and subsequent experimentation, including data collection and engineering measurement, of Multi-static Active Coherent sources and receivers, laser technologies, electro-optical and Multi-Spectral camera technologies, Radar, and Magnetic Anomaly Detection sensors. Those technologies that are deemed mature and provide increased operational capability will be approved for a production advanced processing build. The test articles, which consist of passive/active sensors/components and associated processors, will support at-sea trials and experiments.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: System performance assessments	5.239	5.648	5.601
Articles:	100	100	100

FY 2012 Accomplishments:

System performance assessments for Multi-Static Active Coherent Anti-Submarine Warfare (ASW) algorithms and other Acoustic and Non-Acoustic system enhancements. The test articles, which consist of passive/active sensors/components and associated processors, will support at-sea trial and experiments.

FY 2013 Plans:

System performance assessments for Multi-Static Active Coherent ASW algorithms and other Acoustic and Non-Acoustic system enhancements. The test articles, which consist of passive/active sensors/components and associated processors, will support at-sea trial and experiments.

FY 2014 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603254N: *ASW Systems Development*	PROJECT 1292: *Adv ASW Sensors & Proc*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
System performance assessments for Multi-Static Active Coherent ASW algorithms and other Acoustic and Non-Acoustic system enhancements. The test articles, which consist of passive/active sensors/components and associated processors, will support at-sea trial and experiments. Develop prototype software development for use in at-sea experiment/exercise participation and data collection. Gather data analysis on engineering measurement program on Science and Technology, Research and Development and operational fleet collected data.			
Accomplishments/Planned Programs Subtotals	5.239	5.648	5.601

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The included technology development are primarily in-house with contractor participation through existing vehicles.

E. Performance Metrics

System performance assessments for Multi-Static Active Coherent Air Anti-Submarine Warfare (ASW) algorithms and other Acoustic and Non-Acoustic system enhancements by Air ASW Technology Assessment Board.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603254N: *ASW Systems Development*	PROJECT 1292: *Adv ASW Sensors & Proc*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Development	Various	VARIOUS:VARIOUS	0.930	0.400	Dec 2011	0.403	Dec 2012	0.204	Dec 2013	-		0.204	Continuing	Continuing	Continuing
		Subtotal	0.930	0.400		0.403		0.204		0.000		0.204			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	NAWCAD:PATUXENT RIVER, MD	3.425	0.000		0.000		0.400	Dec 2013	-		0.400	0.000	3.825	
Studies & Analysis	WR	NAWCAD:PATUXENT RIVER, MD	5.181	0.000		0.300	Dec 2012	0.400	Dec 2013	-		0.400	Continuing	Continuing	Continuing
		Subtotal	8.606	0.000		0.300		0.800		0.000		0.800			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev Test & Eval	Various	VARIOUS:VARIOUS	15.681	0.500	Dec 2011	0.700	Dec 2012	0.350	Dec 2013	-		0.350	Continuing	Continuing	Continuing
		Subtotal	15.681	0.500		0.700		0.350		0.000		0.350			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Eng Spt	Various	VARIOUS:VARIOUS	12.372	3.327	Dec 2011	1.558	Dec 2012	1.334	Dec 2013	-		1.334	Continuing	Continuing	Continuing
ENG & TECH SVCS (NON-FFRDC)	Various	VARIOUS:VARIOUS	2.582	0.100	Dec 2011	0.070	Dec 2012	0.050	Dec 2013	-		0.050	Continuing	Continuing	Continuing
MGT & PROF SVCS (FFRDC)	Various	VARIOUS:VARIOUS	0.421	0.195	Dec 2011	0.300	Dec 2012	0.171	Dec 2013	-		0.171	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603254N: *ASW Systems Development*	PROJECT 1292: *Adv ASW Sensors & Proc*

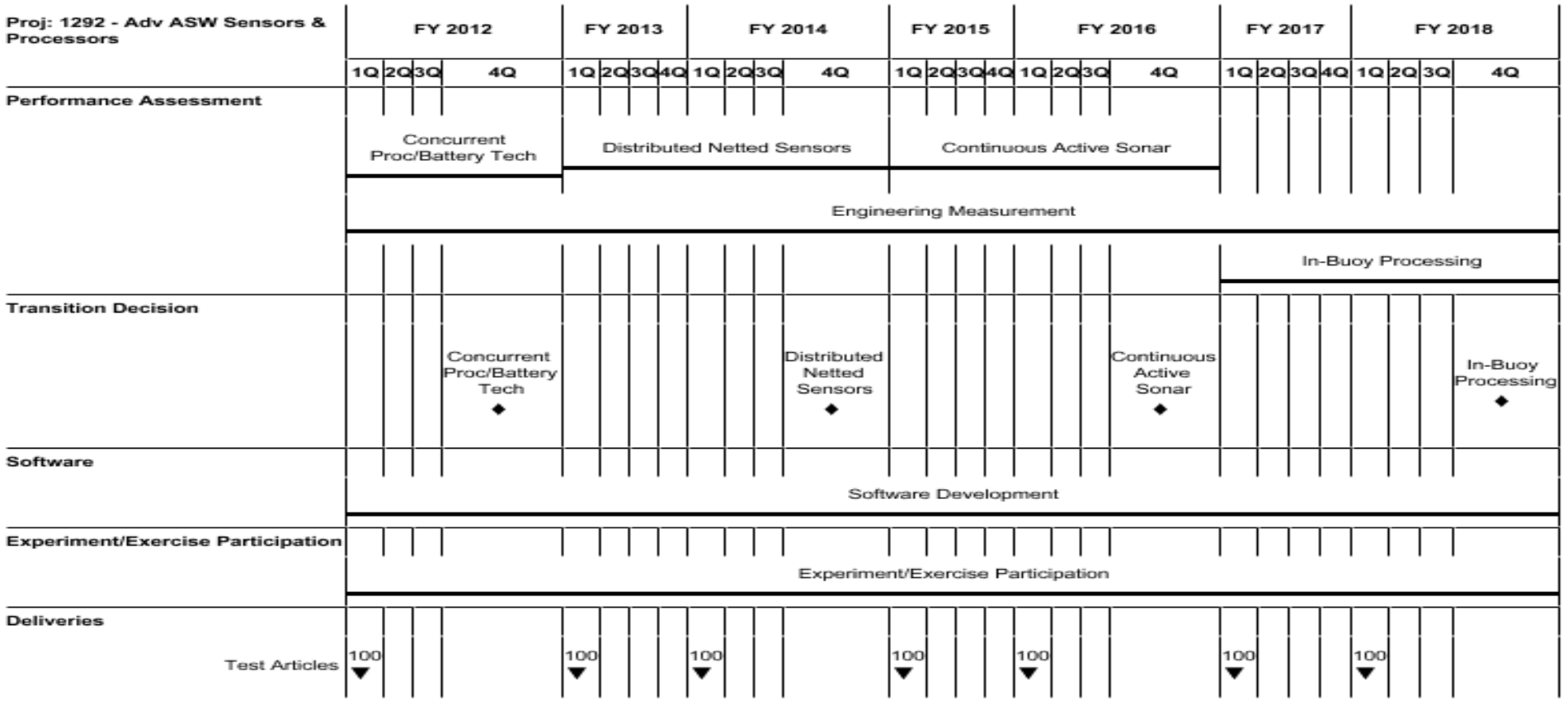
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Eng Spt	WR	NAWCAD:PATUXENT RIVER, MD	57.338	0.651	Dec 2011	2.310	Dec 2012	2.687	Dec 2013	-		2.687	Continuing	Continuing	Continuing
Travel	Various	VARIOUS:VARIOUS	0.054	0.066	Dec 2011	0.007	Dec 2012	0.005	Dec 2013	-		0.005	Continuing	Continuing	Continuing
		Subtotal	72.767	4.339		4.245		4.247		0.000		4.247			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	97.984	5.239		5.648		5.601		0.000		5.601			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603254N: *ASW Systems Development*	PROJECT 1292: *Adv ASW Sensors & Proc*



2014PB - 0603254N - 1292

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603254N: *ASW Systems Development*	**PROJECT** 1292: *Adv ASW Sensors & Proc*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj: 1292 - Adv ASW Sensors & Processors				
Performance Assessment: Concurrent Processing/Battery Technology	1	2012	4	2012
Performance Assessment: Distributed Netted Sensors	1	2013	4	2014
Performance Assessment: Continuous Active Sonar	1	2015	4	2016
Performance Assessment: Engineering Measurement	1	2012	4	2018
Performance Assessment: In-Buoy Processing	1	2017	4	2018
Transition Decision: Concurrent Processing/Battery Technology	4	2012	4	2012
Transition Decision: Distributed Netted Sensors	4	2014	4	2014
Transition Decision: Continuous Active Sonar	4	2016	4	2016
Transition Decision: In-Buoy Processing	4	2018	4	2018
Software: Software Development	1	2012	4	2018
Experiment/Exercise Participation: Experiment/Exercise Participation	1	2012	4	2018
Deliveries: Test Articles: Test Article Deliveries (1)	1	2012	1	2012
Deliveries: Test Articles: Test Article Deliveries (2)	1	2013	1	2013
Deliveries: Test Articles: Test Article Deliveries (3)	1	2014	1	2014
Deliveries: Test Articles: Test Article Deliveries (4)	1	2015	1	2015
Deliveries: Test Articles: Test Article Deliveries (5)	1	2016	1	2016
Deliveries: Test Articles: Test Article Deliveries (6)	1	2017	1	2017
Deliveries: Test Articles: Test Article Deliveries (7)	1	2018	1	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603254N: *ASW Systems Development*	PROJECT 3222: *Advanced High Altitude ASW*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3222: *Advanced High Altitude ASW*	5.187	2.371	2.442	2.363	-	2.363	2.363	2.377	2.430	2.451	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Advanced High Altitude Anti-Submarine Warfare (HAASW) program performs studies and analyses to better perform the Air Anti-Submarine Warfare (ASW) mission on the P-8A aircraft. The P-8A aircraft, a commercial derivative Boeing 737 airframe, operates most efficiently at high altitudes. These studies are to explore technologies, which may lead to additional high altitude ASW capabilities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Provide precision delivery of sonobuoys	2.371	2.442	2.363
Articles:	0	0	0
FY 2012 Accomplishments: FY12 is scheduled to perform studies, analyses and early prototyping of acoustic and non-acoustic technologies suitable for High Altitude ASW operations for the P-8A aircraft.			
FY 2013 Plans: FY13 is scheduled to perform studies, analyses and early prototyping of acoustic and non-acoustic technologies suitable for High Altitude ASW operations for the P-8A aircraft.			
FY 2014 Plans: FY13 is scheduled to perform studies, analyses and early prototyping of acoustic and non-acoustic technologies suitable for High Altitude ASW operations for the P-8A aircraft.			
Accomplishments/Planned Programs Subtotals	2.371	2.442	2.363

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603254N: *ASW Systems Development*	PROJECT 3222: *Advanced High Altitude ASW*

D. Acquisition Strategy

Develop modifications to incorporate capability into current sonobuoy sensors and integration into Air ASW platforms, P-8A as the lead aircraft.

E. Performance Metrics

Perform Studies and Analysis to better define Advanced HAASW program needs. Early prototypes will be developed to reduce risk for ASW operations at high altitudes by the P-8A aircraft.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603254N: *ASW Systems Development*	PROJECT 3222: *Advanced High Altitude ASW*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior years Hdw Dev cost no longer funded in the FYDP	Various	VARIOUS:VARIOUS	1.370	0.000		0.000		0.000		-		0.000	0.000	1.370	
		Subtotal	1.370	0.000		0.000		0.000		0.000		0.000	0.000	1.370	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies & Analysis	WR	NAWCAD:PATUXENT RIVER, MD	1.150	0.100	Nov 2011	0.200	Nov 2012	0.293	Nov 2013	-		0.293	Continuing	Continuing	Continuing
Studies & Analysis	Various	AVIATION SYSTEMS ENGINEERING COMPANY INC:LEXINGTON PARK, MD	1.065	1.245	Nov 2011	1.526	Nov 2012	1.500	Nov 2013	-		1.500	Continuing	Continuing	Continuing
		Subtotal	2.215	1.345		1.726		1.793		0.000		1.793			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Field Tests	WR	NAWCAD:PATUXENT RIVER, MD	0.050	0.100	Nov 2011	0.080	Nov 2012	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.050	0.100		0.080		0.000		0.000		0.000			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603254N: *ASW Systems Development*	PROJECT 3222: *Advanced High Altitude ASW*

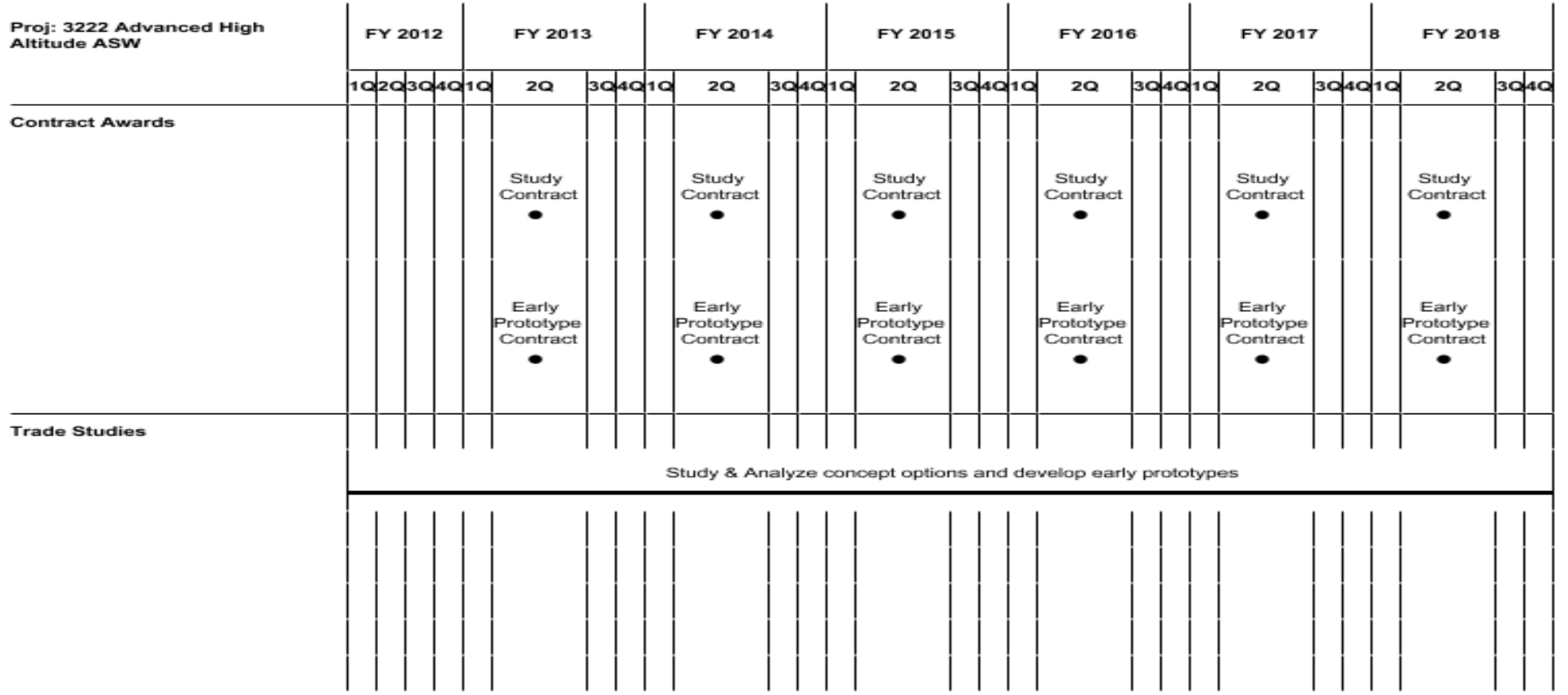
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Eng Spt	Various	VARIOUS:VARIOUS	0.200	0.385	Nov 2011	0.100	Nov 2012	0.000		-		0.000	Continuing	Continuing	Continuing
ENG & TECH SVCS (NON-FFRDC)	Various	VARIOUS:VARIOUS	0.232	0.150	Nov 2011	0.289	Nov 2012	0.236	Nov 2013	-		0.236	Continuing	Continuing	Continuing
Government Eng Spt	WR	NAWCAD:PATUXENT RIVER, MD	1.107	0.382	Nov 2011	0.241	Nov 2012	0.330	Nov 2013	-		0.330	Continuing	Continuing	Continuing
Travel	Various	VARIOUS:VARIOUS	0.013	0.009	Nov 2011	0.006	Nov 2012	0.004	Nov 2013	-		0.004	Continuing	Continuing	Continuing
		Subtotal	1.552	0.926		0.636		0.570		0.000		0.570			

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.187	2.371		2.442		2.363		0.000		2.363			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603254N: *ASW Systems Development*	PROJECT 3222: *Advanced High Altitude ASW*



2014PB - 0603254N - 3222

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603254N: *ASW Systems Development*	**PROJECT** 3222: *Advanced High Altitude ASW*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj: 3222 Advanced High Altitude ASW				
Contract Awards: Study Contract (1)	2	2013	2	2013
Contract Awards: Study Contract (2)	2	2014	2	2014
Contract Awards: Study Contract (3)	2	2015	2	2015
Contract Awards: Study Contract (4)	2	2016	2	2016
Contract Awards: Study Contract (5)	2	2017	2	2017
Contract Awards: Study Contract (6)	2	2018	2	2018
Contract Awards: Early Prototype Contract (1)	2	2013	2	2013
Contract Awards: Early Prototype Contract (2)	2	2014	2	2014
Contract Awards: Early Prototype Contract (3)	2	2015	2	2015
Contract Awards: Early Prototype Contract (4)	2	2016	2	2016
Contract Awards: Early Prototype Contract (5)	2	2017	2	2017
Contract Awards: Early Prototype Contract (6)	2	2018	2	2018
Trade Studies: Trade Studies	1	2012	4	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	50.575	8.294	5.301	5.257	-	5.257	5.743	3.906	3.912	3.928	Continuing	Continuing
2467: *UAV Conops*	47.211	6.721	5.301	5.257	-	5.257	5.743	3.906	3.912	3.928	Continuing	Continuing
2910: *Joint Tech Center/System Integ Lab*	3.364	1.573	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.937

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program element funds efforts to develop Concept of Operations in support of the Navy's overall Unmanned Aircraft System (UAS) strategy integrating UASs into the Chief of Naval Operations Navy Vision of Sea Power 21 (Sea Shield, Sea Strike, Sea Basing, and FORCEnet). Also funds Navy's contribution supporting the Joint Technology Center/System Integration Laboratory providing experimentation for Unmanned Aerial Vehicle technology assessment, insertion, demonstration, transfer, as well as simulation and exercise support.

This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	5.944	5.301	1.189	-	1.189
Current President's Budget	8.294	5.301	5.257	-	5.257
Total Adjustments	2.350	0.000	4.068	-	4.068
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.350	0.000			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	4.496	-	4.496
• Rate/Misc Adjustments	0.000	0.000	-0.428	-	-0.428

Change Summary Explanation

Technical: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603261N: *Tactical Airborne Reconnaissance*

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*	PROJECT 2467: *UAV Conops*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2467: *UAV Conops*	47.211	6.721	5.301	5.257	-	5.257	5.743	3.906	3.912	3.928	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Naval Unmanned Aircraft Systems (UAS) Strategy employs a family of UASs to perform tactical, persistent and penetrating Intelligence, Surveillance, and Reconnaissance in support of Naval and Joint missions from forward bases/platforms and naval ships.

In support of the Navy's overall UAS strategy, this program develops Concept of Operations (CONOPS) that integrate UASs into the Chief of Naval Operations Navy Vision of Sea Power 21 (Sea Shield, Sea Strike, Sea Basing, and FORCEnet). By providing fleet input based on current operations with UASs in a simulated combat environment, this CONOPS development investment is the foundation of how the Carrier Strike Group and the Expeditionary Strike Group will operate a combined Manned and Unmanned Naval Air Force. This program establishes the common architecture, including Command & Control, for all unmanned systems to support and inform CONOPS development. This effort provides for a cross-program view of Naval Unmanned Systems and is the entry point for OSD and other services for commonality and interoperability. Specifically:

- Provides studies and demonstrations in support of the Naval UAS Family of Systems (FoS) CONOPS development.
- Horizontally integrates across the Naval UAS FoS for the Naval Aviation Enterprise through interoperability and common system solutions.
- Develops the Naval UAS FoS Architecture to support integration into the Naval Unmanned Systems Cross Functional Team.
- Provides Naval support for development of Standards across Department of Defense (DoD) UASs and North Atlantic Treaty Organization, emphasizing standardization and interoperability.
- Conducts CONOPS studies, demonstrations, and exercises for Vehicle Control, Targeting, and weapons, sensor, and payload employment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Studies and Demonstrations	0.602	0.801	1.031
Articles:	0	0	0
Description: Studies and demonstrations to develop CONOPS for manned-unmanned integration of UAS and aircraft systems. Build a UAS simulation environment for Modeling and Simulation of common UAS components in representative battlespace architectures.			
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*	PROJECT 2467: *UAV Conops*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continued development of the UAS modeling and simulation of Fleet CONOPS Scenarios. ***FY 2013 Plans:*** Continued development of the UAS modeling and simulation of Fleet CONOPS Scenarios. ***FY 2014 Plans:*** Conduct studies, demonstations, and testing to validate the Naval Interoperability profiles. Provide government engineering support, program office travel, and contract support services.			
Title: Shipboard CONOPS ***Articles:*** ***Description:*** Conduct studies, demonstrations, and exercises. Validate the Naval Interoperability Profiles. ***FY 2012 Accomplishments:*** Conducted studies, demonstrations, and exercises to validate the Naval Interoperability profiles. ***FY 2013 Plans:*** Conducted studies, demonstrations, and exercises to validate the Naval Interoperability profiles.	0.500 0	0.500 0	0.000
Title: Engineering and Program Support ***Articles:*** ***Description:*** Provide government engineering support, program office travel, and contract support services for Naval Unmanned Systems Cross Functional Team, OSD Unmanned Aircraft Systems (UAS) task force and other services on common UAS solutions. ***FY 2012 Accomplishments:*** Provided government engineering support, program office travel, and contract support services for Naval Unmanned Systems Cross Functional Team, OSD UAS task force and other services on common UAS solutions. ***FY 2013 Plans:*** Provide government engineering support, program office travel, and contract support services for Naval Unmanned Systems Cross Functional Team.	0.881 0	0.924 0	0.000
Title: NATO Standardization Agreements and Interoperability ***Articles:***	1.161 0	1.076 0	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*	PROJECT 2467: *UAV Conops*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Description: Conduct Concept of Operations studies for interoperability and development of standards across Naval Unmanned Systems and NATO emphazing standardization and interoperability. Continue to develop Unmanned System Interoperability profiles and Navy implementation conventions for Naval UAS Family of Systems Architecture. ***FY 2012 Accomplishments:*** Continued development of standards across Naval Unmanned Systems and NATO emphasizing standardization and interoperablity. Continued to develop Unmanned System Interoperability profiles and Navy implemenation conventions for Naval Unmanned Aircraft Systems (UAS) Family of Systems (FOS) Architecture. ***FY 2013 Plans:*** Continue development of standards across Naval Unmanned Systems and NATO emphasizing standardization and interoperablity. Continue to develop Unmanned System Interoperability profiles and Navy implemenation conventions for Naval Unmanned Aircraft Systems Family of Systems Architecture.			
Title: Architecture Support /Common Ground Station ***Articles:*** ***Description:*** Develop a Joint Service revision and configuration management of UAS interoperability profiles and Joint Common Ground Station Architecture and related government engineering support. ***FY 2012 Accomplishments:*** Supported the revision and configuration management of UAS interoperability profiles and Joint Common Ground Station Architecture and related government engineering support. ***FY 2013 Plans:*** Support the revision and configuration management of UAS interoperability profiles and Joint Common Ground Station Architecture and related government engineering support. ***FY 2014 Plans:*** Continue to develop a Joint Service revision and configuration management of UAS interoperability profiles and Joint Common Ground Station Architecture and related government engineering support.	1.977 0	2.000 0	2.000 0
Title: Naval Interoperability & Standardization ***Articles:*** ***Description:*** Increase Naval Unmanned Systems interoperability emphasizing Naval, Joint Service, and international standardization	1.600 0	0.000	2.226 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*	PROJECT 2467: *UAV Conops*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: Developed a single user evaluation system for a Naval Unified Targeting System (NUTS). ***FY 2014 Plans:*** Develop Unmanned Systems Interoperability profiles and Navy implementation conventions for Naval UAS FOS Architecture. Support OSD Joint Service and NATO coalition interoperability efforts. Provide government engineering support, program office travel, and contract support services.			
Accomplishments/Planned Programs Subtotals	6.721	5.301	5.257

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The program office will leverage existing Government facilities (e.g., Joint Technology Center/System Integration Laboratory and Naval UAS Program of Record assets as available) to develop and demonstrate Naval UAS CONOPS. Government engineering support will be used for Modeling and Simulation efforts.

E. Performance Metrics

UAS operations and interoperability for systems delivered to the warfighter are continually improved upon increasing the level of integration, standardization and effective employment in maritime battle space dominance.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*	PROJECT 2467: *UAV Conops*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Integration	C/CPFF	L-3 Titan:Marlton, NJ	7.012	0.807	Jan 2012	1.167	Jan 2013	0.828	Jan 2014	-		0.828	0.000	9.814	9.814
Systems Engineering	WR	NAWCAD:Pax River, MD	2.332	0.179	Dec 2011	0.424	Dec 2012	0.551	Dec 2013	-		0.551	Continuing	Continuing	Continuing
Systems Eng Test Tool	TBD	CSCI:Sringfield, VA	0.000	0.550	Mar 2013	0.000		0.000		-		0.000	0.000	0.550	0.550
Prior year Prod Dev no longer funded in the FYDP	Various	Various:Various	2.800	0.000		0.000		0.000		-		0.000	0.000	2.800	2.800
		Subtotal	12.144	1.536		1.591		1.379		0.000		1.379			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various	Various:Various	13.365	0.323	Jan 2012	0.280	Jan 2013	0.191	Dec 2013	-		0.191	Continuing	Continuing	Continuing
Software Development	MIPR	JTC/SIL:Redstone Arsenal, AL	5.808	1.977	Mar 2012	2.000	Mar 2013	2.000	Mar 2014	-		2.000	Continuing	Continuing	Continuing
Studies & Analysis	WR	NAWCWD:China Lake, CA	2.436	0.394	Dec 2011	0.000		0.000		-		0.000	0.000	2.830	2.830
Studies & Demonstrations	WR	NAWCAD:Pax River, MD	2.981	0.178	Dec 2011	0.423	Dec 2012	0.492	Dec 2013	-		0.492	Continuing	Continuing	Continuing
		Subtotal	24.590	2.872		2.703		2.683		0.000		2.683			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Interoperability	WR	NAWCWD:China Lake, CA	2.402	0.225	Dec 2011	0.000		0.000		-		0.000	0.000	2.627	2.627
		Subtotal	2.402	0.225		0.000		0.000		0.000		0.000	0.000	2.627	2.627

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*	PROJECT 2467: *UAV Conops*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	Various	Various:Various	5.196	0.437	Dec 2011	0.424	Dec 2012	0.605	Dec 2013	-		0.605	Continuing	Continuing	Continuing
Program Management Support	Various	Various:Various	2.460	0.559	Dec 2011	0.533	Dec 2012	0.540	Dec 2013	-		0.540	Continuing	Continuing	Continuing
Travel	WR	NAVAIR HQ:Pax River, MD	0.419	0.042	Nov 2011	0.050	Nov 2012	0.050	Nov 2013	-		0.050	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWCWD:China Lake, CA	0.000	1.050	Oct 2012	0.000		0.000		-		0.000	0.000	1.050	1.050
		Subtotal	8.075	2.088		1.007		1.195		0.000		1.195			

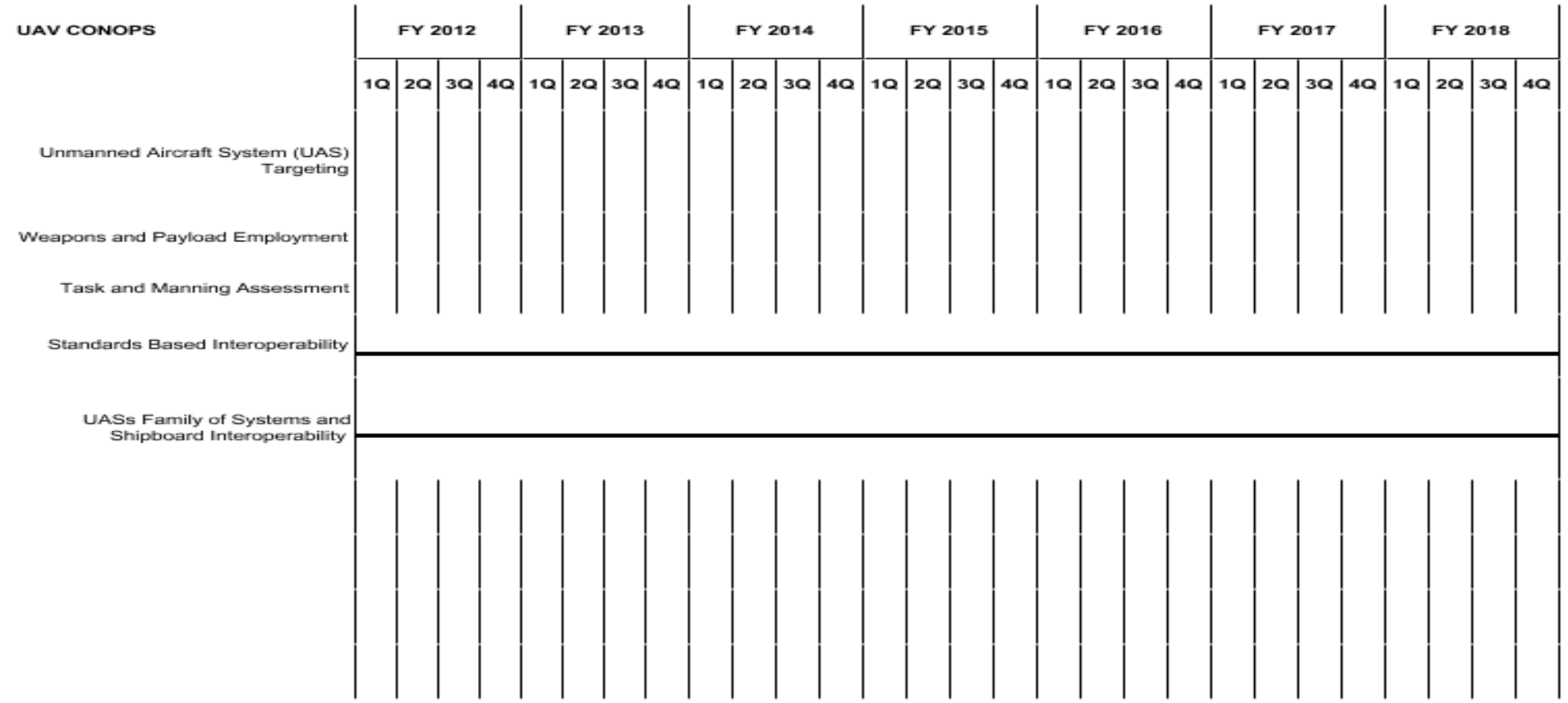
Remarks

Travel contract type is TO.

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	47.211	6.721		5.301		5.257		0.000		5.257			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*	PROJECT 2467: *UAV Conops*



2014OSD - 0603261N - 2467

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603261N: *Tactical Airborne Reconnaissance*	**PROJECT** 2467: *UAV Conops*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
UAV CONOPS				
Standards Based Interoperability: Standards Based Interoperability	1	2012	4	2018
UASs Family of Systems and Shipboard Interoperability: UASs Family of Systems and Shipboard Interoperability	1	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*	PROJECT 2910: *Joint Tech Center/System Integ Lab*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2910: *Joint Tech Center/System Integ Lab*	3.364	1.573	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.937
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Joint Technology Center/Systems Integration Laboratory (JTC/SIL) is a center of technical excellence to support Unmanned Aircraft Systems (UAS) programs within the services. The mission includes Service-specific and Joint Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance (C4ISR) programs throughout Department of Defense (DoD). JTC/SIL provides a Government test bed for interoperability, rapid prototyping, technology insertion and transition, systems engineering, modeling/simulation, training and C4ISR optimization. The cornerstone of JTC/SIL's diverse tool set is the Multiple Unified Simulation Environment (MUSE), which is the DoD's simulation/training system of choice for many UAS and Intelligence Surveillance and Reconnaissance (ISR) systems, and to some degree, surrogate UAS ground stations, when actual UAS ground stations are unavailable.

The Services and Warfighting Commanders have a requirement for the capability to train with a system that provides a real-time simulation environment containing multiple intelligence systems that can be integrated with larger force-on-force simulations. The MUSE creates a realistic operational environment which supports the ability to assess military utility, architecture and Concept of Operations development, and Tactics, Techniques, and Procedures refinement, conduct emerging concepts experimentation, and optimize C4ISR within warfighting exercises and experiments. It is the preferred simulation system used by the Combat Commanders and Joint Services to support command and battle staff C4ISR training, there is no better alternative to satisfy those requirements.

The MUSE also creates a realistic operational environment that supports: an embedded training capability for multiple Program Managers, tools to minimize acquisition and life cycle cost and schedule impacts, the ability to conduct emerging concepts experimentation, future systems exploration, systems integration, and technology insertion, applications for Joint and Service-specific warfighting exercises and C4ISR optimization.

MUSE is currently in use within all services and most unified commands simulating Predator, Global Hawk (RQ-4), Extended Range Multi-Purpose, Hunter, and Shadow (RQ-7) UAS, national and commercial satellite collectors, P-3, Joint Surveillance Target Attack Radar, and the U-2. During warfighting exercises, the JTC/SIL integrates imagery simulations with associated C4ISR systems to support execution of critical imagery processes. For those assets normally not available for training, the JTC/SIL provides surrogate systems and interfaces. Distributed training environments, virtually linking participants from various locations worldwide, are routinely supported within the MUSE architecture. The MUSE is also used as a mission rehearsal tool for current, on-going military combat operations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: MUSE Development	0.777	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*	PROJECT 2910: *Joint Tech Center/System Integ Lab*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0		
Description: Multiple Unified Simulation Environment (MUSE) creates a realistic operational environment which supports the ability to assess military utility, architecture and Concept of Operations development, Tactics, Techniques, and Procedures refinement, conduct emerging concepts experimentation, and Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance optimization within warfighting exercises and experiments. ***FY 2012 Accomplishments:*** Developed multi-echelon MUSE Unmanned Aircraft System and manned Intelligence, Surveillance, and Reconnaissance integrated training environments that incorporate command and staff and initial qualification and proficiency trainers. Maintained MUSE simulation capability to support major exercises and demonstrations. Continued development of Laser Designator, Laser Range finding, Autotrack, Weaponization, enhanced Synthetic Aperture Radar, and Ground Moving Target Indicator capability. Upgrade National Space Assets enhancements, Command, Control, Communications, Computers and Intelligence enhancements, and enhancements to the Vignette Planning and Rehearsal Software.			
Title: Engineering and Maintenance	0.500	0.000	0.000
Articles:	0		
Description: Maintenance, Licenses and Equipment Purchases to include the day-to-day maintenance of laboratory equipment, license maintenance and license renewals from vendors for individual pieces of equipment, purchases of equipment to support the MUSE, and purchases to upgrade the MUSE capability. ***FY 2012 Accomplishments:*** Continued the maintenance and upkeep of the MUSE facility.			
Title: Program Management	0.296	0.000	0.000
Articles:	0		
Description: Includes government management, contracts administration, cost accounting, configuration management, laboratory administrative support, Multiple Unified Simulation Environment architecture development, property management/accountability, and equipment procurement. ***FY 2012 Accomplishments:*** Continued Laboratory Sustainment with government management and overhead support services, architecture development and equipment purchases.			
Accomplishments/Planned Programs Subtotals	1.573	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*	PROJECT 2910: *Joint Tech Center/System Integ Lab*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Established for the DoD family of Unmanned Aircraft Systems (UAS) as a center of technical excellence for tactical, medium altitude endurance and future UASs to provide a cost-effective testbed for UAS technology assessment, insertion, demonstration, and transfer. Joint Technology Center/Systems Integration Laboratory (JTC/SIL) technical experts serve as facilitators of action for Program Executive Offices and UAS Program Managers as well as the respective users and prime contractors.

E. Performance Metrics

Improve the assessment of military utility, Tactics, Techniques and Procedures and Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance optimization through realistic training of command and battle staffs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603261N: *Tactical Airborne Reconnaissance*	PROJECT 2910: *Joint Tech Center/System Integ Lab*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPFF	JTC/SIL:Redstone Arsenal, AL	2.622	1.277	Mar 2012	0.000		0.000		-		0.000	0.000	3.899	3.899
		Subtotal	2.622	1.277		0.000		0.000		0.000		0.000	0.000	3.899	3.899

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	MIPR	JTC/SIL:Redstone Arsenal, AL	0.742	0.296	Dec 2011	0.000		0.000		-		0.000	0.000	1.038	1.038
		Subtotal	0.742	0.296		0.000		0.000		0.000		0.000	0.000	1.038	1.038

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.364	1.573		0.000		0.000		0.000		0.000	0.000	4.937	4.937

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603382N: *Advanced Combat Systems Tech*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	60.121	1.107	1.506	1.570	-	1.570	1.733	1.762	1.793	1.826	Continuing	Continuing
0324: *Adv Combat System Technology*	60.121	1.107	1.506	1.570	-	1.570	1.733	1.762	1.793	1.826	Continuing	Continuing

MDAP/MAIS Code(s): 180

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Advanced Combat System Technology line is to evolve the technical and business practices for programs to change to an open architecture construct. The program was constructed to mature both technical and business model integration for C5I systems programs of record in an open architecture environment. The priority was incorporating the principles of modular design and design disclosure, reusable application software, interoperability and secure information exchange, lifecycle affordability and encouraging competition and collaboration.

Project Unit 0324: Funding is to maintain and update a information exchange environment to improve transparency of design disclosure and information exchange on past and current investments to support the principle of cross-program reuse, and to provide the tools and leadership for assisting programs through the transition to Naval Open Architecture (OA). The other elements of the OA transformation effort are being realized as management efficiencies within programs. Those elements include ensuring that all naval systems, families of systems, and programs move to modular OA in accordance with Department of Defense (DoD) Instruction 5000.1 dated 12 May 2003 which mandates that all DoD programs utilize open systems architectures to rapidly field affordable and interoperable systems. By direction of the Navy Service Acquisition Executive (SAE), PEO IWS was assigned overall responsibility and authority to direct the Navy's OA effort until that duty transferred to DASN (RDTE) in 2011. The Core OA funding line has remained with PEO IWS. That policy established a need to coordinate acquisition strategies, develop guidance and tools, and develop analysis of alternatives to determine OA software reuse practices within and across the Navy Communities of Interest (COI - Surface, Subsurface, Air, Space, C4I, USMC, and ONR). This project facilitates a strategic shift in the acquisition business process to facilitate cooperative competition in cross-domain/COI business relationships. This improves innovation and economies of scale throughout the Navy and Marine Corps. This leadership effort has identified the business case and potential return on investment for moving the Navy towards an open systems approach, supported the development of open systems technologies, and integrated best business and technical practices for open systems development within Naval acquisition. Naval OA ensures Navy-wide system architectures become extensible and scalable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components, functions, reuse methodologies, and extensible product lines. In summary, this funding supports the management of a reuse repository and reuse information exchange portal, and the evolving business, systems engineering, and cultural changes required across all Naval programs as they migrate to function in a Joint, net-centric warfare environment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603382N: *Advanced Combat Systems Tech*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	1.418	1.506	1.571	-	1.571
Current President's Budget	1.107	1.506	1.570	-	1.570
Total Adjustments	-0.311	0.000	-0.001	-	-0.001
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.276	0.000			
• SBIR/STTR Transfer	-0.035	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.001	-	-0.001

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603382N: *Advanced Combat Systems Tech*	PROJECT 0324: *Adv Combat System Technology*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0324: *Adv Combat System Technology*	60.121	1.107	1.506	1.570	-	1.570	1.733	1.762	1.793	1.826	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Project Unit 0324: Funding is to maintain and update a information exchange environment to improve transparency of design disclosure and information exchange on past and current investments to support the principle of cross-program reuse, and to provide the tools and leadership for assisting programs through the transition to Naval Open Architecture (OA). The other elements of the OA transformation effort are being realized as management efficiencies within programs. Those elements include ensuring that all naval systems, families of systems, and programs move to modular OA in accordance with Department of Defense (DoD) Instruction 5000.1 dated 12 May 2003 which mandates that all DoD programs utilize open systems architectures to rapidly field affordable and interoperable systems. By direction of the Navy Service Acquisition Executive (SAE), PEO IWS was assigned overall responsibility and authority to direct the Navy's OA effort until the duty transferred to DASN (RDTE) in 2011 The Core OA funding line has remained with PEO IWS. That policy established a need to coordinate acquisition strategies, develop guidance and tools, and develop analysis of alternatives to determine OA software reuse practices within and across the Navy Communities of Interest (COI - Surface, Subsurface, Air, Space, C4I, USMC, and ONR). This project facilitates a strategic shift in the acquisition business process to facilitate cooperative competition in cross-domain/COI business relationships. This improves innovation and economies of scale throughout the Navy and Marine Corps. This leadership effort has identified the business case and potential return on investment for moving the Navy towards an open systems approach, supported the development of open systems technologies, and integrated best business and technical practices for open systems development within Naval acquisition. Naval OA ensures Navy-wide system architectures become extensible and scalable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components, functions, reuse methodologies, and extensible product lines. In summary, this funding supports the management of a reuse repository and reuse information exchange portal, and the evolving business, systems engineering, and cultural changes required across all Naval programs as they migrate to function in a Joint, net-centric warfare environment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Align the Naval Enterprise Across All Domains to Implement OA	0.100	0.150	0.160
Articles:	0	0	0
FY 2012 Accomplishments: OA Enterprise Alignment: This funding supports the maintenance and execution of the Naval OA Policy and Strategy, including quarterly OAET Lead Council meetings and reporting requirements. Specifically, this includes OAET reporting of action items to DASN, quarterly OA Report to Congress, as well as the annual OA budget submission and financial reporting for this project. Alignment across the Naval Enterprise also includes the development and management of all other activities as the Lead Council			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603382N: *Advanced Combat Systems Tech*	PROJECT 0324: *Adv Combat System Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
directs. Specific goals for FY 12 include development of OA product line pilot projects and publication of a Program Manager's OA Handbook. ***FY 2013 Plans:*** OA Enterprise Alignment: This funding supports the maintenance and execution of the Naval OA Policy and Strategy, including quarterly OAET Lead Council meetings and reporting requirements. Specifically, this includes OAET reporting of action items to DASN, quarterly OA Report to Congress, as well as the annual OA budget submission and financial reporting for this project. Alignment across the Naval Enterprise also includes the development and management of all other activities as the Lead Council directs. ***FY 2014 Plans:*** Support the maintenance and execution of the Naval OA Policy and Strategy, including OAET Lead Council meetings (as scheduled) and reporting requirements. Specifically, this includes OAET reporting of action items to DASN RDT&E, quarterly OA Reports to Congress via ASN RDA, as well as the annual OA budget submission and financial reporting for this project. Alignment across the Naval Enterprise also includes the development and management of all other activities as the Lead Council, DASN RDT&E, or ASN RDA directs.			
Title: Change the Naval and Marine Corps Cultures to Institutionalize OA Principle	0.239	0.311	0.330
Articles:	0	0	0
FY 2012 Accomplishments: OA Enterprise Communications and Training: This funding supports the activities to enable the cultural adoption of OA principles and practices through stakeholder management, communications, and training. Key activities include reorganization and update to Defense Acquisition University online OA training modules, presentation of existing training courses, and participation in symposia and panels to discuss OA implementation, and use of other communication vehicles to promulgate OA standards and methodologies for inclusion into Naval systems acquisition. ***FY 2013 Plans:*** OA Enterprise Communications and Training: This funding supports the activities to enable the cultural adoption of OA principles and practices through stakeholder management, communications, and training. Key activities include maintenance of Defense Acquisition University online OA training modules, presentation of existing training courses, and participation in symposia and panels to discuss OA implementation, and use of other communication vehicles to promulgate OA standards and methodologies for inclusion into Naval systems acquisition. ***FY 2014 Plans:*** Enable the institutional adoption of OA principles and practices through stakeholder management, communications, mentoring, training, and curriculum adjustment. Key activities include maintenance of Defense Acquisition University (DAU) online OA training			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603382N: *Advanced Combat Systems Tech*	PROJECT 0324: *Adv Combat System Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
modules, working with DAU to incorporate OA principles into existing coursework materials, presentation of existing training courses, and participation in symposia and panels to discuss OA implementation, and use of other communication vehicles to promulgate OA standards and methodologies for inclusion into Naval systems acquisition.			
Title: OA Systems Engineering Leadership	0.275	0.350	0.375
Articles:	0	0	0
FY 2012 Accomplishments: Systems Engineering: This funding supports systems engineering collaboration across the Naval Enterprise to facilitate the fielding of interoperable capabilities, including a) the further alignment of PEO architectures; b) providing guidance to Technical Warrant Holders who oversee OA implementation efforts to ensure standardized and disciplined processes, interfaces, and services are utilized; c) working with the Science and Technology (S&T) community to ensure OA is incorporated into emerging technologies; and d) working with the Test and Evaluation (T&E) community, academia, and industry partners to identify opportunities to reduce T&E expenses as a result of OA. The Core OA/OAET is working with, and across, the PEOs to adopt automated test and analysis tools.			
FY 2013 Plans: Systems Engineering: This funding supports systems engineering collaboration across the Naval Enterprise to facilitate the fielding of interoperable capabilities, including a) the further alignment of PEO architectures; b) providing guidance to Technical Warrant Holders who oversee OA implementation efforts to ensure standardized and disciplined processes, interfaces, and services are utilized; c) working with the Science and Technology (S&T) community to ensure OA is incorporated into emerging technologies; and d) working with the Test and Evaluation (T&E) community, academia, and industry partners to identify opportunities to reduce T&E expenses as a result of OA. The Core OA/OAET will continue to work with, and across, the PEOs to adopt automated test and analysis tools.			
FY 2014 Plans: Support systems engineering collaboration across the Naval Enterprise to facilitate the fielding of interoperable capabilities, including a) the further alignment of PEO architectures; b) providing guidance for government-to-government coordination of OA implementation efforts to ensure standardized and disciplined processes, interfaces, and services are utilized; c) working with the Science and Technology (S&T) community to ensure OA is incorporated into emerging technologies; and d) working with the Test and Evaluation (T&E) community, academia, and industry partners to identify opportunities to reduce T&E expenses as a result of OA. The Core OA/OAET will continue to work with, and across, the PEOs to adopt automated test and analysis tools.			
Title: Change Naval Processes and Business Practices	0.493	0.695	0.705
Articles:	0	0	0
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603382N: *Advanced Combat Systems Tech*	**PROJECT** 0324: *Adv Combat System Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Naval Business Practices: This funding supports changing software reuse Naval Business Practices including a) the development and refinement of policies, guidance, and terminology required to establish a consistent approach for OA across the Enterprise; b) the development and maintenance of analytical toolsets to assist Milestone Decision Authorities, Program Managers, and Resource Sponsors in assessing program openness and making informed OA investment decisions; and c) the facilitation of design disclosure, information sharing, and cross-domain component reuse to reduce costs and enable more effective technology insertion, including the administration of the OA information exchange portal. The Core OA/OAET is working with, and across, the PEOs to adopt automated test and analysis tools. ***FY 2013 Plans:*** Naval Business Practices: This funding supports changing software reuse Naval Business Practices including a) the development and refinement of policies, guidance, and terminology required to establish a consistent approach for OA across the Enterprise; b) the development and maintenance of analytical toolsets to assist Milestone Decision Authorities, Program Managers, and Resource Sponsors in assessing program openness and making informed OA investment decisions; and c) the facilitation of design disclosure, information sharing, and cross-domain component reuse to reduce costs and enable more effective technology insertion, including the administration of the OA information exchange portal. The Core OA/OAET will continue to work with, and across, the PEOs to adopt automated test and analysis tools. ***FY 2014 Plans:*** Change reuse Naval Business Practices including a) the development and refinement of policies, guidance, and terminology required to establish a consistent approach for OA across the Enterprise; b) the development and maintenance of analytical toolsets to assist Milestone Decision Authorities, Program Managers, and Resource Sponsors in assessing program openness and making informed OA investment decisions; and c) the facilitation of design disclosure, information sharing, and cross-domain component reuse to reduce costs and enable more effective technology insertion, including the administration of the OA Information Exchange Portal hosted at Forge.mil. The Core OA/OAET will continue to work with, and across, the PEOs to adopt automated test and analysis tools.			
Accomplishments/Planned Programs Subtotals	1.107	1.506	1.570

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• R&D/0604307N /1447: *AEGIS Surf Combatant Combat Sys Imp*	211.968	260.616	237.642		237.642	196.584	312.518	217.788	243.443	Continuing	Continuing
• R&D/0604755N /2178: *Ship Self Defense System*	68.161	81.106	117.668		117.668	110.893	117.429	75.697	65.350	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603382N: *Advanced Combat Systems Tech*	PROJECT 0324: *Adv Combat System Technology*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• R&D/0603658N /2039: *Cooperative Engagement Capability*	54.422	56.512	68.496		68.496	66.050	87.815	77.254	78.582	Continuing	Continuing

Remarks

D. Acquisition Strategy

This risk reduction effort evolved and shifted from a PEO IWS 1.0 task to Naval Surface Warfare Center (NSWC)/Dahlgren to an Assistant Secretary of the Navy, Research, Development & Acquisition (ASN-RDA) directed task to fund the Navy's OA Enterprise effort from this core OA Budget line (policy statement dated 5 August 2004). The strategy was further refined in the Deputy Chief of Naval Operations (DCNO) requirement of 23 December 2005 (N6/7) with guidance for this effort to assist the Milestone Decision Authority (MDA), program managers, and resource sponsors in assessing enterprise program assets where appropriate. Office of the Chief of Naval Operations (OPNAV) has directed this program to provide objective, measurable, performance based assessments as Business Case Analysis (BCA) baselines for future system changes and spiral developments.

E. Performance Metrics

Change Naval Processes and business practices to cost-effectively innovate and deploy improved warfighting capability based on fleet requirements. Provide OA Systems Engineering to field common, interoperable capabilities; Change Navy and Marine Corps Business processes to Institutionalize OA Principles.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603382N: *Advanced Combat Systems Tech*	PROJECT 0324: *Adv Combat System Technology*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SE/OA Domain Support	C/FP	APL/ IET Contract:VARIOUS	0.725	0.185	Mar 2012	0.750	Nov 2012	0.690	Nov 2013	-		0.690	0.000	2.350	Continuing
Systems Engineering	WR	NSWC / Dahlgren:Dahlgren, VA	12.658	0.010	Jan 2012	0.020	Oct 2012	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/CRANE, Carderock, DISA:VARIOUS	2.062	0.305	Mar 2012	0.200	Dec 2012	0.200	Dec 2013	-		0.200	0.000	2.767	Continuing
Systems Engineering	C/CPAF	ASSETT; Lockheed Martin, NJ; Gartner, VA:Washington DC	4.859	0.255	Feb 2012	0.057	Nov 2012	0.060	Nov 2013	-		0.060	0.000	5.231	Continuing
OA DOMAIN SUPPORT	WR	NUWC/Newport, Spawar, Navair:VARIOUS	11.931	0.000		0.000		0.000		-		0.000	0.000	11.931	Continuing
SE/Signal Processor	C/CPAF	Lockheed Martin:VARIOUS	6.000	0.000		0.000		0.000		-		0.000	0.000	6.000	Continuing
SE/Signal Processor	C/CPAF	BAE:VARIOUS	0.300	0.000		0.000		0.000		-		0.000	0.000	0.300	Continuing
SE/Signal Processor	C/CPAF	Raytheon:VARIOUS	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	Continuing
SE/Signal Processor	WR	NSWC/DD, NRL, PHD:VARIOUS	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	Continuing
		Subtotal	39.235	0.755		1.027		0.950		0.000		0.950			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Industry Development	C/FP	IBM, ANGLE, TBD (New IET Contract):VARIOUS	8.545	0.292	Aug 2012	0.379	Nov 2012	0.470	Nov 2013	-		0.470	0.000	9.686	Continuing
Technical Data-Academia	WR	NPS-Monterey/ DAU:MONTEREY, CA	1.876	0.060	Feb 2012	0.100	Nov 2012	0.150	Nov 2013	-		0.150	0.000	2.186	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603382N: *Advanced Combat Systems Tech*	PROJECT 0324: *Adv Combat System Technology*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/FP	TRIDENT, ASSET:VARIOUS	0.309	0.000		0.000		0.000		-		0.000	0.000	0.309	Continuing
		Subtotal	10.730	0.352		0.479		0.620		0.000		0.620	0.000	12.181	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation	WR	NSWC/ DD:DAHLGREN, VA	2.216	0.000		0.000		0.000		-		0.000	0.000	2.216	Continuing
OA Asset Repository (SBIR Account)	WR	Miscellaneous:VARIOUS	0.150	0.000		0.000		0.000		-		0.000	0.000	0.150	Continuing
		Subtotal	2.366	0.000		0.000		0.000		0.000		0.000	0.000	2.366	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	Miscellaneous:VARIOUS	3.021	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
SBIR Assessment (Cong Add)	WR	NSWC/ DD:DAHLGREN, VA	4.748	0.000		0.000		0.000		-		0.000	0.000	4.748	Continuing
DAWDF	TBD	TBD:TBD	0.021	0.000		0.000		0.000		-		0.000	0.000	0.021	Continuing
		Subtotal	7.790	0.000		0.000		0.000		0.000		0.000			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	60.121	1.107		1.506		1.570		0.000		1.570			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603382N: *Advanced Combat Systems Tech*	PROJECT 0324: *Adv Combat System Technology*

Fiscal Year	2012				2013				2014				2015				2016				2017				2018			
	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																												
Incorporate OA Principles in Strategies, Contracts, Reviews, Requirements, & Other Documentation	△		△		△		△		△		△		△		△		△		△		△		△		△		△	
Change Culture through OA Education, Outreach, & Training	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
Conduct Program Assessments		△				△				△				△				△				△				△		
Adapt ONR Technologies	△		△		△		△		△		△		△		△		△		△		△		△		△		△	
Publish Contract Guidebook Update			△								△								△								△	
Host OA Symposium				△				△				△				△				△				△				△
Deliver Report to Congress	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
Host OA Lead Council Meetings	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603382N: *Advanced Combat Systems Tech*	**PROJECT** 0324: *Adv Combat System Technology*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0324				
Incorporate OA Principles in Acquisition Strategies and Contracts	1	2012	3	2018
Change Culture through OA Education, Outreach and Training	1	2012	4	2018
Conduct Program Assessments	2	2012	2	2018
Adapt ONR Technologies	1	2012	3	2018
Publish Contract Guidebook Update	3	2012	3	2018
Host Contracting/Industry Symposium	4	2012	4	2018
Deliver Report to Congress	1	2012	4	2018
Host OA Lead Council Meeting	1	2012	4	2018

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	1,036.876	126.760	190.622	168.040	-	168.040	160.298	129.481	135.865	127.865	Continuing	Continuing
0260: *Remote Minehunting Systems*	410.219	50.257	39.094	31.837	-	31.837	23.830	18.697	18.726	11.142	Continuing	Continuing
1233: *Surface MCM Mid-life Upgrade*	126.500	22.204	33.690	39.306	-	39.306	42.210	35.945	31.984	25.205	Continuing	Continuing
2094.: *Unmanned Underwater Vehicle*	0.000	0.000	36.773	24.164	-	24.164	26.483	34.888	54.634	60.485	Continuing	Continuing
2131: *Assault Breaching System*	442.056	42.657	59.648	58.789	-	58.789	53.584	33.642	24.463	24.874	Continuing	Continuing
3123: *SMCM UUV*	58.101	11.642	21.417	13.944	-	13.944	14.191	6.309	6.058	6.159	Continuing	Continuing
MDAP/MAIS Code(s): 286												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program element provides resources for development of mine countermeasure systems to provide minehunting, minesweeping, and neutralization to counter known and projected mine threats. The mine countermeasures systems provide mobile, quick reaction forces capable of land or sea-based minehunting and minesweeping operations worldwide. Resources are for developing and deploying advanced mine-hunting and minesweeping systems and the intelligence and oceanographic capabilities that will enable mine warfare superiority. Tactics and techniques used vary across a diversity of environments and a diversity of threats, including both asymmetric and emerging. Resources provide for systems and support of mine warfare systems, maritime systems, and expeditionary systems to allow for continuous operations of the Navy's warships and support vessels, other military vessels, and commercial vessels. Core capabilities include forward presence, deterrence, sea control, power projection, maritime security, humanitarian assistance and disaster response to maintain freedom of the seas. Increased capability includes conducting minefield reconnaissance (mine density and location) at high area search rates, improving detection capability, decreasing sensor false alarm rates, reducing or eliminating post-mission analysis detect, classify, identify, decide time, improving neutralization time, improving network communications, automatic target recognition, and achieving in-stride detect-to-engage capability. Concept of operations includes development of cooperative, unmanned, modular systems; the establishment of a capable networked command and control systems; and standing up an accurate and interactive environmental system with the ability to form and disseminate a Common Environmental Picture. Efforts benefit the MCM force by transforming the Navy from the platform-centered legacy set of systems to a capability-centered force that is distributed, networked, and able to provide unique maritime influence and access across the entire maritime domain.

The Surface Mine Countermeasures (SMCM) programs are platform independent and will provide detection, classification, localization, identification, neutralization, and influence clearance capabilities. Programs develop: (1) remote minehunting capability for surface platforms; (2) the integration and improvement of new and existing systems (3) support for systems which detect, localize, classify, identify, and neutralize all mine types across Mine Countermeasure (MCM) Avenger Class and

other platforms; (4) systems for neutralizing mines and light obstacles through the entire water column to include shallow water, very shallow water, surf zones, and beach landing craft zones in support of operations; (5) the integration of Unmanned Undersea Vehicles (UUVs) to meet Undersea Surveillance capabilities as well as other prioritized and enduring capabilities, requirements and gaps (6) and integrate hardware for experimental testing related to surface ship, aircraft, and other cross platform applications.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	127.757	190.622	147.397	-	147.397
Current President's Budget	126.760	190.622	168.040	-	168.040
Total Adjustments	-0.997	0.000	20.643	-	20.643
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.949	0.000			
• SBIR/STTR Transfer	-1.946	0.000			
• Program Adjustments	0.000	0.000	21.212	-	21.212
• Rate/Misc Adjustments	0.000	0.000	-0.569	-	-0.569

Change Summary Explanation

Program Adjustments:
FY12 -$997K Total adjustments; SBIR -$1,946K and RMS Reprogramming +$949K.
FY14 $20,643K in Total Program Adjustments; SQQ-94 MCM Trainer $4,100K, USV Increment II $4,200K, Persistent Littoral Undersea Surveillance (PLUS) $3,200K, Assault Breaching System (ABS) -$6,560K, LDUUV Realignment $12,300K, UISS realignment $4,145K, -173K POM Technical Adjustments
Miscellaneous Adjustments: -$569K in total adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 0260: *Remote Minehunting Systems*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0260: *Remote Minehunting Systems*	410.219	50.257	39.094	31.837	-	31.837	23.830	18.697	18.726	11.142	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Under Secretary of Defense, (USD, AT&L) Nunn-McCurdy Certification Acquisition Decision Memorandum (ADM) for the Remote Minehunting Systems (RMS) dated 1 June 2010 recertified and restructured the RMS Program. The Director, Cost Assessment and Program Evaluation (D, CAPE) approved the acquisition cost estimate for the restructured RMS program support and Remote Multi-Mission Vehicle (RMMV) Reliability Growth Program (RGP).

The RMS is a mine reconnaissance system designed for the detection, classification, identification, and localization of bottom and moored targets in shallow and deep water. RMS is a fully integrated system consisting of a semi-submersible Remote Multi-Mission Vehicle (RMMV) carrying a towed variable depth sensor, AN/AQS-20A. Line-Of-Sight (LOS) and Over-The-Horizon (OTH) telemetry provides vehicle Command and Control and mine reconnaissance sensor data transmission to/from a system aboard a Navy ship. RMS will provide the Navy the capability to keep ships and sailors out of the minefield. The RMS will be deployed from the Littoral Combat Ship as part of the ships' Mine Countermeasures (MCM) Mission Package (MP). RMS Integration with LCS will support the LCS MCM MP Initial Oopeational Test and Evaluation (IOT&E) in FY14.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Product Development:	24.201	17.888	14.877
Articles:	0	0	0
FY 2012 Accomplishments: - Completed Reliability Growth Program (RGP) Version 4.1 validation testing and demonstrated Mean Time Between Operational Mission Failure (MTBOMF) of 63 hours. - Conducted RGP V4.2 Design Review I & II. - Installed V4.2 change on one RMMV. - Completed RGP 4.2 integration testing on one RMMV.			
FY 2013 Plans: - Complete installation of RGP V4.2 on RMMVs. - Complete RGP V4.2 integration, verification and validation testing. - Conduct RMMV RGP V4.2 Gate Review.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 0260: *Remote Minehunting Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Prepare and conduct RGP V4.2 Development Testing (DT IIG). - Complete Technical Data Package (TDP) for V4.1. - Start TDP for V4.2. - Demonstrate MTBOMF of 75 hours. ***FY 2014 Plans:*** - Complete Technical Data Package (TDP) for V4.2.			
Title: Support:	7.840	7.135	5.458
Articles:	0	0	0
FY 2012 Accomplishments: - Provided engineering, logistic and programmatic support for RMMV RGP. - Defined maintenance and supported improvements to better maintain the RMS onboard LCS. - Supported Design Review I & II. ***FY 2013 Plans:*** - Provide engineering, logistic and programmatic support for RMMV RGP. - Conduct Physical Configuration Audit (PCA). ***FY 2014 Plans:*** - Continue to provide engineering, logistic and programmatic support for the RMMV RGP. - Prepare for the Gate Review followed by the Milestone C DAB. - Begin preparations for FY15 Initial Operational Capability (IOC).			
Title: T&E:	17.171	13.173	10.592
Articles:	0	0	0
FY 2012 Accomplishments: - Completed Reliability Growth Program (RGP) Version 4.1 validation testing and demonstrated Mean Time Between Operational Mission Failure (MTBOMF) of 63 hours. - Completed RGP 4.2 integration testing on one RMMV. ***FY 2013 Plans:*** - Complete RGP V4.2 integration, verification and validation testing. - Prepare and conduct RGP V4.2 Development Testing (DT IIG). - Demonstrate MTBOMF of 75 hours. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 0260: *Remote Minehunting Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Complete Technical Data Package (TDP) for V4.2.			
Title: Management:	1.045	0.898	0.910
Articles:	0	0	0
FY 2012 Accomplishments: - Provided program management and travel for RMMV V4.1 and V4.2 testing. - Conducted a Business Case Analysis for Full and Open Competition for the RMS Program Full Rate Production. - Conducted the Overarching Integrated Product Team (OIPT) and Defense Acquisition Board (DAB) In-Process Review (IPR). - Maintained oversight of the RGP and RMMV vehicle upgrades and testing.			
FY 2013 Plans: - Provide program management and travel for RMMV V4.2 testing. - Prepare for and conduct the OIPT/V4.2 Gate Review currently planned for 3rd QTR FY13. - Maintain oversight of the RGP and RMMV vehicle upgrades and testing to include development of the V4.2 TDP.			
FY 2014 Plans: - Provide program management support and travel in support of V6.0 Integration Testing. - Prepare for and conduct the OIPT Gate Review and MS C DAB currently planned for 3rd QTR FY14. - Maintain oversight of the RGP and RMMV vehicle upgrades and testing. - Prepare for development and release of the LRIP contract.			
Accomplishments/Planned Programs Subtotals	50.257	39.094	31.837

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN 1601: *LCS MCM Mission Modules*	0.000	0.000	0.000		0.000	33.299	61.050	58.605	58.458	Continuing	Continuing

Remarks

D. Acquisition Strategy

At the conclusion of the Nunn-McCurdy certification process, an Acquisition Decision Memorandum (ADM) dated 01 Jun 2010 was issued by USD (AT&L) rescinding Milestone (MS) C and declaring the program as being post-MS B. A Reliability Growth Program is currently being conducted in accordance with the Acquisition Strategy that was approved September 2011. A DAB IPR will be conducted in 4th QTR FY12. Acquisition Strategy for the program is to conduct DT in FY13 and an OA in FY14 based on the RGP. The remaining RMMV vehicles will be upgraded by a separate contract action. MS C will be conducted in 3rd QTR FY14. A Low Rate Initial Production (LRIP) contract is planned to be awarded based on full and open competition in 4th QTR FY14. This contract will have an option for full rate production

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 0260: *Remote Minehunting Systems*

planned to be awarded in 4th QTR FY17. DT/Operational Testing (OT) will be conducted on the LRIP systems in early FY17. Exercise of that full rate production option will be based on a Full Rate Production Decision Review (FRPDR) planned for 4th QTR FY17.

E. Performance Metrics

Obtained Final Nunn-McCurdy/2366b Certification
Award RGP Completion Contract
Conduct DAB IPR
Award RMMV Upgrade Contract
Complete RGP
Complete DT/OA based on RGP FY14
Award LRIP contract with Options for Full Rate Production
MS C FY14
Support LCS MCM MP IOT&E in FY14
Complete IOT&E based on LRIP early FY17
FRPDR FY17

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 0260: *Remote Minehunting Systems*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development & Integration 1	SS/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	97.283	21.458	Oct 2011	15.101	Oct 2012	12.270	Oct 2013	-		12.270	Continuing	Continuing	Continuing
Hardware Development & Integration 2	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	95.993	0.000		0.000		0.000		-		0.000	0.000	95.993	
Hardware Development & Integration	WR	NSWC. PC:PANAMA CITY, FL	7.140	2.743	Oct 2011	2.287	Oct 2012	1.607	Oct 2013	-		1.607	Continuing	Continuing	Continuing
Systems Engineering 1	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	5.465	0.000		0.000		0.000		-		0.000	0.000	5.465	
Systems Engineering 2	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	16.211	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering 3	WR	NSWC, PC:PANAMA CITY, FL	5.294	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Award Fees	SS/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	5.485	0.000		0.000		0.000		-		0.000	0.000	5.485	
Hardware Devleopment & Integration	C/FFP	ARL/PSU:STATE COLLEGE/PA	0.505	0.000		0.500	Oct 2012	1.000	Oct 2013	-		1.000	0.000	2.005	
		Subtotal	233.376	24.201		17.888		14.877		0.000		14.877			

Remarks

ARL/PSU - Applied Reseach Laboratory - Pennsylvania State University

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development 1	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	7.092	0.000		0.000		0.000		-		0.000	0.000	7.092	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 0260: *Remote Minehunting Systems*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development 2	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	6.961	0.000		0.000		0.000		-		0.000	0.000	6.961	
Software Development 3	WR	NSWC, PC:RIVIERA BEACH, FL	2.142	0.000		0.000		0.000		-		0.000	0.000	2.142	
ILS 1	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	17.836	0.000		0.000		0.000		-		0.000	0.000	17.836	
ILS 2	SS/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	2.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Engineeing Support/ILS 3	WR	NSWC, PC:PANAMA CITY, FL	5.057	3.350	Oct 2011	3.800	Oct 2012	2.555	Oct 2013	-		2.555	Continuing	Continuing	Continuing
ILS 4	WR	VARIOUS:VARIOUS	1.125	0.000		0.000		0.000		-		0.000	0.000	1.125	
Ship Integration 1	SS/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	1.258	0.000		0.000		0.000		-		0.000	0.000	1.258	
Ship Integration 2	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	11.938	0.000		0.000		0.000		-		0.000	0.000	11.938	
Ship Integration 3	Various	VARIOUS:VARIOUS	13.714	0.000		0.000		0.000		-		0.000	0.000	13.714	
Engineering Support	WR	NSWC Corona:Corona, CA	0.000	0.110	Oct 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Engineering Support	WR	NUWC, NPT:Newport, RI	0.000	1.789	Oct 2011	0.600	Oct 2012	0.618	Oct 2013	-		0.618	Continuing	Continuing	Continuing
Engineering Support	WR	NUWC, KPT:Keyport, WA	0.000	0.615	Oct 2011	0.733	Oct 2012	0.875	Oct 2013	-		0.875	Continuing	Continuing	Continuing
ILS Support	WR	NAWCAD:Patuxent, MD	0.000	0.312	Oct 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Engineering Support	WR	NSWC Carderock:Carderock, MD	0.000	0.453	Oct 2011	0.775	Oct 2012	0.660	Oct 2013	-		0.660	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 0260: *Remote Minehunting Systems*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sandia labs - Reliability Engineering	WR	NSWC, PC:PANAMA CITY, FL	0.000	1.211	Oct 2011	1.227	Oct 2012	0.750	Oct 2013	-		0.750	Continuing	Continuing	Continuing
		Subtotal	69.123	7.840		7.135		5.458		0.000		5.458			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation 1	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	18.470	0.000		0.000		0.000		-		0.000	0.000	18.470	
Developmental Test & Evaluation 2	SS/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	27.671	16.867	Oct 2011	12.865	Oct 2012	10.272	Oct 2013	-		10.272	Continuing	Continuing	Continuing
Developmental Test & Evaluation 3	WR	NSWC, PC:PANAMA CITY, FL	13.994	0.000		0.000		0.000		-		0.000	0.000	13.994	
Developmental Test & Evaluation 4	WR	COTF:NORFOLK, VA	0.300	0.304	Oct 2011	0.308	Oct 2012	0.320	Oct 2013	-		0.320	Continuing	Continuing	Continuing
Developmental Test & Evaluation 5	WR	VARIOUS:VARIOUS	5.298	0.000		0.000		0.000		-		0.000	0.000	5.298	
		Subtotal	65.733	17.171		13.173		10.592		0.000		10.592			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	6.569	0.000		0.000		0.000		-		0.000	0.000	6.569	
Government Engineering Support1	WR	NSWC, PC:PANAMA CITY, FL	22.996	0.000		0.000		0.000		-		0.000	0.000	22.996	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 0260: *Remote Minehunting Systems*

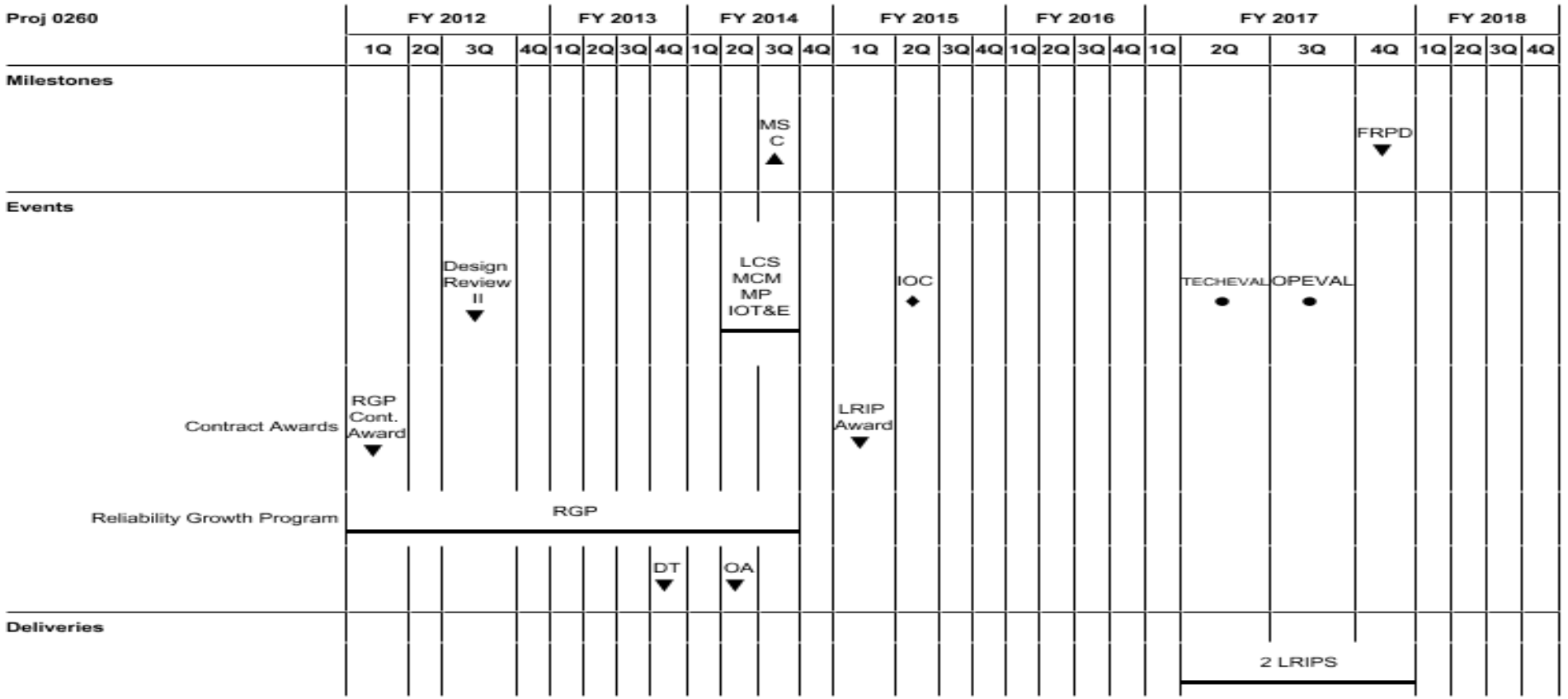
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support2	WR	NSWC, PC:PANAMA CITY, FL	0.237	0.000		0.000		0.000		-		0.000	0.000	0.237	
Program Management Support	C/CPFF	CACI:WASHINGTON, DC	4.358	1.000	Oct 2011	0.853	Oct 2012	0.865	Oct 2013	-		0.865	Continuing	Continuing	Continuing
Travel	WR	NAVSEA:WNY, DC	0.666	0.045	Oct 2011	0.045	Oct 2012	0.045	Oct 2013	-		0.045	Continuing	Continuing	Continuing
SBIR Assessment	WR	VARIOUS:VARIOUS	7.161	0.000		0.000		0.000		-		0.000	0.000	7.161	
		Subtotal	41.987	1.045		0.898		0.910		0.000		0.910			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	410.219	50.257		39.094		31.837		0.000		31.837			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 0260: *Remote Minehunting Systems*



2014PB - 0603502N - 0260

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603502N: *Surface & Shallow Water MCM*	**PROJECT** 0260: *Remote Minehunting Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0260				
Milestones: Milestone C	3	2014	3	2014
Milestones: Full Rate Production Decision	4	2017	4	2017
Events: Technical Evaluation (TECHEVAL)	2	2017	2	2017
Events: Operational Evaluation (OPEVAL)	3	2017	3	2017
Events: Design Review II	3	2012	3	2012
Events: Initial Operating Capability (IOC)	2	2015	2	2015
Events: LCS MCM MP IOT&E	2	2014	3	2014
Events: Contract Awards: RGP Continuation Contract	1	2012	1	2012
Events: Contract Awards: LRIP Award with FRP options	1	2015	1	2015
Events: Reliability Growth Program: Reliability Growth Program	1	2012	3	2014
Events: Reliability Growth Program: OA (OT-B1)	2	2014	2	2014
Events: Reliability Growth Program: DT (DT-IIG)	4	2013	4	2013
Deliveries: 2 LRIPs	2	2017	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1233: *Surface MCM Mid-life Upgrade*	126.500	22.204	33.690	39.306	-	39.306	42.210	35.945	31.984	25.205	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project provides resources for development, improvement and integration of MCM systems. A description of the major planned programs include the following:

1) AN/SQQ-32(V)4 High-Frequency, Wide Band (HFWB) is a technology upgrade to the AN/SQQ-32 Towed Body which will incorporate HFWB technology into the detection sonar to address performance deficiencies against new mine threats in the littorals. This upgrade will be installed on MCM-1 Class ships with the AN/SQQ-32(V)3 and will develop new transducer modules, fiber optic cable and modify topside processing and display software. 2) Mine Warfare and Environmental Decision Aids Library (MEDAL) is a software segment on the Global Command and Control System - Maritime (GCCS-M). MEDAL provides mine and mine warfare planning and evaluation tools and databases to the MCM Commander. 3) Develop and implement Mine Countermeasures Commander's Estimate of the Situation (MCM CES). 4) Unmanned Surface Vehicle (USV) Flight 1 includes the Unmanned Surface Sweep System (US3,)a magnetic/acoustic sweep system developed to sweep acoustic/magnetic influence mines, that when integrated with an unmanned surface vehicle (USV) becomes the Unmanned Influence Sweep System (UISS) deployed from the Littoral Combat Ship (LCS); 5) Multi-Function USV Flight 2 integrates a minehunting sensor with the UISS vehicle. The added capability allows a common USV to conduct minehunting and minesweeping missions. 6) Mine Neutralization System (MNS) Seafox on the MCM Class ships. MNS is the replacement to the existing AN/SLQ-48 Mine Neutralization System.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: MCM CES/PRODUCT DEVELOPMENT:	0.110	0.125	0.125
Articles:	0	0	0
FY 2012 Accomplishments: Conducted Contractor Testing of MEDAL EA Iteration 5 and MCM CES software. Participated in Trident warrior 12 exercise with MEDAL EA Iteration 5 and MCM CES software (limited fielding). Completed Iteration 6 software development. Initated (software specifications) for Iteration 7. Conducted CANES/ISNS and LCS Mission Package integration activities. Developed MEDAL EA training job aids. Developed test plans.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Complete development of MEDAL EA Iteration 7. Conduct integration activities with CANES/ISNS and LCS Mission Package. Initiate Information Assurance documentation for Authority to Operate on Navy networks. Conduct series of Development Tests (DT). Conduct OA planning for FY14. Develop MEDAL EA training job aids. ***FY 2014 Plans:*** Continue integration activities with CANES/ISNS and LCS Mission Package. Conduct series of Development Tests (DT). Develop MEDAL EA/CES training job aids. Requirements analysis for Running Estimate, Stage Based Planning, path optimization, and performance paratmeters.			
Title: MCM CES/SUPPORT: ***Articles:*** ***FY 2012 Accomplishments:*** Continued introduction of capability and Planning on Risk (PoR) functionality via a limited fielding to Fleet Users including Mine Counter Measures Squadrons (MCMRONs) and Naval Mine and Anti Submarine Warfare Command (NMAWC). ***FY 2013 Plans:*** Continue introduction of capability and Planning on Risk (PoR) functionality via a limited fielding to Fleet Users including Mine Counter Measures Squadrons (MCMRONs) and Naval Mine and Anti Submarine Warfare Command (NMAWC). ***FY 2014 Plans:*** Continue introduction of capability and Planning on Risk (PoR) functionality via a limited fielding to Fleet Users including Mine Countermeasures Squadrons (MCMRONs) and Naval Mine and Anti Submarine Warfare Command (NMAWC).	0.063 0	0.095 0	0.095 0
Title: MCM CES/TEST AND EVALUATION: ***Articles:*** ***FY 2012 Accomplishments:*** Developed Test plan and conduct initial user evaluation during Trident Warrior 12. ***FY 2013 Plans:*** Test Planning for MEDAL EA DT/OA in FY14. ***FY 2014 Plans:*** Execution of MEDAL EA DT/OA.	0.139 0	0.159 0	0.151 0
Title: MCM CES/MANAGEMENT: ***Articles:*** ***FY 2012 Accomplishments:***	0.031 0	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Program management shall include overall technical guidance and leadership for the program. Other ongoing PM support includes oversight of financial and logistics efforts and adequate coordination with MEDAL. Other PM tasking will include briefings, demonstrations, and project planning as required.			
Title: HFWB/PRODUCT DEVELOPMENT: ***Articles:*** ***FY 2012 Accomplishments:*** System engineering, requirements analysis, design and development for AN/SQQ-32(V)4 HFWB P3I effort. ***FY 2013 Plans:*** Continue System engineer, requirements analysis and design for AN/SQQ-32(V)4 HFWB P3I effort. ***FY 2014 Plans:*** Continue Systerm engineer, requirements analysis and design for AN/SQQ-32(V)4 HFWB P3I effort.	1.268 0	1.378 0	1.233 0
Title: HFWB/SUPPORT: ***Articles:*** ***FY 2012 Accomplishments:*** Software requirements, configuration and integraton for AN/SQQ-32(V)4 HFWB P3I effort. ***FY 2013 Plans:*** Continue software requirements, configuration, and software integration for AN.SQQ-32(V)4 HFWB P3I effort. ***FY 2014 Plans:*** Continue software requirements, configuration, and software integration for AN.SQQ-32(V)4 HFWB P3I through the sensor.	0.142 0	0.370 0	0.394 0
Title: HFWB/TEST AND EVALUATION: ***Articles:*** ***FY 2012 Accomplishments:*** Perform Lab and at sea testing for AN/SQQ-32(V)4 HFWB P3I through the sensor effort. ***FY 2013 Plans:*** Continue to perform Lab and at sea testing for AN/SQQ-32(V)4 HFWB P3I effort. ***FY 2014 Plans:*** Perform Lab and at sea testing for AN/SQQ-32(V)4 HFWB P3I effort.	0.100 0	0.350 0	0.310 0
Title: HFWB/MANAGEMENT: ***Articles:***	0.000	0.117 0	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2013 Plans: FY13 provide program management support and travel for AN/SQQ-32(V)4 HFWB Upgrade program			
Title: MEDAL/PRODUCT DEVELOPMENT:	5.248	5.839	4.333
Articles:	0	0	0
FY 2012 Accomplishments: Conducted Contractor Testing of MEDAL EA Iteration 5 and MCM CES software. Participated in Trident Warrior 12 exercise with MEDAL EA Iteration 5 and MCM CES software (limited fielding). Completed Iteration 6 software development. Initiated (software specifications) for Iteration 7. Conducted CANES/ISNS and LCS Mission Package integration activities. Develop MEDAL EA training job aids. ***FY 2013 Plans:*** Complete development of MEDAL EA Iteration 7. Conduct integration activities with CANES/ISNs and LCS Mission Package. Initiate Information Assurance documentation for Authority to operate on navy networks. Conduct series of Development tests (DTs). Conduct OA planning for FY14. Develop MEDAL EA training aids. ***FY 2014 Plans:*** Conduct Test & Evaluation of MINEnet Tactical (MEDAL EA). Continue integration activities with CANES/ISNs and LCS Mission Package. Continue to develop Information Assurance documentation for Authority to operate on navy networks. Conduct series of Devlopment tests (DTs). Conduct OA planning for FY14. Initiate planning for the development of MEDAL EA Increment 2. Initiate integration of MEDAL EA course curriculum.			
Title: MEDAL/SUPPORT:	0.356	0.550	0.550
Articles:	0	0	0
FY 2012 Accomplishments: Oversaw technical integration of developed algorithms and models that have demonstrated their effectiveness with respect to their objectives. Supported effort to include communication with activities such as applied labs, government activities, and designated contractors. Assisted in providing the speed, agility, adaptability, and flexibility required for modern MCM operations. ***FY 2013 Plans:*** Oversee technical integration of developed algorithms and models that have demonstrated their effectiveness with respect to their objectives. Support effort to include communication with activities such as applied labs, government activities, and designated contractors. Assist in providing the speed, agility, adaptability, and flexibility required for modern MCM operations. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Oversee technical integration of developed algorithms and models that have demonstrated their effectiveness with respect to their objectives. Support effort to include communication with activities such as applied labs, government activities, and designated contractors. Assist in providing the speed, agility, adaptability, and flexibility required for modern MCM operations. Prepare for fielding of MEDAL EA; IOC scheduled for Aug 2014.			
Title: MEDAL/TEST AND EVALUATION:	1.650	2.000	1.960
Articles:	0	0	0
FY 2012 Accomplishments: Completed Iteration 5 Contractor testing. Participated in Trident Warrior 12 (Contractor Test) for initial user evaluation. Developed DT test plans for FY13.			
FY 2013 Plans: Continue planning and conduct DT for Surface MCM. Continue System Integration testing activities wih CANES and ISNS. Continue planning for subsequent FY14 DT and OA events.			
FY 2014 Plans: Complete DT for Surface MCM. Continue System Integration testing activities wih CANES and ISNS. Continue planning for subsequent OA events.			
Title: MEDAL/MANAGEMENT:	0.607	0.768	0.759
Articles:	0	0	0
FY 2012 Accomplishments: Provided program management support and travel for MEDAL program. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. As part of the systems engineering element of PM, communicate and coordinate with MIW C4ISR, ICWS, Organic MCM, Mainstreaming MIEW, Expeditionary Warfare C4ISR, tactics development, long term planning, Naval Special Clearance Team (NSCT-1) Assault Breaching Systems of Systems (ABSoS), LCS, and other programs as they relate to MEDAL and MIW Mission Planning, Evaluation, and C4ISR. Other PM tasking to include briefings, demonstrations, and project planning as required.			
FY 2013 Plans: Provide program management support and travel for MEDAL program. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. As part of the systems engineering element of PM, communicate and coordinate with MIW C4ISR, ICWS, Organic MCM, Mainstreaming MIEW, Expeditionary Warfare C4ISR, tactics development, long term planning, Naval Special Clearance Team (NSCT-1) Assault Breaching Systems of			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Systems (ABSoS), LCS, and other programs as they relate to MEDAL and MIW Mission Planning, Evaluation, and C4ISR. Other PM tasking to include briefings, demonstrations, and project planning as required. ***FY 2014 Plans:*** Provide program management support and travel for MEDAL program. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. As part of the systems engineering element of PM, communicate and coordinate with MIW C4ISR, ICWS, Organic MCM, Mainstreaming MIEW, Expeditionary Warfare C4ISR, tactics development, long term planning, Naval Special Clearance Team (NSCT-1) Assault Breaching Systems of Systems (ABSoS), LCS, and other programs as they relate to MEDAL and MIW Mission Planning, Evaluation, and C4ISR. Other PM tasking to include briefings, demonstrations, and project planning as required.			
Title: USV Flight 1 (US3)/PRODUCT DEVELOPMENT: ***Articles:*** ***FY 2012 Accomplishments:*** Continued Milestone B documentation. Continued Risk Reduction efforts. ***FY 2013 Plans:*** Continue Milestone B documentation. Continue Risk Reduction efforts. ***FY 2014 Plans:*** Conduct MS B. Begin Engineering and Manufacturing Design (E&MD) phase. Design and build Engineering Development Model (EDM). Develop software and hardware interfaces. Conduct Preliminary Design Review (PDR). Conduct Critical Design Review (CDR)	7.877 0	10.488 0	10.059 0
Title: USV Flight 1 (US3)/SUPPORT: ***Articles:*** ***FY 2012 Accomplishments:*** Continued development of Milestone B documentation. ***FY 2013 Plans:*** Complete Milestone B documentation. ***FY 2014 Plans:*** Commence Engineering and ILS support for E&MD phase efforts.	1.273 0	4.339 0	3.000 0
Title: USV Flight 1 (US3)/TEST AND EVALUATION: ***Articles:***	1.800 0	1.972 0	4.245 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: Continued development of the TEMP. Commence technology development testing and UISS Demonstration Testing. ***FY 2013 Plans:*** Continued development of the TEMP. Continue technology development testing and UISS Demonstration Testing. ***FY 2014 Plans:*** Commence EDM Integrated system testing. Complete TEMP.			
Title: USV Flight 1 (US3)/MANAGEMENT:	1.540	1.540	1.900
Articles:	0	0	0
FY 2012 Accomplishments: Program support for Milestone B documentation. ***FY 2013 Plans:*** Support the award of the engineering and manufacturing development contract in the 1st Qtr FY14. ***FY 2014 Plans:*** Commence EMD contract management. Commence progam support for Milestone C documentation.			
Title: MCM Trainer Development	0.000	0.000	4.100
Articles:			0
FY 2014 Plans: SQQ-94 Mine Warfare Countermeasures Simulator; development of hardware and software upgrades to the combat system team/ individual training capabilities on the MCM Class Ship			
Title: MNS Replacement	0.000	3.600	1.892
Articles:		0	0
FY 2013 Plans: Continue proof of concept SMCM ship system, engineering and testing for the MCM Ship Mine Neutralization System (Seafox)Replacement program. ***FY 2014 Plans:*** Continue proof of concept SMCM ship system, engineering and testing for the MCM Ship Mine Neutralization System (Seafox)Replacement program.			
Title: USV Flight 2/PRODUCT DEVELOPMENT	0.000	0.000	3.800
Articles:			0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2014 Plans: Develop hardware and software changes to tow minehunting sensor			
Title: USV Flight 2/SUPPORT	0.000	0.000	0.400
Articles:			0
FY 2014 Plans: Engineering and Logistic support for hardware development			
Accomplishments/Planned Programs Subtotals	22.204	33.690	39.306

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/2622: *LV075/LV078/LV080*	10.111	37.401	31.434		31.434	21.019	18.315	13.770	17.251	0.000	220.911

Remarks

D. Acquisition Strategy

HFWB - Naval Surface Warfare Center, Panama City (NSWC, PC) and ARL UT designed and developed the HFWB upgrade to the AN/SQQ-32.

Mine Warfare and Environmental Decision Aids Library (MEDAL) - requirements for MEDAL Builds are generated through a formal requirements process. Requirements conferences gather a list of candidate functions based on a logical sequence to fully implement the overall software architecture. The fleet is presented with a recommended list of candidate capabilities based on this program plan, doctrine, fleet comments, and technology. These capability items are then prioritized by the fleet representatives (coordinated by Naval Mine Warfare and Anti-Submarine Command (NMAWC).The fleet inputs are then consolidated by COMINEWARCOM into an overall list which is then presented to Navy leadership for pricing and final selection. The selection is based on price, risk, available funding, and possibly by other program factors (e.g., ensure that MEDAL supports other program delivery schedules). Selection balances immediate needs, long term objectives, technical maturity and other programmatic factors. A verification and validation process is applied to any algorithms, tactics, or models to be incorporated in the software. MEDAL development to include integration of data fusion techniques and incorporation of Data Access Layer (DAL) architecture to meet FORCEnet requirements. Acquisition strategy for Mine Countermeasures Commander's Estimate of the situation (MCM CES) is to deliver the software module within MEDAL builds by implementing the CES framework into the MEDAL software.

USV Flight 1 (US3)- Requirements for USV Flight 1 (US3) will be documented in the Unmanned Influence Sweep System (UISS) Capability Development Document (CDD). Two Engineering and Manufacturing Development (EMD) contracts will be awarded in FY14 with an option for Low Rate Initial Production (LRIP).

USV Flight 2 - USV Flight 2 upgrade will be a contract modification to the USV Flight 1 (UISS) EMD contract in FY16.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603502N: *Surface & Shallow Water MCM*	**PROJECT** 1233: *Surface MCM Mid-life Upgrade*

E. Performance Metrics

USV Flight 1 (US3) - Successfully reach Milestone B in FY14; Award EDM contract.
USV Flight 2 - Developmental Test in FY17

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MNS Development	Various	TBD:TBD	17.400	0.000		3.600	Feb 2013	1.892	Nov 2013	-		1.892	0.000	22.892	
SQQ-94 Trainer	C/IDDQ	NSWC, PC:TBD	0.000	0.000		0.000		4.100	Dec 2013	-		4.100	0.000	4.100	
BSP: Develop Bottom Sediment Classifier	WR	NRL:WASHINGTON, DC	0.258	0.000		0.000		0.000		-		0.000	0.000	0.258	
Systems Engineering and Integration	WR	NSWC, PC:PANAMA CITY, FL	0.306	0.000		0.000		0.000		-		0.000	0.000	0.306	
System Development 1	WR	NSWC, PC:SAN DIEGO, CA	0.373	0.000		0.000		0.000		-		0.000	0.000	0.373	
Systems Engineering 2	WR	NSWC, PC:PANAMA CITY, FL	2.915	0.000		0.000		0.000		-		0.000	0.000	2.915	
Systems Engineering 3 MCM CES	WR	NSWC, PC:PANAMA CITY, FL	1.388	0.120	Nov 2011	0.120	Nov 2012	0.125	Nov 2013	-		0.125	Continuing	Continuing	Continuing
HFWB: Primary Hardware Development 1	C/CPAF	NSWC, PC/ARL UT:FLORIDA/TEXAS	15.511	0.000		0.000		0.000		-		0.000	0.000	15.511	
Primary Hardware Development 2	WR	ARL-UT:AUSTIN, TX	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	
HFWB: Tow Cable Development	C/CPAF	NSWC, PC/ARL UT:FLORIDA/TEXAS	1.399	0.000		0.000		0.000		-		0.000	0.000	1.399	
HFWB: Ship Integration	WR	NSWC, PC:PANAMA CITY, FL	1.697	0.000		0.000		0.000		-		0.000	0.000	1.697	
HFWB: SYSTEM ENGINEER	C/CPAF	NSWC/ARL UT:FLORIDA/TEXAS	3.887	1.189	Nov 2011	1.378	Nov 2012	1.233	Nov 2013	-		1.233	0.000	7.687	
Software Development MEDAL EA	C/CPFF	SAIC:SAN DIEGO, CA	25.843	4.167	Nov 2011	5.839	Nov 2012	4.333	Nov 2013	-		4.333	0.000	40.182	
US3: Product Development 1	C/CPIF	ITT:Panama City, FL	5.198	0.000		0.000		0.000		-		0.000	0.000	5.198	
US3: Product Development 2	WR	NSWC, PC:Panama City, FL	1.810	2.513	Mar 2012	0.000		0.000		-		0.000	0.000	4.323	
US3: Product Development 3	C/CPIF	Various:Various	0.430	2.351	Apr 2012	0.000		0.000		-		0.000	0.000	2.781	
US3: Product Development 4	C/CPIF	TBD:TBD	0.000	0.000		10.488	Dec 2012	10.059	Dec 2013	-		10.059	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
US3: Product Development 5	WR	NSWC, CD:Bethesda, MD	0.000	1.224	Mar 2012	0.000		0.000		-		0.000	0.000	1.224	
USV Inc 2: Product Development 1	C/FPIF	TBD:TBD	0.000	0.000		0.000		3.800	Dec 2013	-		3.800	0.000	3.800	
		Subtotal	78.415	11.564		21.425		25.542		0.000		25.542			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Develop Logistics Products	WR	NSWC, PC:PANAMA CITY, FL	0.160	0.083	Nov 2011	0.080	Nov 2012	0.095	Nov 2013	-		0.095	0.000	0.418	
Software Development 1	C/CPFF	SAIC:McLean, VA	0.350	0.000		0.000		0.000		-		0.000	0.000	0.350	
Software Development 2	C/CPFF	SAIC:McLean, Va	0.914	0.000		0.000		0.000		-		0.000	0.000	0.914	
HFWB Software Development	WR	NSWC, PC/ARL-UT:FLORIDA/TEXAS	6.712	0.300	Nov 2011	0.322	Nov 2012	0.394	Nov 2013	-		0.394	0.000	7.728	
HFWB Integrated Logistics Support	WR	NSWC, PC:PANAMA CITY, FL	2.723	0.042	Nov 2011	0.061	Nov 2012	0.310	Nov 2013	-		0.310	0.000	3.136	
Software Engineering 1	WR	SPAWAR:SAN DIEGO, CA	0.778	0.644	Nov 2011	0.000		0.000		-		0.000	0.000	1.422	
Software Engineering 2	WR	NSWC, PC:PANAMA CITY, FL	0.922	0.000		0.550	Nov 2012	0.550	Nov 2013	-		0.550	0.000	2.022	
US3: Engineering 1	C/CPAF	ITT:Panama City, FL	3.018	0.000		0.000		0.000		-		0.000	0.000	3.018	
US3: Engineering 2	WR	NSWC, PC:Panama City, FL	4.612	0.300	Nov 2011	0.539	Dec 2012	1.300	Dec 2013	-		1.300	Continuing	Continuing	Continuing
US3: Engineering 3	WR	NSWC, CD:Bethesda, MD	0.000	0.700	Dec 2011	0.800	Dec 2012	1.300	Dec 2013	-		1.300	Continuing	Continuing	Continuing
US3: Integrated Logistics 1	C/CPAF	ITT:Panama City, FL	1.408	0.000		0.000		0.000		-		0.000	0.000	1.408	
US3: Integrated Logistics 2	WR	NSWC, PC:Panama City, FL	2.545	0.273	Nov 2011	3.000	Dec 2012	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
US3: Integrated Logistics 3	WR	NSWC, CD:Bethesda, MD	0.000	0.000		0.000		0.400	Dec 2013	-		0.400	0.000	0.400	
USV Inc. 2: Engineering 1	WR	NSWC, CD:Bethesda, MD	0.000	0.000		0.000		0.400	Dec 2013	-		0.400	0.000	0.400	
USV Inc. 2: Engineering 2	WR	NSWC, PC:Panama City, FL	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	
USV Inc. 2: Integrated Logistics 1	WR	NSWC, CD:Bethesda, MD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	
		Subtotal	24.142	2.342		5.352		4.749		0.000		4.749			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MEDAL Test and Evaluation	C/FP	SAIC:San Diego, CA	0.000	1.964	Nov 2011	2.000	Nov 2012	1.960	Nov 2013	-		1.960	0.000	5.924	
Test and Evaluation 1	C/CPAF	VARIOUS:VARIOUS	0.473	1.158	Nov 2011	0.148	Nov 2012	0.151	Nov 2013	-		0.151	0.000	1.930	
HFWB: Developmental Test and Evaluation	WR	NSWC, PC/ARL-UT:FLORIDA/TEXAS	4.099	0.100	Nov 2011	0.350	Nov 2012	0.000		-		0.000	0.000	4.549	
Test and Evaluation 2	C/CPAF	VARIOUS:VARIOUS	3.917	1.287	Jun 2012	0.000		0.000		-		0.000	0.000	5.204	
US3: Test and Evaluation 1	C/CPIF	ITT:Panama City, FL	2.118	0.000		0.000		0.000		-		0.000	0.000	2.118	
US3: Test and Evaluation 2	WR	NSWC, PC:Panama City, FL	2.468	1.080	Nov 2011	0.364	Dec 2012	1.950	Dec 2013	-		1.950	Continuing	Continuing	Continuing
US3: Test and Evaluation 3	WR	NSWC, CCD:Bethesda, MD	0.000	0.720	Nov 2011	0.364	Dec 2012	1.750	Dec 2013	-		1.750	Continuing	Continuing	Continuing
US3: Test and Evaluation 4	C/CPIF	TBD:TBD	0.000	0.000		1.244	Dec 2012	0.345	Dec 2013	-		0.345	Continuing	Continuing	Continuing
US3: Test and Evaluation 5	WR	COTF:Norfolk, VA	0.000	0.000		0.000		0.200	Dec 2013	-		0.200	0.000	0.200	
		Subtotal	13.075	6.309		4.470		6.356		0.000		6.356			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support 1	C/CPFF	CACI:WASHINGTON, DC	0.263	0.000		0.000		0.000		-		0.000	0.000	0.263	
Travel 1	WR	NAVSEA:WNY, DC	0.084	0.000		0.000		0.000		-		0.000	0.000	0.084	
Government Engineering Support1	WR	NSWC, PC:PANAMA CITY, FL	0.271	0.031	Nov 2011	0.031	Nov 2012	0.000		-		0.000	0.000	0.333	
MEDAL Program Management Support 2	Various	VARIOUS:VARIOUS	0.157	0.498	Nov 2011	0.745	Nov 2012	0.759	Nov 2013	-		0.759	0.000	2.159	
SBIR Assessment 2	Various	VARIOUS:VARIOUS	0.019	0.000		0.000		0.000		-		0.000	0.000	0.019	
Program Management Support 3	C/CPFF	CACI:WASHINGTON, DC	1.341	0.000		0.000		0.000		-		0.000	0.000	1.341	
Program Management Support 4	C/CPFF	CACI:WASHINGTON, DC	0.080	0.000		0.000		0.000		-		0.000	0.000	0.080	
Government Engineering Support3	WR	NSWC, PC:PANAMA CITY, FL	0.090	0.000		0.000		0.000		-		0.000	0.000	0.090	
Travel 3	C/CPAF	NAVSEA:WNY, DC	0.256	0.000		0.000		0.000		-		0.000	0.000	0.256	
Program Management Support 5	C/CPFF	CACI:WASHINGTON, DC	0.167	0.000		0.000		0.000		-		0.000	0.000	0.167	
Government Engineering Support4	WR	NSWC, PC:PANAMA CITY, FL	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	
Travel4	C/CPAF	NSWC, PC:PANAMA CITY, FL	0.069	0.000		0.000		0.000		-		0.000	0.000	0.069	
HFWB: Program Management Support 6	C/CPAF	VARIOUS:VARIOUS	1.332	0.110	Jan 2012	0.117	Nov 2012	0.000		-		0.000	0.000	1.559	
HFWB: Government Engineering Support5	WR	NSWC, PC:PANAMA CITY, FL	0.750	0.000		0.000		0.000		-		0.000	0.000	0.750	
HFWB: Travel 5	C/CPAF	NAVSEA:WNY, DC	0.060	0.010	Nov 2011	0.010	Nov 2012	0.000		-		0.000	0.000	0.080	
Government Engineering Support6	WR	NSWC, PC:PANAMA CITY, FL	1.352	0.000		0.000		0.000		-		0.000	0.000	1.352	
Travel 6	C/CPAF	NAVSEA:WNY, DC	0.238	0.000		0.000		0.000		-		0.000	0.000	0.238	
SBIR Assessment 6	Various	VARIOUS:VARIOUS	0.054	0.000		0.000		0.000		-		0.000	0.000	0.054	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

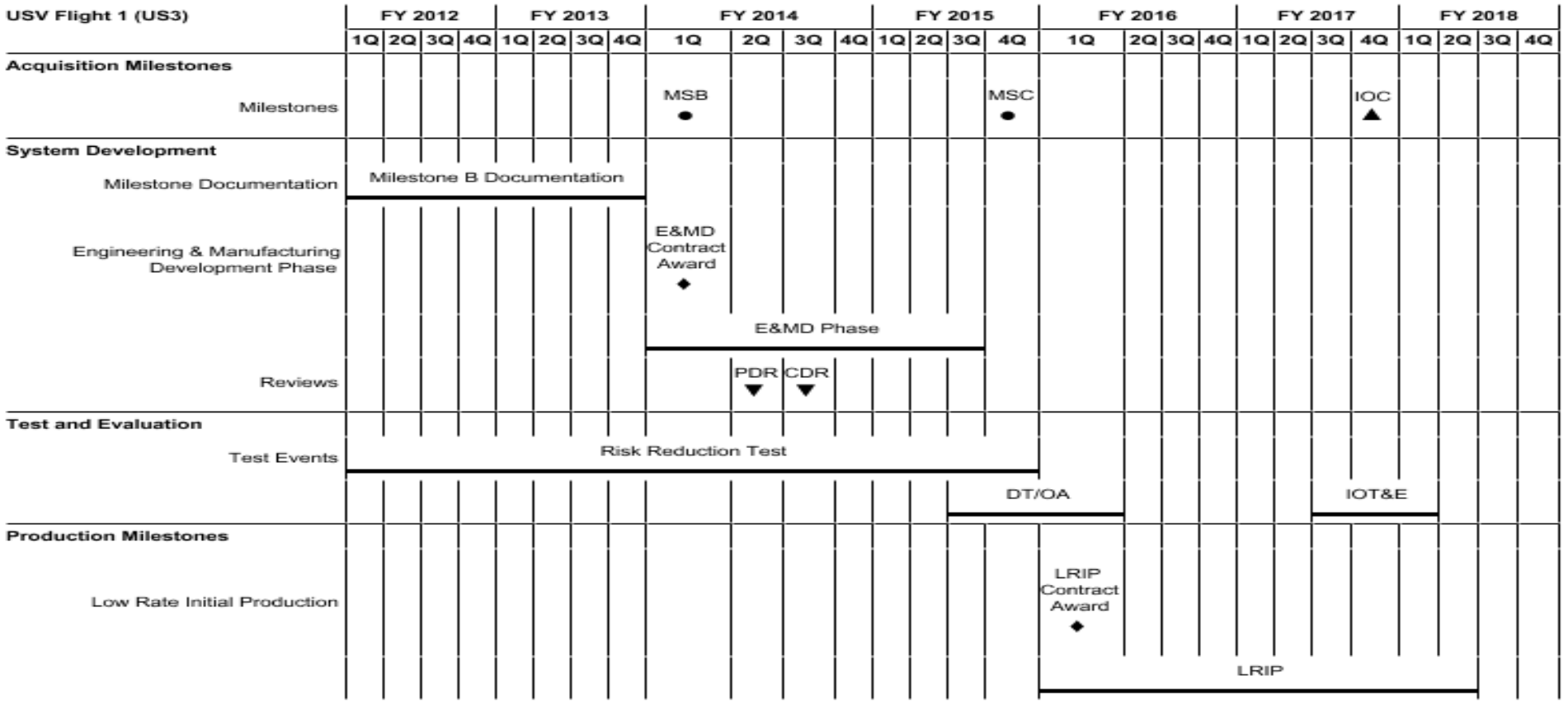
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support 7	C/CPAF	VARIOUS:VARIOUS	0.350	0.000		0.000		0.000		-		0.000	0.000	0.350	
Acquisition Workforce Fund	Various	VARIOUS:VARIOUS	0.122	0.000		0.000		0.000		-		0.000	0.000	0.122	
US3: Contractor Management 3	WR	ITT:PANAMA CITY, FL	0.776	0.000		0.000		0.000		-		0.000	0.000	0.776	
US3: Government Management	WR	VARIOUS:VARIOUS	2.678	0.940	Nov 2011	0.840	Nov 2012	0.000		-		0.000	Continuing	Continuing	Continuing
US3: Contractor Management 7	C/CPAF	CACI:WASHINGTON, DC	0.249	0.000		0.000		0.000		-		0.000	0.000	0.249	
US3: Contractor Management	C/CPFF	TBD:TBD	0.000	0.300	Nov 2011	0.580	Nov 2012	1.800	Dec 2013	-		1.800	Continuing	Continuing	Continuing
US3: Travel	WR	NAVSEA:WNY, DC	0.100	0.100	Nov 2011	0.120	Nov 2012	0.100	Dec 2013	-		0.100	Continuing	Continuing	Continuing
		Subtotal	10.868	1.989		2.443		2.659		0.000		2.659			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	126.500	22.204		33.690		39.306		0.000		39.306			

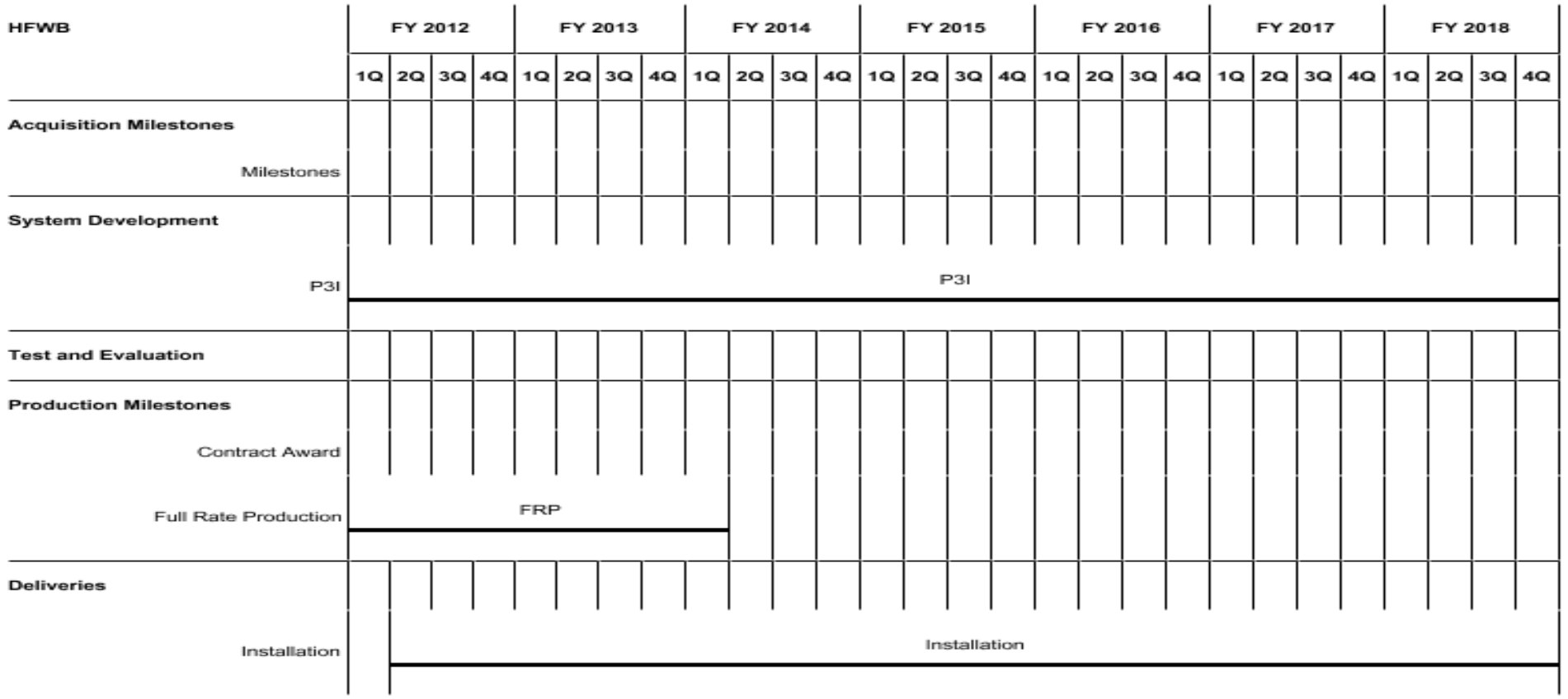
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*



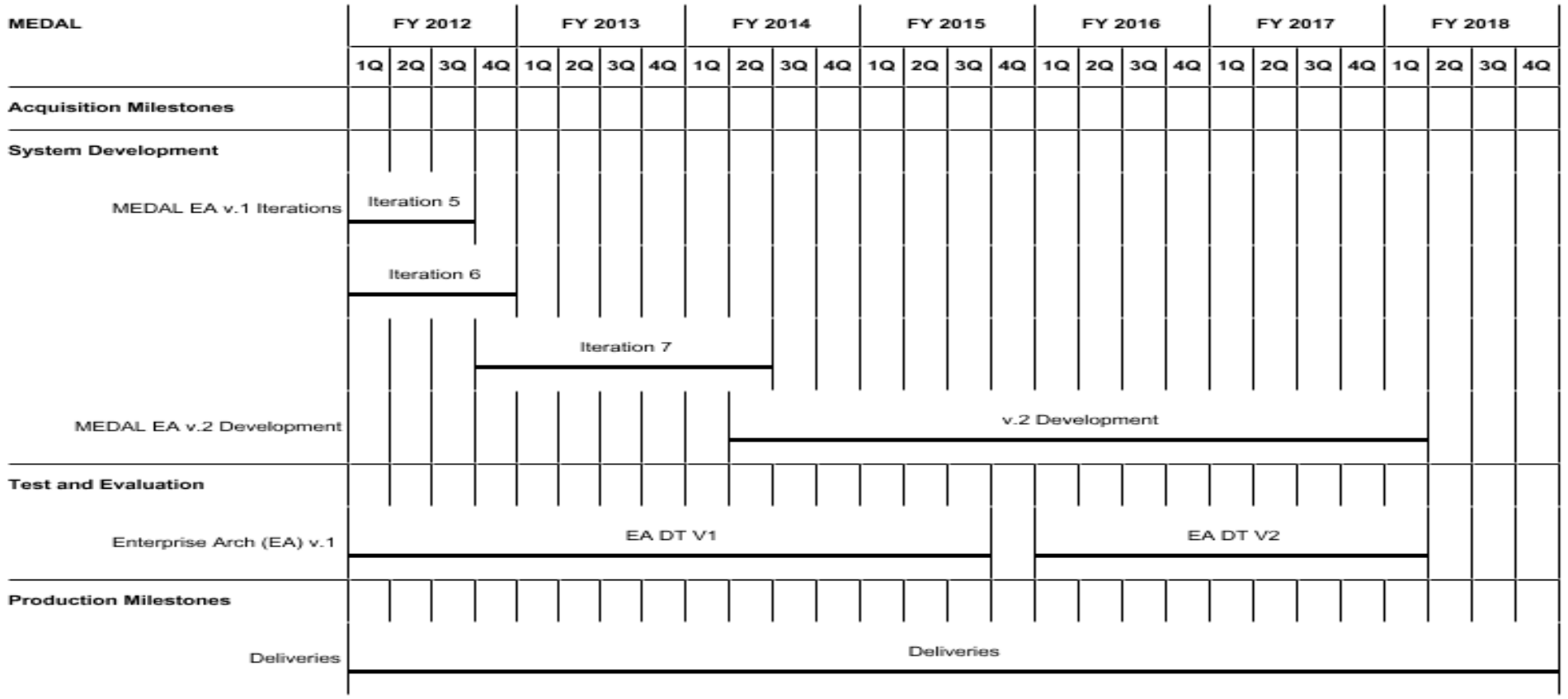
2014PB - 0603502N - 1233

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*



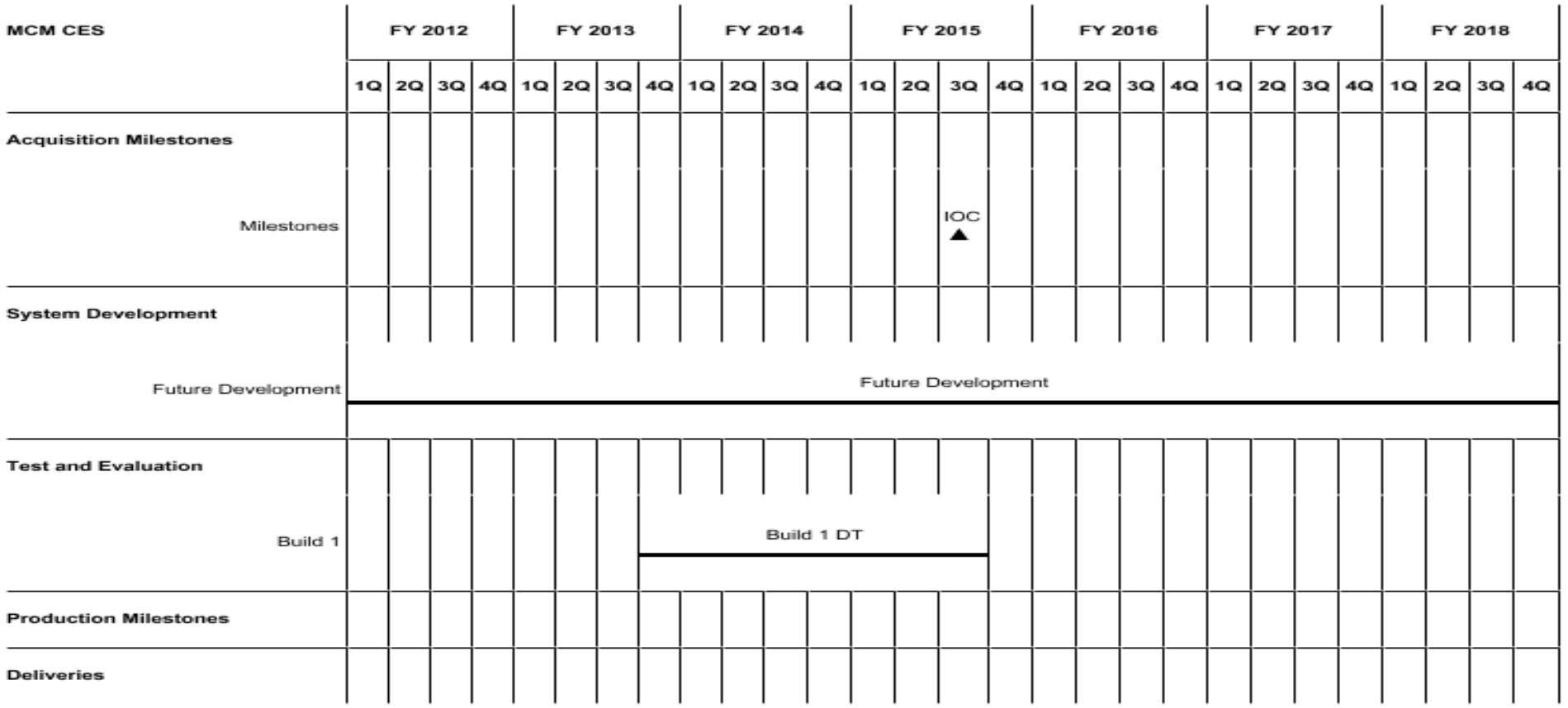
2014PB - 0603502N - 1233

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*



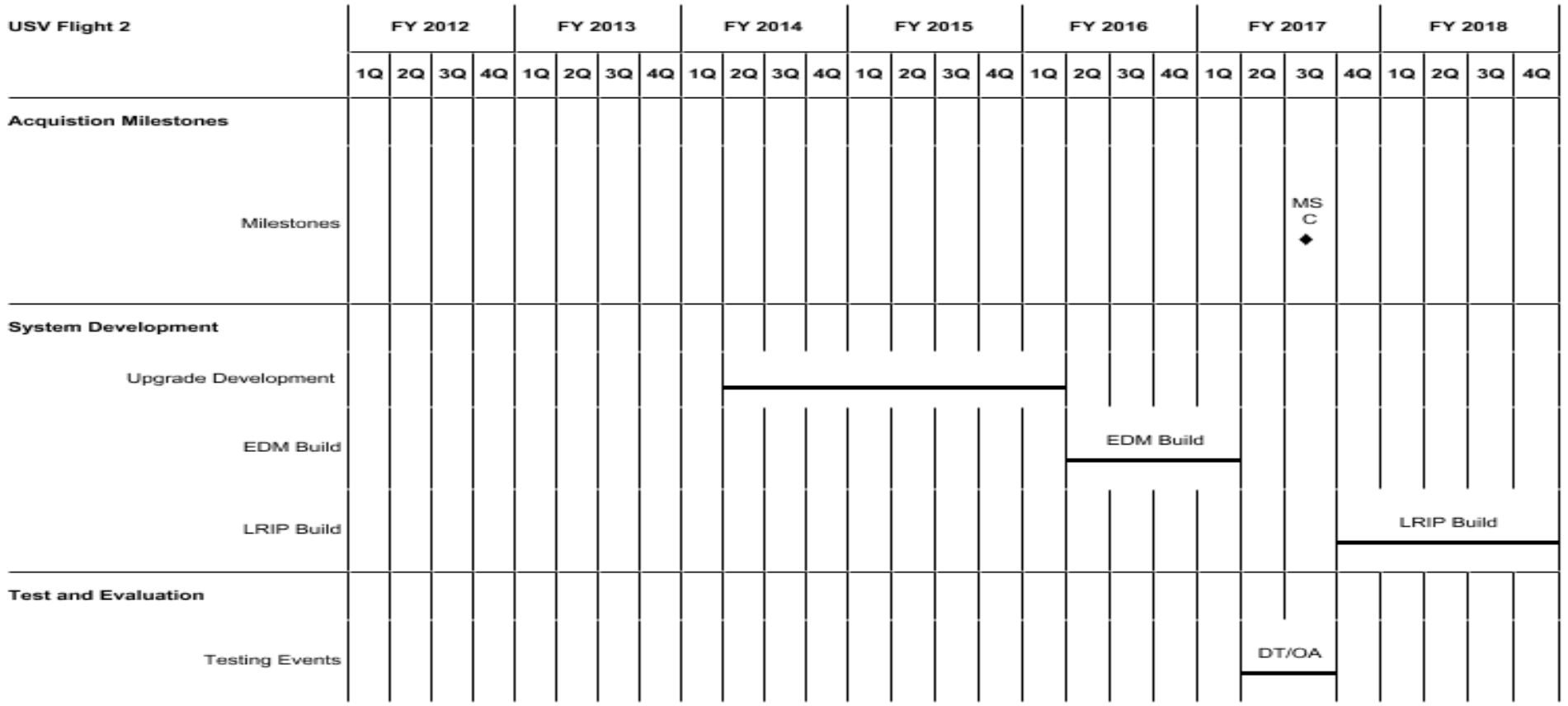
2014PB - 0603502N - 1233

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*



2014PB - 0603502N - 1233

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*



2014PB - 0603502N - 1233

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603502N: *Surface & Shallow Water MCM*	**PROJECT** 1233: *Surface MCM Mid-life Upgrade*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
USV Flight 1 (US3)				
Acquisition Milestones: Milestones: Milestone B	1	2014	1	2014
Acquisition Milestones: Milestones: Milestone C	4	2015	4	2015
Acquisition Milestones: Milestones: Initial Operational Capability	4	2017	4	2017
System Development: Milestone Documentation: Milestone B Documentation	1	2012	4	2013
System Development: Engineering & Manufacturing Development Phase: E&MD Contract Award	1	2014	1	2014
System Development: Engineering & Manufacturing Development Phase: Engineering & Manufacturing Development phase	1	2014	3	2015
System Development: Reviews: PDR Decision	2	2014	2	2014
System Development: Reviews: CDR Decision	3	2014	3	2014
Test and Evaluation: Test Events: Risk Reduction	1	2012	4	2015
Test and Evaluation: Test Events: DT Testing	3	2015	1	2016
Test and Evaluation: Test Events: Initial Operation Test and Evaluation	3	2017	1	2018
Production Milestones: Low Rate Initial Production: LRIP Contract Award	1	2016	1	2016
Production Milestones: Low Rate Initial Production: LRIP phase	1	2016	2	2018
HFWB				
System Development: P3I: P3I Development	1	2012	4	2018
Production Milestones: Full Rate Production: FRP	1	2012	1	2014
Deliveries: Installation: Installation	2	2012	4	2018
MEDAL				
System Development: MEDAL EA v.1 Iterations: EA v.1 Iteration 5 Tactical Server	1	2012	3	2012
System Development: MEDAL EA v.1 Iterations: EA v.1 Iteration 6	1	2012	4	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 1233: *Surface MCM Mid-life Upgrade*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
System Development: MEDAL EA v.1 Iterations: EA v.1 Iteration 7	4	2012	2	2014
System Development: MEDAL EA v.2 Development: EA v.2 Development	2	2014	1	2018
Test and Evaluation: Enterprise Arch (EA) v.1: Enterprise Arch (EA) v.1 Development and Test	1	2012	3	2015
Test and Evaluation: Enterprise Arch (EA) v.1: Enterprise Arch (EA) v.2 Development and Test	1	2016	1	2018
Production Milestones: Deliveries: Deliveries	1	2012	4	2018
MCM CES				
Acquisition Milestones: Milestones: IOC	3	2015	3	2015
System Development: Future Development: MCM CES Future Development	1	2012	4	2018
Test and Evaluation: Build 1: Build 1 Development Test	4	2013	3	2015
USV Flight 2				
Acquistion Milestones: Milestones: MS C	3	2017	3	2017
System Development: Upgrade Development: Schedule Detail	2	2014	1	2016
System Development: EDM Build: Schedule Detail	2	2016	1	2017
System Development: LRIP Build: Schedule Detail	4	2017	4	2018
Test and Evaluation: Testing Events: Schedule Detail	2	2017	3	2017

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2094.: *Unmanned Underwater Vehicle*	0.000	0.000	36.773	24.164	-	24.164	26.483	34.888	54.634	60.485	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Persistent Littoral Undersea Surveillance (PLUS) Innovative Naval Prototype (INP) Program provides Undersea Surveillance capability by employing mobile Unmanned Undersea Vehicle (UUV) technology. PLUS is being developed in response to an Urgent Operational Need (UON) identified by the Fleet. PLUS uses both conventionally powered UUVs with propellers and UUVs propelled by buoyancy engines (commonly called gliders). PLUS INP S&T development program is planned to transition into a prototype User Operational Evaluation System (UOES). The Large Displacement Unmanned Undersea Vehicle (LDUUV) provides long endurance UUVs operating autonomously in denied littorals with multiple mission payloads to increase the Navy's capacity and capability.

Persistent Littoral Undersea Surveillance (PLUS): The Persistent Littoral Undersea Surveillance (PLUS) program provides effective, adaptive and persistent undersea surveillance targets over large littoral areas.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: LDUUV Product Development	0.000	0.250	2.622
Articles:		0	0
FY 2013 Plans: LDUUV - Develop Performance Specifications to support Preliminary Design phase of LDUUV POR.			
FY 2014 Plans: Develop Interface Control Document (ICD), system specifications, and Test and Evaluation Strategy (TES) for LDUUV Engineering Development Model (EDM).			
Title: LDUUV Support	0.000	5.731	8.610
Articles:		0	0
FY 2013 Plans: LDUUV - Conduct Cost Analysis. Develop statutory documents for Gates 2/3 Reviews and Milestone A. Develop Technical Data Package for RFP release.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Conduct Milestone A. Provide engineering support for the preliminary design of the LDUUV EDM. Develop Milestone B documentation.			
Title: LDUUV Management ***Articles:*** ***FY 2013 Plans:*** Provide program management support and travel for the LDUUV program. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. Travel and other PM tasking to include briefings, demonstrations, and project planning as required. ***FY 2014 Plans:*** Provide program management support and travel for the LDUUV program. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. Travel and other PM tasking to include briefings, demonstrations, and project planning as required.	0.000 0	0.960 0	0.990 0
Title: PLUS Product Development ***Articles:*** ***FY 2013 Plans:*** PLUS - Identify/establish contract vehicle(s) and system specifications. Based on determinations from transition and Concept of Employment (CONEMP) Plans, develop prototype using REMUS 600 UUVs, hydrophone towed arrays, SEAGLIDER communication and navigation vehicles, and other material as determined for integration, Launch and Recovery (L&R) Hardware, Command and Control (C2) Hardware. ***FY 2014 Plans:*** Complete procurement of the PLUS system consisting of REMUS 600 UUVs, hydrophone towed arrays, SEAGLIDER communication and navigation vehicles. Complete system integration and all relevant certifications, incorporating any updates identified through system testing.	0.000 0	13.000 0	2.800 0
Title: PLUS Support ***Articles:*** ***FY 2013 Plans:*** PLUS - Commence development of tailored UOES technical documentation to support transition from S&T to a UOES project. Develop system & operational classification guidance. Generate system training and support plans. Document appropriate C2 strategy for system operations. Complete requisite Approval to Operate (ATO), Information Assurance/Anti-Tampering (IA/	0.000 0	7.000 0	1.539 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
AT) certifications to support Fleet Exercise. Develop Logistics Plan. Obtain requisite Fleet approvals and develop Concept of Employment (CONEMP). ***FY 2014 Plans:*** PLUS - Complete the documentation of tailored UOES technical documentation to support transition of PLUS to the fleet. Complete all training and support plans, CONOPS, tactics techniques and procedure documents, and complete the logistics packages for fleet introduction.			
Title: PLUS Test and Evaluation ***Articles:*** ***FY 2013 Plans:*** PLUS - Participate in test demonstrations and Fleet Exercises ***FY 2014 Plans:*** PLUS - Participate in tests, demonstrations and Fleet Exercises	0.000 0	1.000 0	4.077 0
Title: PLUS Management ***Articles:*** ***FY 2013 Plans:*** Provide program management support and travel for PLUS program. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. Travel and other PM tasking to include briefings, demonstrations, and project planning as required. ***FY 2014 Plans:*** Provide program management support and travel for PLUS program. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. Travel and other PM tasking to include briefings, demonstrations, and project planning as required.	0.000 0	0.850 0	0.550 0
Title: Persistent Littoral Undersea Surveillance (PLUS) ***Articles:*** ***Description:*** Persistent Littoral Undersea Surveillance (PLUS): The Persistent Littoral Undersea Surveillance (PLUS) program provides effective, adaptive and persistent undersea surveillance targets over large littoral areas. ***FY 2013 Plans:***	0.000 0	7.982 0	2.976 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
-Initiate the User Interface for the Operator consoles for the command and control functions. -Initiate the evaluation and implementation of IA and Anti-Tamper on a test vehicle. -Initiate the construction of the optimized array (s) for the system, test integration with autonomy and signal processing. -Initiate construction of the Revised and Optimized PLUS Sensor Vehicle. -Initiate the testing and evaluation of USBL Navigation and the construction of the CARINA vehicle. -Initiate and complete a Field Test and Evaluation with the Fleet. ***FY 2014 Plans:*** -Continue all efforts of FY13, unless noted as complete. -Continue construction the Revised and Optimized PLUS Sensor Vehicle. -Complete the User Interface for the Operator Consoles for the command and control functions. -Complete the evaluation and implementation of the IA and Anti-Tamper on the PLUS system. -Complete the construction of the optimized array (s) for the system; test integration with autonomy and signal processing. -Complete testing of the USBL Navigation and Carina vehicle. -Complete a Field Test and Evaluation with the Fleet.			
Accomplishments/Planned Programs Subtotals	0.000	36.773	24.164

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

PLUS will develop a prototype User Operational Evaluation System (UOES)in response to an Urgent Operational Need (UON) request from the Fleet. The PLUS UOES will be utilized in fleet experimentation events and fleet exercises to develop Concept of Employment (CONEMP) for a potential follow-on program of record.

LDUUV Innovative Naval Prototype (INP) program will transition 2 prototype LDUUVs to PMS406 LDUUV POR as User Operational Evaluation Systems (UOES). The LDUUV UOES will be utilized in Exercises to support requirement development that feeds into LDUUV POR.
This effort will transition to PEO-LCS / PMS406 as a User Operational Evaluation System (UOES) in FY 2013.

E. Performance Metrics

PLUS - Prototype Delivery
LDUUV - Achieve MS A
Performance metrics for this effort are classified.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LDUUV Specification	WR	NUWC Newport:Newport, RI	0.000	0.000		0.250	Dec 2012	1.214	Dec 2013	-		1.214	0.000	1.464	
LDUUV ICD	SS/CPFF	APL/JHU:Laurel, MD	0.000	0.000		0.000		0.723	Mar 2014	-		0.723	0.000	0.723	
LDUUV TES	Various	Various:Various	0.000	0.000		0.000		0.685	Dec 2013	-		0.685	0.000	0.685	
PLUS Prototype Hardware	Various	Various:Various	0.000	0.000		13.000	Dec 2012	0.600	Dec 2013	-		0.600	Continuing	Continuing	Continuing
PLUS System Integration	TBD	Unknown:Unknown	0.000	0.000		0.000		2.200	Feb 2014	-		2.200	0.000	2.200	
Arrays	C/CPFF	Ocean Acoustical Services and instrumentation:Lexington, MA	0.000	0.000		0.500	Oct 2012	0.186	Oct 2013	-		0.186	0.000	0.686	
TDA's	C/CPFF	Ocean Acoustical Services and instrumentation:Lexington, MA	0.000	0.000		0.300	Oct 2012	0.111	Oct 2013	-		0.111	0.000	0.411	
SP-Intergration	C/CPFF	Ocean Acoustical Services and instrumentation:Lexington, MA	0.000	0.000		0.500	Oct 2012	0.186	Oct 2013	-		0.186	0.000	0.686	
TDA's	C/CPFF	METRON:Reston, VA	0.000	0.000		0.300	Oct 2012	0.111	Oct 2013	-		0.111	0.000	0.411	
Navigation	C/FPRP	Woods Hole Oceanographic Institution:Woods Hole, MA	0.000	0.000		0.400	Oct 2012	0.148	Oct 2013	-		0.148	0.000	0.548	
SP-Intergration	Reqn	NAVSEA:Baltimore, MD	0.000	0.000		0.500	Oct 2012	0.186	Oct 2013	-		0.186	0.000	0.686	
TDA's	Reqn	NUWC:Newport, RI	0.000	0.000		0.300	Oct 2012	0.111	Oct 2013	-		0.111	0.000	0.411	
SP Intergration	Reqn	NUWC:Newport, RI	0.000	0.000		0.200	Oct 2012	0.074	Oct 2013	-		0.074	0.000	0.274	
Anti-Tamper	Reqn	Sandia Natl Lab:Livermore, CA	0.000	0.000		0.500	Oct 2012	0.186	Oct 2013	-		0.186	0.000	0.686	
Vehicle	C/CPFF	Hydroid Kongsberg Marine:Pocasset, MA	0.000	0.000		0.600	Oct 2012	0.223	Oct 2013	-		0.223	0.000	0.823	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.000		17.350		6.944		0.000		6.944			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LDUUV Engineering Support	WR	NUWC Newport:Newport, RI	0.000	0.000		2.426	Dec 2012	2.675	Dec 2013	-		2.675	0.000	5.101	
LDUUV Engineering Support 2	SS/CPFF	APL/JHU:Laurel, MD	0.000	0.000		2.335	Jan 2013	1.150	Mar 2014	-		1.150	0.000	3.485	
LDUUV Engineering Support 3	SS/CPFF	ARL PSU:State College, PA	0.000	0.000		0.145	Jan 2013	0.550	Mar 2014	-		0.550	0.000	0.695	
LDUUV Engineering Support 4	WR	NUWC Keyport:Keyport, WA	0.000	0.000		0.333	Dec 2012	0.100	Dec 2013	-		0.100	0.000	0.433	
LDUUV Engineering Support 5	WR	VAR:VAR	0.000	0.000		0.000		1.225	Dec 2013	-		1.225	0.000	1.225	
LDUUV Engineering Support 6	C/CPFF	VAR:VAR	0.000	0.000		0.000		2.535	Mar 2014	-		2.535	0.000	2.535	
LDUUV ILS Support	WR	SSC Lant:Charleston, SC	0.000	0.000		0.205	Dec 2012	0.000		-		0.000	0.000	0.205	
LDUUV ILS Support 2	WR	VAR:VAR	0.000	0.000		0.287	Dec 2012	0.375	Dec 2013	-		0.375	0.000	0.662	
PLUS ILS Support	WR	NUWC Newport:Newport, RI	0.000	0.000		0.500	Nov 2012	0.989	Dec 2013	-		0.989	Continuing	Continuing	Continuing
PLUS Engineering Support	WR	NUWC Newport:Newport, RI	0.000	0.000		1.500	Nov 2012	0.050	Dec 2013	-		0.050	Continuing	Continuing	Continuing
PLUS Engineering Support 2	TBD	WHOI:Woods Hole, MA	0.000	0.000		1.000	Feb 2013	0.200	Feb 2014	-		0.200	Continuing	Continuing	Continuing
PLUS Engineering Support 3	SS/CPFF	APL/JHU:Laurel, MD	0.000	0.000		1.000	Dec 2012	0.200	Feb 2014	-		0.200	Continuing	Continuing	Continuing
PLUS C2 Support	C/CPFF	APL/UW:Seattle, WA	0.000	0.000		3.000	Mar 2013	0.100	Feb 2014	-		0.100	Continuing	Continuing	Continuing
Test	Reqn	NUWC:Newport, RI	0.000	0.000		0.030	Oct 2012	0.011	Oct 2013	-		0.011	0.000	0.041	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test	Reqn	NSWD:Dahlgren, VA	0.000	0.000		0.060	Oct 2012	0.022	Oct 2013	-		0.022	0.000	0.082	
Test	Reqn	NUWC:Patuxent, MD	0.000	0.000		0.020	Oct 2012	0.007	Oct 2013	-		0.007	0.000	0.027	
IA	Reqn	NUWC:Newport, RI	0.000	0.000		0.150	Oct 2012	0.055	Oct 2013	-		0.055	0.000	0.205	
		Subtotal	0.000	0.000		12.991		10.244		0.000		10.244			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PLUS Fleet Experimentation	Various	Various:Various	0.000	0.000		1.000	May 2013	4.077	May 2014	-		4.077	Continuing	Continuing	Continuing
Test	C/CPFF	Ocean Acoustical Services and instrumentation:Lexington, MA	0.000	0.000		0.500	Oct 2012	0.186	Oct 2013	-		0.186	0.000	0.686	
Test	C/FPRP	Woods Hole Oceanographic Institution:Woods Hole, MA	0.000	0.000		0.982	Oct 2012	0.372	Oct 2013	-		0.372	0.000	1.354	
Testing	C/CPFF	Woods Hole Oceanographic Institution:Woods Hole, MA	0.000	0.000		0.350	Oct 2012	0.130	Oct 2013	-		0.130	0.000	0.480	
Testing	Reqn	NUWC:Newport, RI	0.000	0.000		0.400	Oct 2012	0.037	Oct 2013	-		0.037	0.000	0.437	
Testing	Reqn	NPS:Monterey, CA	0.000	0.000		0.100	Oct 2012	0.024	Oct 2013	-		0.024	0.000	0.124	
Testing	Reqn	SPAWAR:San Diego, CA	0.000	0.000		0.065	Oct 2012	0.148	Oct 2013	-		0.148	0.000	0.213	
		Subtotal	0.000	0.000		3.397		4.974		0.000		4.974			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*

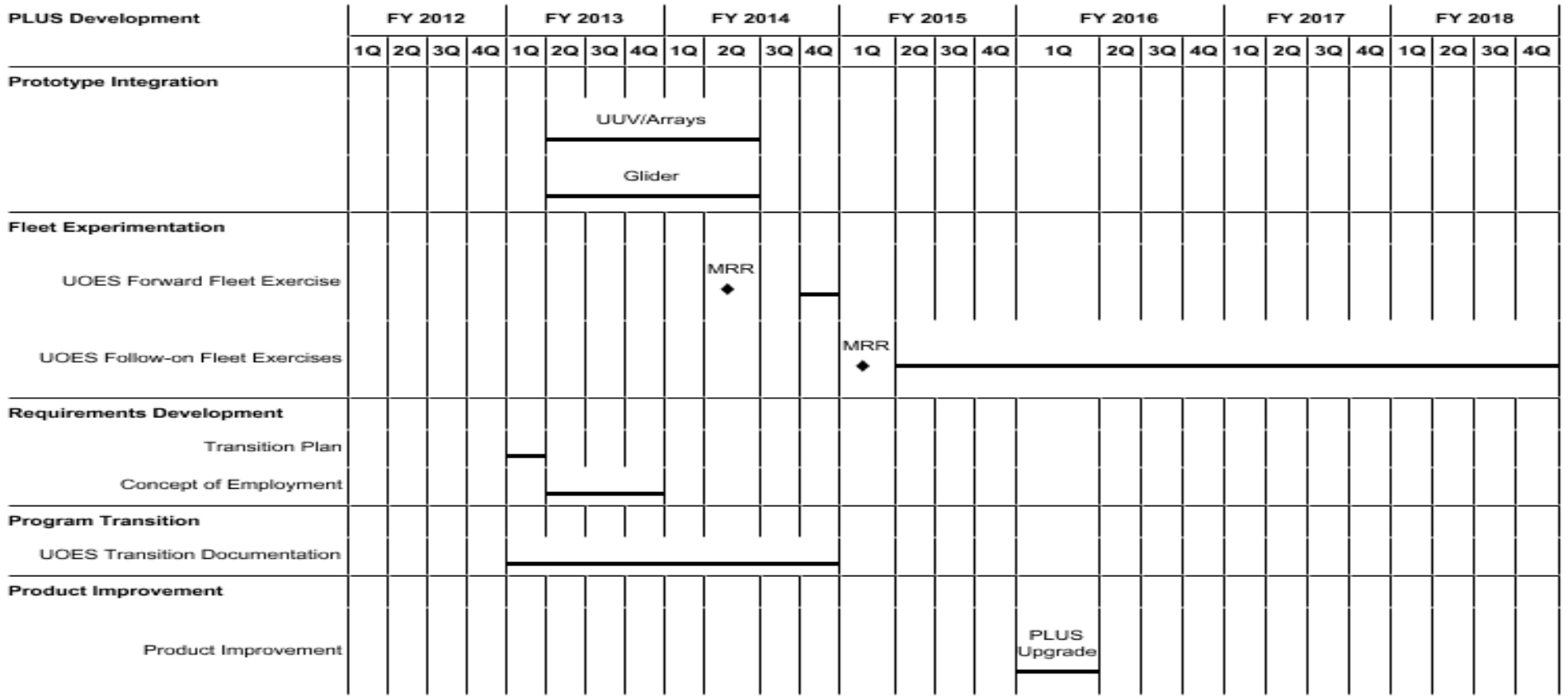
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LDUUV Program Management	WR	NUWC Newport:Newport, RI	0.000	0.000		0.435	Dec 2012	0.530	Dec 2013	-		0.530	Continuing	Continuing	Continuing
LDUUV Program Management 2	TBD	TBD:TBD	0.000	0.000		0.475	Jan 2013	0.360	Mar 2014	-		0.360	0.000	0.835	
LDUUV Travel	Various	NAVSEA:Washington, DC	0.000	0.000		0.050	Dec 2012	0.100	Dec 2013	-		0.100	0.000	0.150	
PLUS Program Management	Various	VAR:VAR	0.000	0.000		0.739	Dec 2012	0.500	Dec 2013	-		0.500	Continuing	Continuing	Continuing
PLUS Travel	Various	NAVSEA:Washington, DC	0.000	0.000		0.111	Dec 2012	0.050	Dec 2013	-		0.050	Continuing	Continuing	Continuing
Program	C/CPFF	Systems Planning & Analysis:Arlington, VA	0.000	0.000		0.700	Oct 2012	0.100	Oct 2013	-		0.100	0.000	0.800	
Program	SS/BA	Kentco:Sterling, VA	0.000	0.000		0.475	Oct 2012	0.176	Oct 2013	-		0.176	0.000	0.651	
Program	SS/BA	Mandex:Fairfax, VA	0.000	0.000		0.050	Oct 2012	0.186	Oct 2013	-		0.186	0.000	0.236	
		Subtotal	0.000	0.000		3.035		2.002		0.000		2.002			

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		36.773		24.164		0.000		24.164			

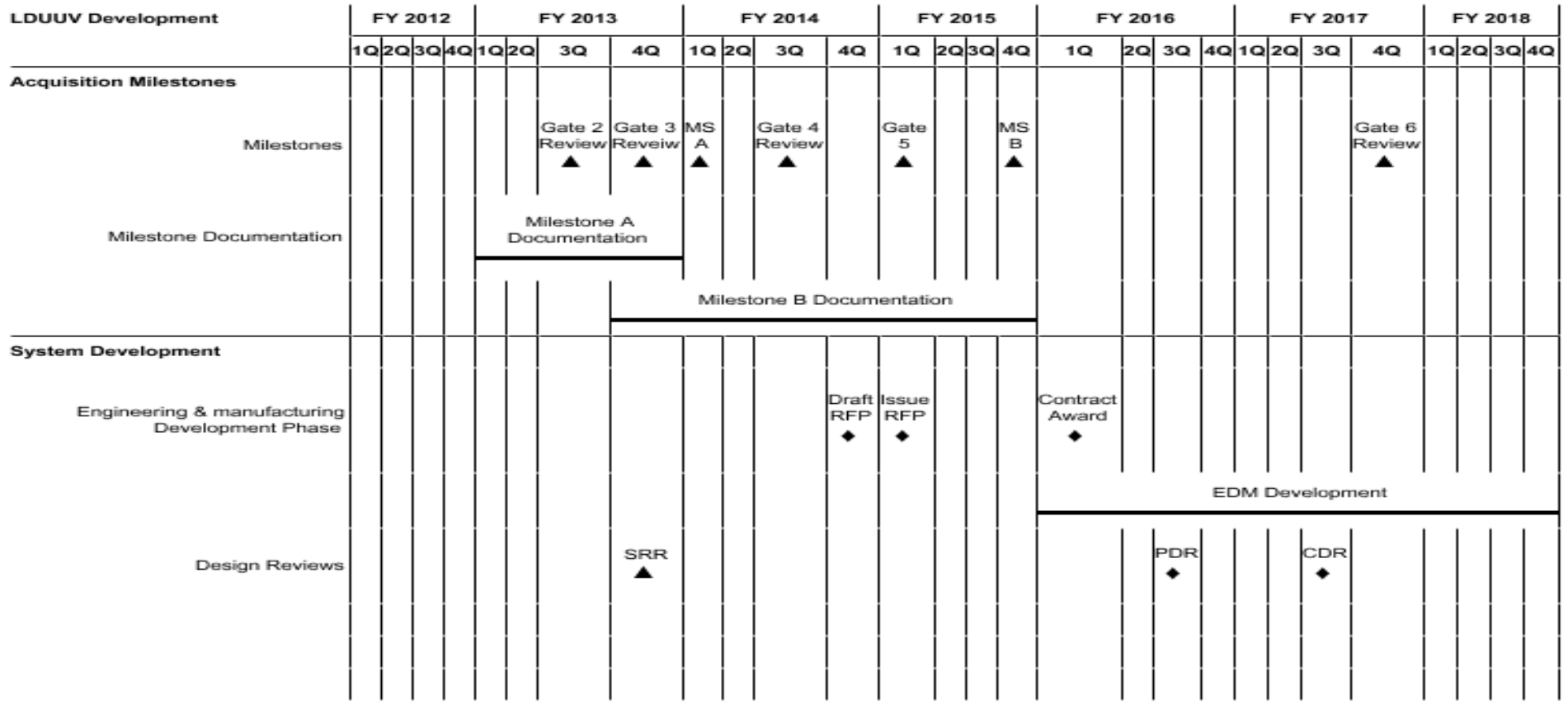
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*



2014PB - 0603502N - 2094.L24

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*



2014PB - 0603502N - 2094.L24

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603502N: *Surface & Shallow Water MCM*	**PROJECT** 2094.: *Unmanned Underwater Vehicle*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
PLUS Development				
Prototype Integration: UUV/Arrays Integration	2	2013	2	2014
Prototype Integration: Glider Integration	2	2013	2	2014
Fleet Experimentation: UOES Forward Fleet Exercise: MRR	2	2014	2	2014
Fleet Experimentation: UOES Forward Fleet Exercise:	4	2014	4	2014
Fleet Experimentation: UOES Follow-on Fleet Exercises: MRR	1	2015	1	2015
Fleet Experimentation: UOES Follow-on Fleet Exercises: Schedule Detail	2	2015	4	2018
Requirements Development: Transition Plan: Schedule Detail	1	2013	1	2013
Requirements Development: Concept of Employment: Schedule Detail	2	2013	4	2013
Program Transition: UOES Transition Documentation: Schedule Detail	1	2013	4	2014
Product Improvement: Product Improvement: Product Improvement Implementation	1	2016	1	2016
LDUUV Development				
Acquisition Milestones: Milestones: Gate 2 Reveiw	3	2013	3	2013
Acquisition Milestones: Milestones: Gate 3 Reveiw	4	2013	4	2013
Acquisition Milestones: Milestones: Milestone A	1	2014	1	2014
Acquisition Milestones: Milestones: Gate 4 Reveiw	3	2014	3	2014
Acquisition Milestones: Milestones: Gate 5	1	2015	1	2015
Acquisition Milestones: Milestones: Milestone B	4	2015	4	2015
Acquisition Milestones: Milestones: Gate 6	4	2017	4	2017
Acquisition Milestones: Milestone Documentation: Milestone A Documentation	1	2013	4	2013
Acquisition Milestones: Milestone Documentation: Milestone B Documentation	4	2013	4	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
System Development: Engineering & manufacturing Development Phase: Draft Request for Proposal	4	2014	4	2014
System Development: Engineering & manufacturing Development Phase: Issue RFP	1	2015	1	2015
System Development: Engineering & manufacturing Development Phase: E&MD Contract Award	1	2016	1	2016
System Development: Engineering & manufacturing Development Phase: EDM Development	1	2016	4	2018
System Development: Design Reviews: PDR	3	2016	3	2016
System Development: Design Reviews: CDR	3	2017	3	2017
PE 0603502N PLUS SPEED TO FLEET R&D Initiative R-4				
User Interface for the Operator consoles for the command and control functions: Development A: SRR	1	2013	1	2013
User Interface for the Operator consoles for the command and control functions: Development A: PDR	3	2013	3	2013
User Interface for the Operator consoles for the command and control functions: Development A: FDR	4	2013	4	2013
User Interface for the Operator consoles for the command and control functions: Development A: T&E	1	2014	1	2014
User Interface for the Operator consoles for the command and control functions: Development A: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	4	2014	4	2014
Evaluation of IA and Anti-Tamper on a test vehicle: Development B: SRR	1	2013	1	2013
Evaluation of IA and Anti-Tamper on a test vehicle: Development B: CDR	3	2013	3	2013
Evaluation of IA and Anti-Tamper on a test vehicle: Development B: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	2	2014	2	2014
Implementation of IA and Anti-Tamper on a test vehicle: Build A: FDR	4	2013	4	2013
Implementation of IA and Anti-Tamper on a test vehicle: Build A: T&E	1	2014	1	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Implementation of IA and Anti-Tamper on a test vehicle: Build A: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	2	2014	2	2014
Construction of the optimized array (s) for the system: Development C: CDR	1	2013	1	2013
Construction of the optimized array (s) for the system: Development C: T&E	4	2013	4	2013
Construction of the optimized array (s) for the system: Build B: CDR	3	2013	3	2013
Construction of the optimized array (s) for the system: Build B: T&E	4	2013	4	2013
Construction of the optimized array (s) for the system: Build B: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	1	2014	1	2014
Testing and integration of the array with autonomy and signal processing: Development D: ICD	1	2013	1	2013
Testing and integration of the array with autonomy and signal processing: Development D: TRR	3	2013	3	2013
Testing and integration of the array with autonomy and signal processing: Development D: T&E	4	2013	4	2013
Testing and integration of the array with autonomy and signal processing: Development D: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	1	2014	1	2014
Pg 2 PE 0603502N PLUS SPEED TO FLEET R&D Initiative R-4				
Testing and evaluation of USBL Navigation: Development E: ICD	1	2013	1	2013
Testing and evaluation of USBL Navigation: Development E: TRR	2	2013	2	2013
Testing and evaluation of USBL Navigation: Development E: T&E	4	2013	4	2013
Testing and evaluation of USBL Navigation: Development E: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	1	2014	1	2014
Testing of the CARINA vehicle: Build C: CDR	1	2013	1	2013
Testing of the CARINA vehicle: Build C: TRR	2	2013	2	2013
Testing of the CARINA vehicle: Build C: T&E	4	2013	4	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2094.: *Unmanned Underwater Vehicle*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Testing of the CARINA vehicle: Build C: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	4	2014	4	2014
Fleet Field Test and Evaluation: Development F: IPC	1	2013	1	2013
Fleet Field Test and Evaluation: Development F: MPC	3	2013	3	2013
Fleet Field Test and Evaluation: Development F: FPC	4	2013	4	2013
Construction of the Revised and Optimized PLUS Sensor Vehicle: Build D: CDR	1	2013	1	2013
Construction of the Revised and Optimized PLUS Sensor Vehicle: Build D: TRR	4	2013	4	2013
Construction of the Revised and Optimized PLUS Sensor Vehicle: Build D: T&E	1	2014	1	2014

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2131: *Assault Breaching System*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2131: *Assault Breaching System*	442.056	42.657	59.648	58.789	-	58.789	53.584	33.642	24.463	24.874	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program provides a combination of U.S. Navy systems to counter the threat to amphibious forces from obstacles and anti-landing/sea mines in the Beach Zone and Surf Zone (0-10 ft water). The Assault Breaching Systems (ABS) consist of a system of systems approach that includes the following programs: JABS - Joint Direct Attack Munition (JDAM) Assault Breaching System; CMS - Countermine System; COBRA - Coastal Battlefield Reconnaissance and Analysis; PNMS - Precision Navigation and Marking System; and C4I - Command, Control, Computers, Communications, and Intelligence. The Assault Breaching Systems enable the Navy-Marine Corps team to conduct Joint Forcible Entry Operations (JFEO), Ship-To-Objective Maneuver (STOM), and other combat operations to project power ashore.

The JDAM Assault Breaching System (JABS) is a currently fielded system that neutralizes surface mines and obstacles in the Beach Zone and Surf Zone. The ABS Tactical Decision Aid optimizes the Desired Points of Impact (DPI) for JDAM munitions to effectively neutralize mines and obstacles while minimizing the required number of munitions and friendly aircraft sorties. Continued testing is required to optimize the ABS Tactical Decision Aid database for the most common enemy mines and obstacles.

The Countermine System (CMS) is the far-term solution for neutralizing buried mines in the Beach Zone and Surf Zone. CMS transitioned from a 6.3 S&T Concept Demonstration effort to a 6.4 development program after a concept decision/AoA in FY06. CMS is the only USN system capable of neutralizing buried mines.

Coastal Battlefield Reconnaissance and Analysis (COBRA) is the ABS program to conduct ISR/T. This system provides Airborne Mine Countermeasures (AMCM) capability, and one system consists of two Airborne Payloads and one Post Mission Analysis Station. Under the umbrella of evolutionary acquisition, three increments of development are planned. Block I is a multispectral sensor capable of daytime detection of surface-laid minefields and obstacles in the Beach Zone. Block II adds a 3D LIDAR (Light Detection and Ranging) sensor that enables nighttime detection of mines and obstacles in the Beach Zone and the Surf Zone (0-10 ft of water). Block II also adds on-board near real-time processing of multispectral imagery data. Block III adds an interferometric sensor that is capable of detecting buried mines. Blocks II and III will incorporate technology being developed by 6.3 S&T. COBRA consists of a modular payload architecture that can be integrated onto the MQ-8B Fire Scout Vertical Takeoff and Landing Unmanned Aerial Vehicle (VTUAV) or USN manned helicopters like the SH-60. COBRA will serve as the "detect" mission module in the Surf Zone and Beach Zone for the Littoral Combat Ship (LCS) Mine Warfare mission package.

Precision Navigation & Marking System (PNMS) provides navigational upgrades for the Landing Craft, Air Cushion (LCAC); Landing Craft, Utility (LCU); and Amphibious Assault Vehicle (AAV). A system of virtual lane marking improves the navigation ability of these three assault craft which enables them to navigate safely through the neutralized assault lanes provided by JABS and CMS. OPN funds the CRAFTALTS to upgrade the navigation systems. LCU Navigation Upgrade:

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2131: *Assault Breaching System*

Modernized the navigation system to enable safe transit through the breached lane. LCAC Autopilot Upgrade: An integrated improvement to the LCAC Service Life Extension Program (SLEP) navigation system for craft control that allows precise navigation and hovering within the breached lane. These software upgrades and backfits occur during scheduled LCAC SLEPs. AAV Navigation Upgrade : Modernize the navigation system to enable precise transit through the breached lane.

Command, Control, Computers, Communications and Intelligence (C4I) system will tie all of the above systems together under an integrated ABS architecture that is compatible with the existing Mine Warfare architecture.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Product Development:	32.036	47.642	45.715
Articles:	0	0	0
FY 2012 Accomplishments: CMS - Continued HE/reactive neutralization design, development and testing with emphasis on aero-dynamics and structures. Began CMS neutralizer lethality design and testing (100 darts). Conducted CMS neutralizer formal down select to High Explosive (HE) dart vice Solid Reactive material neutralizer dart. COBRA - Completed BLK I integration Flight Tests with VTUAV. Began COBRA Blk II design and development capability. Precision Navigation/Marking (PN/M) - Continued evaluation/assessment of EDMs supporting PN/M efforts. ***FY 2013 Plans:*** CMS - Continue HE neutralization the design and development COBRA - Continue design and development of COBRA Block II capability. ***FY 2014 Plans:*** CMS - Continue HE neutralization design and development. Conduct critical Design reveiw (CDR) COBRA - Continue design and development of COBRA Block II capability.			
Title: Technical Support:	0.644	0.926	1.019
Articles:	0	0	0
FY 2012 Accomplishments: CMS/COBRA - Provided mine magazine inventory management and shipping, contract management and test/studies, C4I/Data Fusion. Provided technical/acquisition support and documentation (ILS, training, data, drawings). ***FY 2013 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2131: *Assault Breaching System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
CMS/COBRA - Provide mine warfare inventory and shipping, contract management test studies C4I Data fusion. Provide technncal acquisition support. ***FY 2014 Plans:*** CMS/COBRA - Provide mine magazine inventory management and shipping, contract and test/studies, C4I Data Fusion. Provide technical /acquisition support and documenttation (ILS, training, data, drawings).			
Title: Test and Evaluation:	8.599	9.695	10.664
Articles:	0	0	0
FY 2012 Accomplishments: CMS - Conducted CMS Lethality Testing on the neutralizers (HE/Reactive). Tested against different mines in different conditions to determine the final dart design and lethality. COBRA - Conducted Blk I Initial Operational Test and Evaluation (IOT&E) and flight test on the VTUAV. PN/M - Conducted tests of the Precision Navigation and Marking design capability. ***FY 2013 Plans:*** CMS - Continue 100 shot for neutralizers testing, payload modular. COBRA - Initial development testing of Block II. PN/M - Continue testing of the Precision Navigation and Marking design capability. ***FY 2014 Plans:*** CMS - Complete 100 shot for the HE Neutralizer and accomplish CDR. COBRA - Continue Block II development testing. PN/M - Continue to test the Precision Navigation and Marking design capability.			
Title: Management:	1.378	1.385	1.391
Articles:	0	0	0
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2131: *Assault Breaching System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Mine magazine inventory management and shipping, contract management and tests/studies, C4I/Data fusion. ***FY 2013 Plans:*** Mine magazine inventory management and shipping, contract management and tests/studies, C4I/Data fusion. ***FY 2014 Plans:*** Mine magazine inventory management and shipping, contract management and tests/studies, C4I/Data fusion.			
Accomplishments/Planned Programs Subtotals	42.657	59.648	58.789

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/2624: *SHALLOW WATER MCM SHIP*	1.045	6.950	8.548		8.548	8.100	27.231	27.779	28.279	0.000	116.997
• OPN/1601: *LCS MODULES*	0.000	0.000	8.359		8.359	16.198	4.455	4.531	4.781	0.000	46.099

Remarks

D. Acquisition Strategy

Countermine/Counter Obstacle (CM/CO) is a two phased approach, near term and far term solutions. The near term approach for CM/CO is JDAM Assault Breaching System (JABS) and ABS Tactical Decision Aid and this effort has been completed. The far term solution is CMS, which transitioned from ONR in 2nd QTR 07 followed by SD&D contract in 4th QTR 08.

Intelligence/Surveillance/Reconnaissance/Targeting (ISR/T) - COBRA Block I achieved MS C in 3rd QTR FY09. COBRA Block II technology transferred from ONR and achieved MS B in 3rd QTR FY11. COBRA Block III technology will transition in FY16.

Precision Navigation & Marking System (PNMS) - The navigation upgrades for the Landing Craft, Air Cushion (LCAC) and Landing Craft, Utility (LCU) are in progress. AAV enhancements will be achieved through an ECP (PMA AAV (Marine Corps)) in 4th QTR FY11.

All of the above systems continue to meet or exceed their Key Performance Parameters and benefit from effective program management that efficiently allocates the funding it receives. Any delays in program timelines and increases in costs are due directly to previous year's budget cuts.

E. Performance Metrics

Successful COBRA integration, flight tests and Operational Assessment (OA) into the Vertical Take-off Unmanned Arial Vehicle (VTUAV). CMS successful design analysis with the down selection of the dart and provide a near surface neutralization capability to the fleet.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2131: *Assault Breaching System*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Dev, COBRA	C/CPAF	Arete:MELBOURNE, FL	120.307	7.045	Nov 2011	7.045	Nov 2012	7.045	Nov 2013	-		7.045	0.000	141.442	
Primary Hardware Dev, CMS	C/CPAF	Boeing:St. Louis, MO	67.591	17.255	Nov 2011	31.288	Oct 2012	30.429	Nov 2013	-		30.429	0.000	146.563	
Ancillary Hardware Dev, JABS	C/CPAF	Unknown:Unknown	12.436	3.214	Feb 2012	3.214	Nov 2012	3.214	Nov 2013	-		3.214	0.000	22.078	
Systems Engineering, COBRA	WR	NSWC, PC:PANAMA CITY, FL	20.860	0.000		0.000		0.000		-		0.000	0.000	20.860	
Software Dev, COBRA	WR	NAVAIR:PANAMA CITY, FL	12.958	0.000		0.000		0.000		-		0.000	0.000	12.958	
Systems Engineering, CMS	WR	NSWC, PC:PANAMA CITY, FL	27.199	1.603	Nov 2011	1.703	Nov 2012	1.703	Nov 2013	-		1.703	Continuing	Continuing	Continuing
Training Dev, COBRA	WR	NSWC, PC:PANAMA CITY, FL	6.801	0.845	Nov 2011	0.845	Nov 2012	0.845	Nov 2013	-		0.845	0.000	9.336	
Tooling	WR	NSWC, PC:PANAMA CITY, FL	0.860	0.000		0.000		0.000		-		0.000	0.000	0.860	
ABS IPT/Test Assets/Proj Eng	WR	NSWC, PC:PANAMA CITY, FL	7.212	0.417	Nov 2011	0.417	Nov 2012	0.417	Nov 2013	-		0.417	0.000	8.463	
Precision Navigation & Marking	WR	NSWC, PC:PANAMA CITY, FL	8.041	2.800	Nov 2011	3.100	Nov 2012	3.100	Nov 2013	-		3.100	0.000	17.041	
		Subtotal	284.265	33.179		47.612		46.753		0.000		46.753			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support Equipment	WR	NSWC, PC:PANAMA CITY, FL	16.767	1.110	Nov 2011	1.123	Oct 2012	1.123	Oct 2013	-		1.123	0.000	20.123	
Software Development	WR	NSWC, PC:PANAMA CITY, FL	8.037	0.000		0.000		0.000		-		0.000	0.000	8.037	
Integrated Logistics Support	WR	NSWC, IH:NDIAN HEAD, MD	2.712	0.000		0.000		0.000		-		0.000	0.000	2.712	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2131: *Assault Breaching System*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Configuration Management	WR	NSWC, PC:PANAMA CITY, FL	3.744	0.000		0.000		0.000		-		0.000	0.000	3.744	
Technical Data	WR	NSWC, PC:PANAMA CITY, FL	2.588	0.000		0.000		0.000		-		0.000	0.000	2.588	
Studies & Analysis	WR	NSWC, PC:PANAMA CITY, FL	5.195	0.225	Nov 2011	0.222	Oct 2012	0.222	Oct 2013	-		0.222	0.000	5.864	
GFE	WR	NSWC, PC:PANAMA CITY, FL	0.400	0.000		0.000		0.000		-		0.000	0.000	0.400	
		Subtotal	39.443	1.335		1.345		1.345		0.000		1.345	0.000	43.468	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	NSWC, IH:NDIAN HEAD, MD	36.680	5.107	Nov 2011	6.207	Oct 2012	6.207	Nov 2013	-		6.207	0.000	54.201	
Operational Test & Evaluation	WR	NSWC/ IH, PC:NDIAN HEAD, PANAMA CITY	8.655	0.000		0.000		0.000		-		0.000	0.000	8.655	
Tooling	WR	NSWC/ IH, PC:NDIAN HEAD, PANAMA CITY	0.700	0.000		0.000		0.000		-		0.000	0.000	0.700	
GFE	WR	NSWC/ IH, PC:NDIAN HEAD, PANAMA CITY	0.400	0.000		0.000	Oct 2012	0.000		-		0.000	0.000	0.400	
Development Test	C/FP	NSWC PC:Panama City, FL	2.392	2.392	Nov 2011	3.558	Oct 2012	3.558	Oct 2013	-		3.558	0.000	11.900	
		Subtotal	48.827	7.499		9.765		9.765		0.000		9.765	0.000	75.856	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2131: *Assault Breaching System*

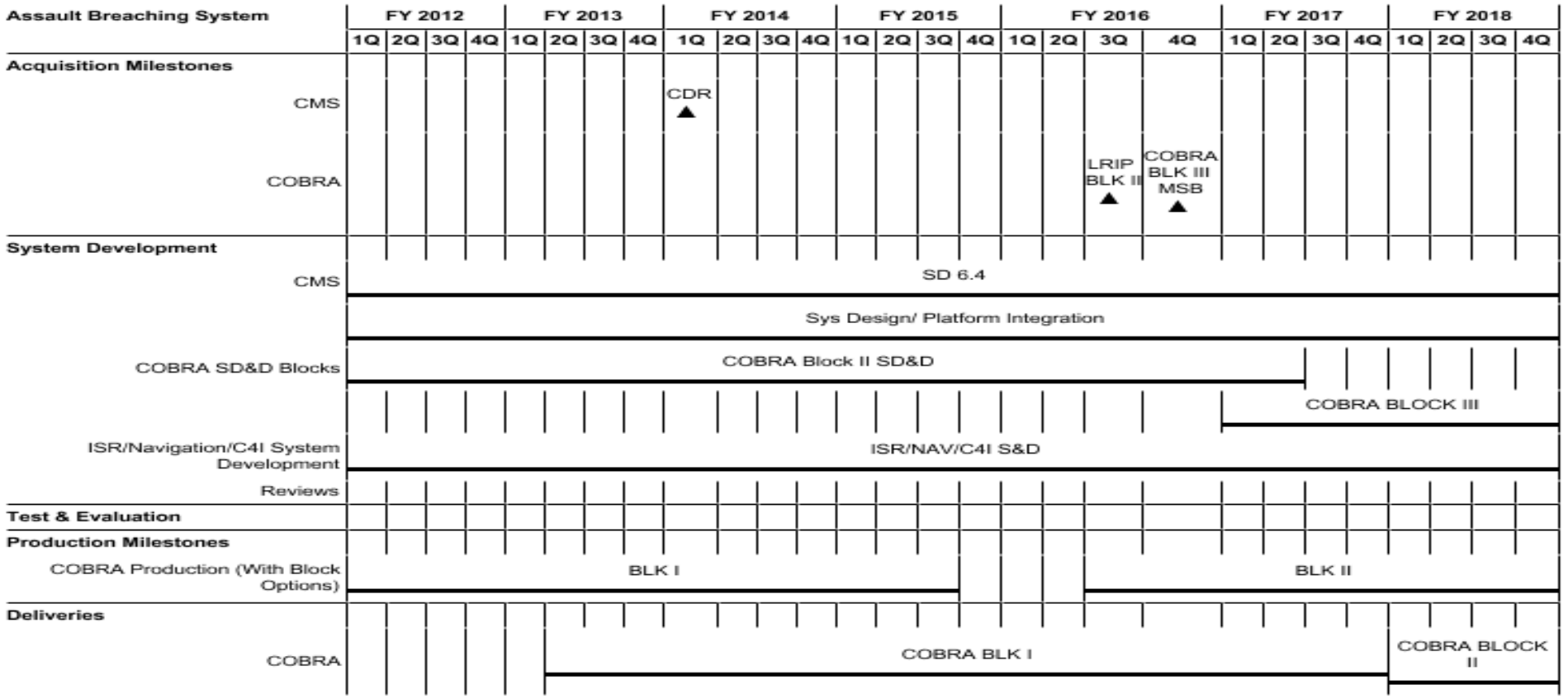
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPFF	CACI, Norhtrup Grumman:DC, FL	10.355	0.100	Nov 2011	0.120	Oct 2012	0.120	Oct 2013	-		0.120	0.000	10.695	
Government Engineering Support	WR	NSWC, IH:NDIAN HEAD, MD	32.135	0.220	Nov 2011	0.482	Oct 2012	0.482	Oct 2013	-		0.482	0.000	33.319	
Program Management Support	WR	NSWC/ IH, PC:NDIAN HEAD, PANAMA CITY	24.025	0.250	Nov 2011	0.250	Oct 2012	0.250	Oct 2013	-		0.250	0.000	24.775	
Travel	WR	NAVSEA:WNY, DC	1.361	0.074	Nov 2011	0.074	Oct 2012	0.074	Oct 2013	-		0.074	0.000	1.583	
Assessment/BTR	C/CPAF	VARIOUS:VARIOUS	1.434	0.000		0.000		0.000		-		0.000	0.000	1.434	
Acquisition Workforce	Various	VARIOUS:VARIOUS	0.211	0.000		0.000		0.000		-		0.000	0.000	0.211	
		Subtotal	69.521	0.644		0.926		0.926		0.000		0.926	0.000	72.017	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	442.056	42.657		59.648		58.789		0.000		58.789			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 2131: *Assault Breaching System*



2014DON - 0603502N - 2131

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603502N: *Surface & Shallow Water MCM*	**PROJECT** 2131: *Assault Breaching System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Assault Breaching System				
Acquisition Milestones: CMS: CDR - Critical Design Review	1	2014	1	2014
Acquisition Milestones: COBRA: COBRA Block III Milestone B	4	2016	4	2016
Acquisition Milestones: COBRA: LRIP Decision Review Block II	3	2016	3	2016
System Development: CMS: CMS System Development 6.4	1	2012	4	2018
System Development: CMS: CMS System Design/Platform Integration	1	2012	4	2018
System Development: COBRA SD&D Blocks: COBRA Block II SD&D	1	2012	2	2017
System Development: COBRA SD&D Blocks: COBRA Block III SD&D	1	2017	4	2018
System Development: ISR/Navigation/C4I System Development: ISR/Navigation/C4I System Development	1	2012	4	2018
Production Milestones: COBRA Production (With Block Options): COBRA Block I	1	2012	3	2015
Production Milestones: COBRA Production (With Block Options): COBRA Block II	3	2016	4	2018
Deliveries: COBRA: Block I	2	2013	4	2017
Deliveries: COBRA: Block II	1	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 3123: *SMCM UUV*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3123: *SMCM UUV*	58.101	11.642	21.417	13.944	-	13.944	14.191	6.309	6.058	6.159	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Surface Mine Countermeasure Unmanned Undersea Vehicle (SMCM UUV) develops Unmanned Underwater Vehicles to support mine countermeasure operations, including buried mine detection. Equipment includes vehicles and associated systems support equipment. Potential P3I candidates include communications upgrades, on-board sonar processing and target recognition, command and control improvements, and other smaller tasks.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: SMCM UUV LFBB	11.344	21.417	13.944
Articles:	0	0	0
FY 2012 Accomplishments: Conducted Preliminary Design Review (PDR). Continue E&MD contract efforts.			
FY 2013 Plans: Conduct Critical Design Review (CDR). Commence vehicle fabrication.			
FY 2014 Plans: Complete vehicle fabrication. Commence Development Testing			
Title: SMCM UOES	0.298	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: Support fleet exercises. Completed UOES Phase			
Accomplishments/Planned Programs Subtotals	11.642	21.417	13.944

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 3123: *SMCM UUV*

D. Acquisition Strategy

An acquisition program was initiated in FY11 to develop Surface Mine Countermeasure Unmanned Undersea Vehicles (SMCM UUV) equipped with Low Frequency Broadband (LFBB) sonar that provides buried mine detection capability. Initial procurement of the SMCM UUV with LFBB begins in FY16.

E. Performance Metrics

Successful Milestone C in Q1 FY16.
Reach Full Rate Production Decision in Q2 FY17.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 3123: *SMCM UUV*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SMCM UOES Development	C/CPAF	BLUEFIN:CAMBRIDGE, MA	14.844	0.298	Dec 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
SMCM UUV Development	C/CPIF	Various:Various	17.033	0.000		0.000		0.000		-		0.000	0.000	17.033	
SMCM UUV Development 2	C/CPIF	General Dynamics AIS:McLeansville, NC	9.800	6.900	Dec 2011	16.570	Dec 2012	9.399	Dec 2013	-		9.399	Continuing	Continuing	Continuing
Software Development	WR	NSWC, PC:PANAMA CITY, FL	0.805	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	42.482	7.198		16.570		9.399		0.000		9.399			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support 1	WR	NSWC, PC:PANAMA CITY, FL	8.599	2.421	Dec 2011	2.325	Dec 2012	2.650	Dec 2013	-		2.650	Continuing	Continuing	Continuing
Engineering Support 2	WR	NUWC, Newport:NEWPORT, RI	2.415	0.649	Dec 2011	0.612	Dec 2012	0.597	Dec 2013	-		0.597	Continuing	Continuing	Continuing
Engineering Support 3	WR	VARIOUS:VARIOUS	1.158	0.401	Dec 2011	1.160	Dec 2012	0.504	Feb 2014	-		0.504	Continuing	Continuing	Continuing
		Subtotal	12.172	3.471		4.097		3.751		0.000		3.751			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NOMWC:STENNIS, MI	0.456	0.070	Dec 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Government T&E Support	WR	VARIOUS:VARIOUS	0.985	0.228	Dec 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	WR	COMOPTEVFOR:NORFOLK, VA	0.266	0.125	Dec 2011	0.100	Dec 2012	0.100	Feb 2014	-		0.100	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 3123: *SMCM UUV*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	1.707	0.423		0.100		0.100		0.000		0.100			

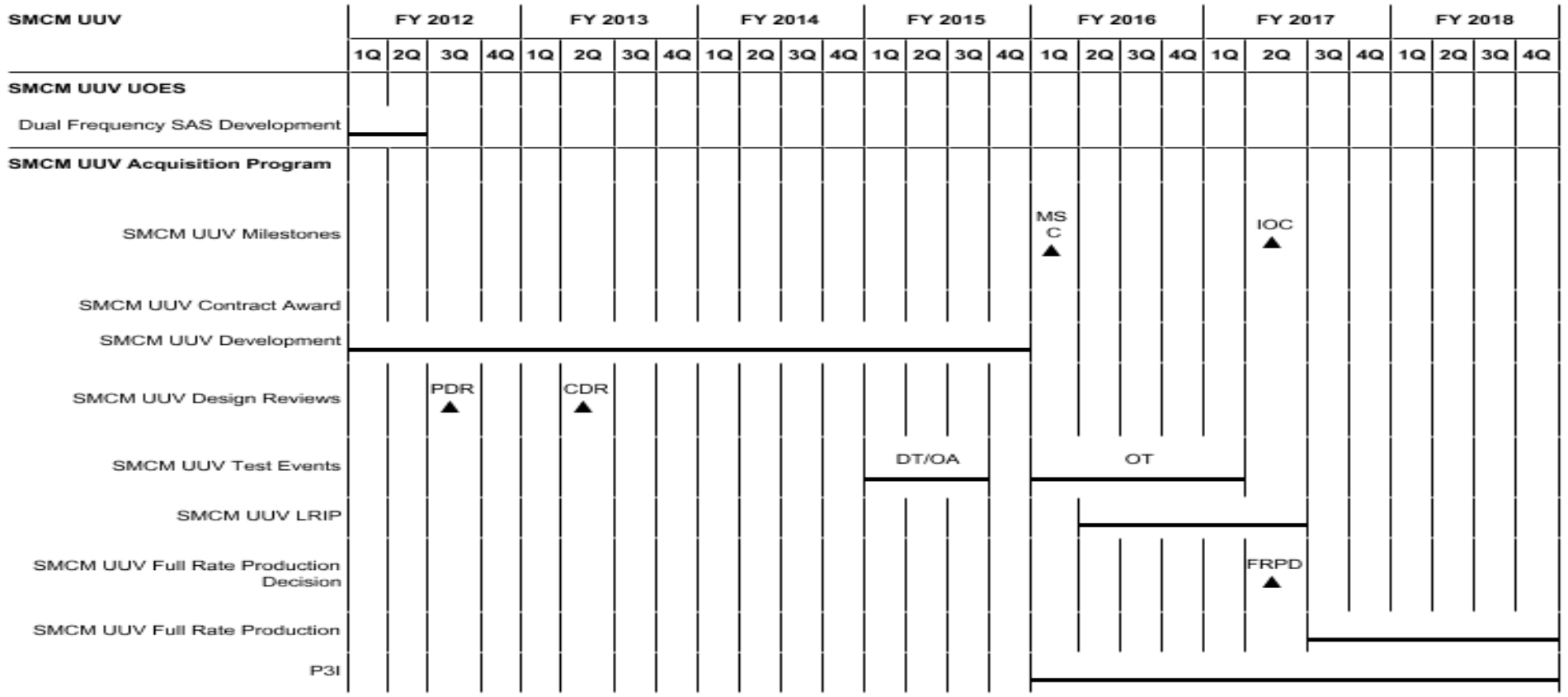
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	VARIOUS:WASHINGTON, DC	1.543	0.500	Dec 2011	0.600	Dec 2012	0.619	Feb 2014	-		0.619	Continuing	Continuing	Continuing
Travel	WR	NAVSEA:WNY, DC	0.150	0.050	Dec 2011	0.050	Dec 2012	0.075	Dec 2013	-		0.075	Continuing	Continuing	Continuing
Acquisition Workforce	WR	VARIOUS:VARIOUS	0.047	0.000		0.000		0.000		-		0.000	0.000	0.047	
		Subtotal	1.740	0.550		0.650		0.694		0.000		0.694			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	58.101	11.642		21.417		13.944		0.000		13.944			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603502N: *Surface & Shallow Water MCM*	PROJECT 3123: *SMCM UUV*



2014PB - 0603502N - 3123

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603502N: *Surface & Shallow Water MCM*	**PROJECT** 3123: *SMCM UUV*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SMCM UUV				
SMCM UUV UOES: Dual Frequency SAS Development: Schedule Detail	1	2012	2	2012
SMCM UUV Acquisition Program: SMCM UUV Milestones: Milestone C	1	2016	1	2016
SMCM UUV Acquisition Program: SMCM UUV Milestones: IOC	2	2017	2	2017
SMCM UUV Acquisition Program: SMCM UUV Development:	1	2012	4	2015
SMCM UUV Acquisition Program: SMCM UUV Design Reviews: Preliminary Design Review	3	2012	3	2012
SMCM UUV Acquisition Program: SMCM UUV Design Reviews: Critical Design Review	2	2013	2	2013
SMCM UUV Acquisition Program: SMCM UUV Test Events: DT/OA	1	2015	3	2015
SMCM UUV Acquisition Program: SMCM UUV Test Events: OT	1	2016	1	2017
SMCM UUV Acquisition Program: SMCM UUV LRIP:	2	2016	2	2017
SMCM UUV Acquisition Program: SMCM UUV Full Rate Production Decision:	2	2017	2	2017
SMCM UUV Acquisition Program: SMCM UUV Full Rate Production:	3	2017	4	2018
SMCM UUV Acquisition Program: P3I:	1	2016	4	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	263.673	122.311	93.346	88.649	-	88.649	31.602	33.400	23.689	23.930	Continuing	Continuing
0225: *Surface Ship Torpedo Defense (SSTD)*	263.673	122.311	93.346	85.649	-	85.649	31.602	33.400	23.689	23.930	Continuing	Continuing
4050: *Compact Rapid Attack Weapon (CRAW)*	0.000	0.000	0.000	3.000	-	3.000	0.000	0.000	0.000	0.000	0.000	3.000

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Surface Ship Torpedo Defense (SSTD) program provides a detect-to-engage hard-kill torpedo defense capability through two development programs. The Countermeasure Anti- Torpedo (CAT) program develops a canisterized Anti-Torpedo Torpedo (ATT) as an ACAT II program. The Torpedo Warning System (TWS) develops the required ship systems as an ACAT III program. The AN/SLQ-25X solicitation has been cancelled due to a more cost effective technical solution of interfacing the TWS to NIXIE system.

The program will focus on first providing torpedo defense capability to High Value Units (HVU). The Initial Operational Capability (IOC) system will be installed on one CVN and one Combat Logistics Force (CLF) ship (both HVUs) with IOC in FY19.

Additionally, the program will develop and field six Surface Ship Torpedo Defense prototype (TWS/CAT) Engineering Design Model (EDM) systems on CVNs. Each prototype consists of one TWS and eight CATs. The six systems were accelerated due to the lack of torpedo defense on HVUs which has been exacerbated by recent real-world events and evolving threats. The systems provide a hard-kill torpedo defense capability in advance of the IOC as part of the program of record. To accomplish this effort, the department reprogrammed $9.9 million of FY10 funds, $6.1 million of FY11 funds and $6.4 million of FY12 funds. Furthermore the department received a prior approval reprogramming for an additional $7.9 million of FY10 funds. The first two prototypes are expected to deliver in FY14; these two systems will be delivered in a roll-on/roll-off (RO-RO) configuration and delivered to the theater commander. Following delivery of the RO-RO capability, the program will build and deliver the final four EDM systems for installation on two carriers each year in FY15 and FY16.

Additionally, the program will deliver one hybrid prototype system in FY13. This is in addition to the six prototype EDM systems discussed above. The system will deliver some capability to a forward deployed CVN asset before the first prototype EDM system is available.

Compact Rapid Attack Weapon (CRAW) - At about one-third the weight of the current lightweight ASW weapon, CRAW is projected to cost less while performing at least as well. The successful performance testing of CRAW against submarine targets will validate and increase readiness CRAW as a candidate for weaponizing multiple platforms.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	118.764	93.346	81.156	-	81.156
Current President's Budget	122.311	93.346	88.649	-	88.649
Total Adjustments	3.547	0.000	7.493	-	7.493
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	6.364	0.000			
• SBIR/STTR Transfer	-2.817	0.000			
• Program Adjustments	0.000	0.000	8.575	-	8.575
• Rate/Misc Adjustments	0.000	0.000	-1.082	-	-1.082

Change Summary Explanation

Technical and Schedule: PB14 changed two EDMs to a RO/RO capability due to acceleration of CVN deployments and increased presence requirements. Additionally, program shifted IOC to FY19. FY14 funds reduced $10M due to CVN 77 install in FY13; $530K reduction of Advisory and Assistance Services and other contracts and $18.023M for rate/misc adjustments which includes: an increase of $15.6M for SSTD RO/RO capability, a net reduction of $304K for Working Capital rate adjustments; a decrease of $25K for Standard Procurement System Replacement Strategy; a decrease of $248K for Naval Innovative Science and Engineering (Section 219) Program Funding Mechanism; and an increase of $3M for CRAW in support of Speed to Fleet.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 0225: *Surface Ship Torpedo Defense (SSTD)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0225: *Surface Ship Torpedo Defense (SSTD)*	263.673	122.311	93.346	85.649	-	85.649	31.602	33.400	23.689	23.930	Continuing	Continuing
Quantity of RDT&E Articles	0	23	10	10		10	16	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Surface Ship Torpedo Defense (SSTD) program provides a detect-to-engage hard-kill torpedo defense capability through two development programs. The Countermeasure Anti- Torpedo (CAT) program develops a canisterized Anti-Torpedo Torpedo (ATT) as an ACAT II program. The Torpedo Warning System (TWS) develops the required ship systems as an ACAT III program.

SSTD system will be installed on one CVN and one Combat Logistics Force (CLF) ship (both HVUs) with IOC defined as FY19.

Additionally, the program will develop and field six Surface Ship Torpedo Defense prototype EDM systems on CVNs, two of which will be delivered in a RO-RO configuration and one hybrid prototype system on a forward deployed CVN.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Countermeasure Anti-Torpedo (CAT)	75.975	49.894	40.530
Articles:	23	10	10

FY 2012 Accomplishments:

EDM-2 fabricated in support of subsystem builds and land-based testing. Testing supported delivery of first subsystem technical data packages and Baseline EDM-2 Design. Continued Insensitive Munitions testing, firing module Qualification Testing and mechanical Integration Testing. Continued conducting Weapons System Explosive Safety Review Board (WSESRB) review of the CAT program. Completed AURE design and started ATT subsystem testing to include thermal engine testing.

FY 2013 Plans:

Continue work on the ATT subsystem technical data packages. Complete land based testing of EDM-2 ATT and start ATT in-water testing of both the electric and thermal engine variant. Conduct initial ATT subsystem integration testing. Procure materials for hybrid prototype delivery to include AURE and warhead. Complete shipyard and Alteration Installation Team (AIT) installation of Hybrid Prototype System on CVN77. Complete fabrication of subsystems for EDM-2 CATs in support of EDM prototype delivery in FY14.

FY 2014 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 0225: *Surface Ship Torpedo Defense (SSTD)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Complete shipyard and AIT installation of two prototype, RO-RO EDM systems. Continue land based and in water testing of EDM-2 ATT thermal engine variant.			
Title: Torpedo Warning System (TWS)	45.836	43.452	45.119
Articles:	3	1	2
FY 2012 Accomplishments: Conducted lake testing for prototype TWS array. Continued development of Torpedo Detection Classification and Localization (TDCL) algorithms. Conducted at sea test of TWS array for algorithm performance. Commenced design of fire control and CAT ready-stowage racks for the HVU application. Commenced design and testing of hybrid prototype system for FY13 install. Commenced shipyard and AIT installation of hybrid prototype system. ***FY 2013 Plans:*** Continue fire control and CAT ready-stowage racks EDM design and testing. Conduct sea test on sensors and algorithms developed in FY11 and FY12. Complete installation of hybrid prototype system. Conduct first end-to-end integration test of TWS/CAT. Perform quick reaction assessment of CVN77 hybrid prototype. The increased presence requirements produced a capability gap on deploying carriers in 2QFY14. To close this capability gap, the Navy decided to accelerate the delivery of the second Roll-on Roll-off system from 4QFY14 to 1QFY14. Funding from SLQ-25X RDT&E solicitation cancellation was used to close this capability gap. ***FY 2014 Plans:*** Conduct Land-Based Integration of TWS prototype EDM system fabricated in FY13. Install two RO-RO prototype EDM systems on CVNs and commence fabrication of two protype EDM systems for install in FY15.			
Title: AN/SLQ-25X	0.500	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: An AN/SLQ-25X solicitation has been cancelled due to a more cost effective technical solution of interfacing the TWS to the NIXIE system.			
Accomplishments/Planned Programs Subtotals	122.311	93.346	85.649

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/221300: *SSTD*	1.257	10.716	11.925		11.925	18.263	17.135	28.615	29.062	Continuing	Continuing
• WPN/311300: *SSTD*	0.000	2.700	3.978		3.978	23.644	24.763	28.387	30.629	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 0225: *Surface Ship Torpedo Defense (SSTD)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

CAT Program: In FY09 and FY10, the CAT project completed a Systems Requirements Review (SRR) and Preliminary Design Review (PDR) on the second Engineering Development Model (EDM-2) design. Applied Research Lab (ARL) will complete the EDM-2 design and hold a Critical Design Review (CDR) in FY15. ARL will fabricate test articles and 56 total EDM-2 CATS in support of the prototype fielding. Integration testing will begin in FY13 and continue through delivery of the prototype CATs. A complete Technical Data Package (TDP) will be prepared. With the shift in IOC to FY19, program will enter Milestone C decision in late FY16 (as a result of CAT IOC shift to FY19, acquisition strategy changed to enter acquisition process at Milestone C). Additionally, in FY16 a competitive fixed price contract will be awarded to build low rate initial production (LRIP) units. These units will support operational testing beginning in FY18 with an FY19 IOC.

TWS Program: In FY09 and FY10, a towed sensor system specification was developed and 2 sea tests were conducted on Navy destroyers that demonstrated the ability of three different passive sonar ranging techniques and demonstrated the benefit of new torpedo detection sonar waveforms. Data from these tests is being applied to the HVU application, and the sensor specification is being modified to meet the increased capability required for HVU ships. Development and production of the new sensors is being conducted by 3Phoenix. A complete sensor set was delivered in 2nd QTR FY12 to support an at sea test in the 3rd QTR FY12. At the same time, a ready-stowage rack, and fire control systems are being developed by Pacific Engineering Incorporated (PEI) and In-Depth Engineering, respectively. All of these components will be brought together for integration in FY13. This integration will support fabrication and fielding of the prototype systems. This testing will inform a Milestone C decision in late FY16. A single competitive contract will be awarded for TWS LRIP systems to support Operational Testing beginning in FY18, with an FY19 IOC.

E. Performance Metrics

Torpedo Effectiveness for the CAT
Torpedo Detection Classification and Localization (TDCL) False Alert Rate
TDCL probability of correct classification
TWS System Availability

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 0225: *Surface Ship Torpedo Defense (SSTD)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NUWC:Newport, RI	27.304	5.680	Nov 2011	5.100	Nov 2012	4.501	Nov 2013	-		4.501	Continuing	Continuing	Continuing
Systems Engineering ATT Dev.	C/CPFF	PSU/ARL:State College, PA	128.499	48.452	Nov 2011	34.338	Dec 2012	28.000	Dec 2013	-		28.000	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	JHU/APL:Baltimore , MD	1.740	0.000	Feb 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering Warhead Dev.	WR	NSWC:Indian Head, MD	34.841	11.514	Nov 2011	11.600	Nov 2012	8.700	Nov 2013	-		8.700	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC:Keyport,WA	14.775	10.157	Nov 2011	10.800	Nov 2012	6.100	Nov 2013	-		6.100	Continuing	Continuing	Continuing
Systems Engineering TDCL	C/CPFF	Ultra:Braintree, MA	11.640	0.000	Feb 2012	0.000		0.000		-		0.000	0.000	11.640	Continuing
Systems Engineering ATT	WR	ONR:Arlington, VA	1.680	0.000	Jan 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering TDCL	C/CPFF	AAC:Hauppage, NY	3.830	0.250	Mar 2012	0.200	Jan 2013	0.200	Feb 2014	-		0.200	0.000	4.480	Continuing
Systems Engineering	WR	OPTEVFOR:Norfolk, VA	0.743	0.370	Feb 2012	0.150	Feb 2013	0.100	Feb 2014	-		0.100	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	ArgonST:Manassas, VA	0.800	0.000		0.000		0.000		-		0.000	0.000	0.800	Continuing
Systems Engineering TDCL	WR	NSWC:Dahlgren, VA	5.247	2.000	Nov 2011	1.500	Nov 2012	1.500	Nov 2013	-		1.500	0.000	10.247	Continuing
Systems Engineering TDCL	WR	SPAWAR:San Diego, CA	1.320	3.167	Dec 2011	1.000	Dec 2012	1.700	Dec 2013	-		1.700	0.000	7.187	Continuing
Systems Engineering	C/CPFF	UT/ARL:Arlington, TX	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	Continuing
Systems Engineering	C/CPFF	Alion:Bridgeport, CT	2.526	3.815	Dec 2011	3.700	Dec 2012	3.400	Dec 2013	-		3.400	0.000	13.441	Continuing
Systems Engineering	WR	NUWC DET:Norfolk, VA	2.525	4.938	Nov 2011	6.800	Dec 2012	9.600	Dec 2013	-		9.600	0.000	23.863	
Systems Development	C/CPFF	3 Phoenix:Fairfax, VA	14.904	26.200	Dec 2011	14.665	Dec 2012	17.450	Dec 2013	-		17.450	0.000	73.219	Continuing
Integrated Logistic Spt	WR	NSWC Crane:Crane, IN	0.384	0.050	Dec 2011	0.350	Dec 2012	0.300	Dec 2013	-		0.300	0.000	1.084	Continuing
Systems Engineering	C/CPFF	PEI:Roca, NE	0.000	1.115	Jun 2012	0.386	Dec 2012	0.750	Dec 2013	-		0.750	0.000	2.251	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 0225: *Surface Ship Torpedo Defense (SSTD)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	CARDEROCK:Bethesda, MD	0.000	0.220	Jun 2012	0.357	Dec 2012	0.400	Dec 2013	-		0.400	0.000	0.977	
Systems Engineering	C/CPFF	CGI:Washington, DC	0.000	0.200	Jun 2012	0.000		0.000		-		0.000	0.000	0.200	
Systems Engineering	C/BA	Dam Neck:Virginia Beach, VA	0.000	0.022	Jun 2012	0.000		0.000		-		0.000	0.000	0.022	
Systems Engineering	C/BA	NSWC Panama City:Panama City, FL	0.000	0.255	Jun 2012	0.000		0.000		-		0.000	0.000	0.255	
Systems Engineering	C/BA	Devron 26:Not Specified	0.000	0.139	Jun 2012	0.000		0.000		-		0.000	0.000	0.139	
		Subtotal	253.358	118.544		90.946		82.701		0.000		82.701			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Earned Value Mgmt Spt	C/CPAF	Pioneer:Virigina	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	
Program Management Support	C/FFP	EG&G:Gaithersburg, Md.	2.846	0.000		0.000		0.000		-		0.000	0.000	2.846	Continuing
DAWDF	Various	Not Specified:Not Specified	0.237	0.000		0.000		0.000		-		0.000	0.000	0.237	Continuing
Program Management Support	C/CPAF	Tech-Marine:Washington, DC	6.393	3.537	Jan 2012	0.000		0.000		-		0.000	0.000	9.930	Continuing
Travel	Various	PMS 415:Not Specified	0.534	0.110	Nov 2011	0.100	Nov 2012	0.100	Nov 2013	-		0.100	0.000	0.844	Continuing
Program Management Support	C/CPFF	SPA:Alexandria, VA	0.255	0.120	Mar 2012	0.200	Jan 2013	0.200	Feb 2014	-		0.200	0.000	0.775	Continuing
Program Management Support	C/CPAF	Booz Allen:Washington, DC	0.000	0.000		2.100	Jan 2013	2.648	Feb 2014	-		2.648	0.000	4.748	
		Subtotal	10.315	3.767		2.400		2.948		0.000		2.948	0.000	19.430	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 0225: *Surface Ship Torpedo Defense (SSTD)*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	263.673	122.311		93.346		85.649		0.000		85.649			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 0225: *Surface Ship Torpedo Defense (SSTD)*

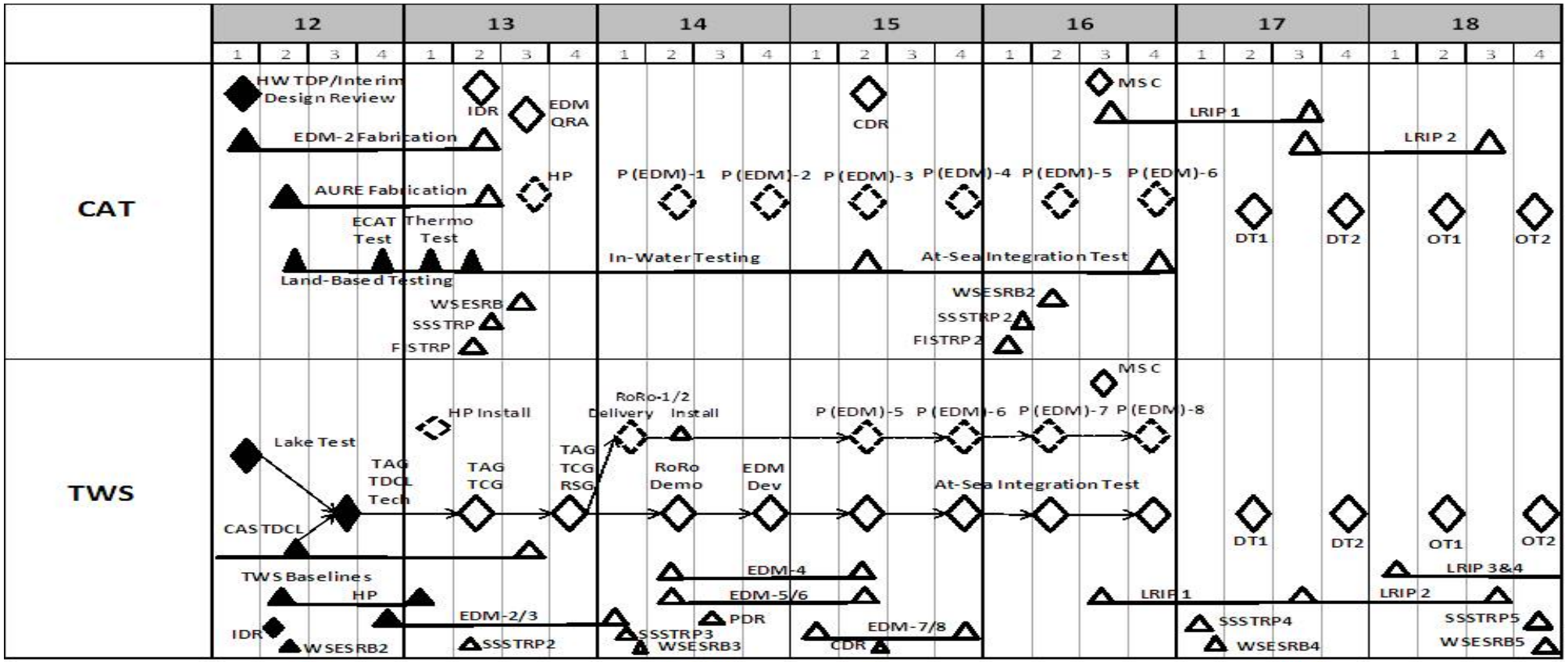


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603506N: *Surface Ship Torpedo Defense*	**PROJECT** 0225: *Surface Ship Torpedo Defense (SSTD)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0225				
CAT - Fabricate EDM 2 Hardware	1	2012	2	2013
CAT - HWTDP/IDR (Interim Design Review)	1	2012	1	2012
CAT- AURE Fabrication	2	2012	2	2013
CAT - Land Based System Test	2	2012	2	2013
CAT - IDR	2	2013	2	2013
CAT - Critical Design Review (CDR)	2	2015	2	2015
CAT - ECAT Test	4	2012	4	2012
CAT - In Water Test	2	2013	2	2015
CAT - Thermo Test	1	2013	1	2013
CAT - Hybrid Prototype (HP)	3	2013	3	2013
CAT - FISTRP	2	2013	2	2013
CAT - EDM QRA	3	2013	3	2013
CAT - SSSTRP	2	2013	2	2013
CAT - WSESRB	3	2013	3	2013
CAT - Prototype EDM 1	2	2014	2	2014
CAT - Prototype EDM 2	4	2014	4	2014
CAT - Milestone C	3	2016	3	2016
CAT - Prototype EDM 3	2	2015	2	2015
CAT - Prototype EDM 4	4	2015	4	2015
At-Sea Integration Test	2	2015	4	2016
CAT - Developmental Testing (DT1)	2	2017	2	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 0225: *Surface Ship Torpedo Defense (SSTD)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CAT - DT2	4	2017	4	2017
CAT - Prototype EDM 5	2	2016	2	2016
CAT - FISTRP 2	1	2016	1	2016
CAT - Prototype EDM 6	4	2016	4	2016
CAT - SSSTRP 2	1	2016	1	2016
CAT - LRIP 1	3	2016	3	2017
CAT - WSESRB 2	2	2016	2	2016
CAT - LRIP 2	3	2017	3	2018
CAT - Operational Testing (OT)	2	2018	2	2018
CAT - OT2	4	2018	4	2018
TWS - TWS Baseline	2	2012	1	2013
TWS - Lake Test	1	2012	1	2012
TWS - Integrated Design Review (IDR)	2	2012	2	2012
TWS - WSESRB 2	2	2012	2	2012
TWS - Preliminary Design Review (PDR)	3	2014	3	2014
TWS - SSSTRP 2	2	2013	2	2013
TWS - Hybrid Prototype (HP) Install	1	2013	1	2013
TWS - CAS TDCL	2	2012	3	2013
TWS - EDM 2/3	4	2012	1	2014
TWS - Torpedo Acquisition Group (TAG) TDCL Tech	3	2012	3	2012
TWS - TAG TCG	2	2013	2	2013
TWS - TAG TCG Ready Stow Group (RSG)	4	2013	4	2013
TWS - EDM 4	2	2014	2	2015
TWS - Critical Design Review (CDR)	2	2015	2	2015
TWS - SSSTRP 3	1	2014	1	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 0225: *Surface Ship Torpedo Defense (SSTD)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
TWS - WSESRB 3	1	2014	1	2014
TWS - RoRo 1/2 Install	2	2014	2	2014
TWS - RoRo Demo	2	2014	2	2014
TWS - RoRo 1/2 Delivery	1	2014	1	2014
TWS - EDM Dev	4	2014	4	2014
TWS - EDM 7/8	1	2015	4	2015
TWS - Milestone C	3	2016	3	2016
TWS - At Sea Integration Test	4	2015	4	2016
TWS - LRIP 1	3	2016	3	2017
TWS - SSSTRP 4	1	2017	1	2017
TWS - WSESRB 4	1	2017	1	2017
TWS - Operational Testing (OT1)	2	2018	2	2018
TWS - EDM 5/6	2	2014	2	2015
TWS - Prototype P (EDM) 5	2	2015	2	2015
TWS - Prototype P (EDM) 6	4	2015	4	2015
TWS - Prototype P (EDM) 7	2	2016	2	2016
TWS - Prototype P (EDM) 8	4	2016	4	2016
TWS - LRIP 2	3	2017	3	2018
TWS - LRIP 3/4	1	2018	4	2018
TWS - DT1	2	2017	2	2017
TWS - DT2	4	2017	4	2017
TWS - OT2	4	2018	4	2018
TWS - SSSTRP 5	4	2018	4	2018
TWS - WSESRB 5	4	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 4050: *Compact Rapid Attack Weapon (CRAW)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
4050: *Compact Rapid Attack Weapon (CRAW)*	0.000	0.000	0.000	3.000	-	3.000	0.000	0.000	0.000	0.000	0.000	3.000
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

At about one-third the weight of the current lightweight ASW weapon, CRAW is projected to cost less while performing at least as well. The successful performance testing of CRAW against submarine targets will validate and increase readiness CRAW as a candidate for weaponizing multiple platforms.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: COMPACT RAPID ATTACK WEAPON (CRAW)	0.000	0.000	3.000
Articles:			0
FY 2014 Plans: Conduct performance testing against a variety of ASW targets in support of the CRAW Speed to Fleet initiative.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	3.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

None.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 4050: *Compact Rapid Attack Weapon (CRAW)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Various:Various	0.000	0.000		0.000		3.000	Jan 2014	-		3.000	0.000	3.000	
		Subtotal	0.000	0.000		0.000		3.000		0.000		3.000	0.000	3.000	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		3.000		0.000		3.000	0.000	3.000	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603506N: *Surface Ship Torpedo Defense*	PROJECT 4050: *Compact Rapid Attack Weapon (CRAW)*

CRAW Speed to Fleet Milestones

Fiscal Year	FY12				FY14				FY15				FY16			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Development Assumes Oct 11 Start						1	2									

1: Performance testing against a variety of ASW targets.

2: Performance testing against a variety of ASW targets.

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603506N: *Surface Ship Torpedo Defense*	**PROJECT** 4050: *Compact Rapid Attack Weapon (CRAW)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4050				
Performance testing against a variety of ASW targets.	2	2014	2	2014
- Performance testing against a variety of ASW targets.	3	2014	3	2014

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	1,525.990	61.909	108.871	83.902	-	83.902	49.195	50.881	47.344	46.022	Continuing	Continuing
2208: *CVN 21*	800.971	27.168	36.673	31.638	-	31.638	37.297	40.833	40.650	39.234	Continuing	Continuing
3216.: *Tactical Support Center-Integration*	14.338	2.060	9.600	4.546	-	4.546	4.660	4.724	4.831	4.901	Continuing	Continuing
4004: *EMALS*	694.848	30.995	60.861	43.003	-	43.003	2.443	2.507	0.000	0.000	0.000	834.657
4005: *In-Service Carrier Systems Development*	15.833	1.686	1.737	4.715	-	4.715	4.795	2.817	1.863	1.887	Continuing	Continuing
MDAP/MAIS Code(s): 223												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This Navy unique program addresses all technology areas associated with Navy/Marine Corps aircraft operations aboard ships. The program includes:

- (2208) - Development of ship hull, mechanical, propulsion, electrical, aviation, and combat support systems, subsystems and components to significantly improve 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 existing and future aircraft carriers.

- (3216) - Development of block upgrades to the MH-60R sensor suite into the AN/SQQ-34 Aircraft Carrier Tactical Support Center (CV-TSC). The CV-TSC provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti Submarine Warfare (ASW). Through the integration of
off-board sensors and signal, data and display processors, the AN/SQQ-34 is utilized in detecting, classifying, and localizing threats. An integrated element of the Carrier Combat System, the AN/SQQ-34 supports the tactical deployment of embarked ASW and Surface Warfare (SUW) assets (S-3B until retirement, SH-60F helicopter). This project provides the development and engineering foundation to refresh legacy AN/SQQ-34 systems on all Carriers and shore sites in support of Fleet introduction and shipboard integration of the MH-60R Multi Mission Helicopter. Upgrades to legacy systems enable the exchange of sensor, tactical and imagery data with the MH-60R initially, followed by incremental upgrades to support CVN air integration efforts.

- (4004) - Development of an advanced technology aircraft launch system in support of the CVN 78 Class design and construction schedule. The Electro Magnetic Aircraft Launch System (EMALS) will replace the current steam catapult on CVN 78 Class ships. EMALS provides better control of applied forces, both peak and transient dynamic, improved
reliability and maintainability, increased operational availability and reduced operator and maintainer workload.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*

- (4005) - The In-Service Carrier Systems Development Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs (TOC). A portion of this effort is classified with details available at a higher classification level.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	54.072	108.871	67.139	-	67.139
Current President's Budget	61.909	108.871	83.902	-	83.902
Total Adjustments	7.837	0.000	16.763	-	16.763
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	9.100	0.000			
• SBIR/STTR Transfer	-1.263	0.000			
• Program Adjustments	0.000	0.000	17.486	-	17.486
• Rate/Misc Adjustments	0.000	0.000	-0.723	-	-0.723

Change Summary Explanation

Cost: Added funding in FY 12 and FY 14 to properly price the EMALS effort. Added FY 14 funds to project 4005 (details available at higher classification level). The FY 14 program for project 2208 was adjusted to properly phase program requirements with expenditures.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 2208: *CVN 21*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2208: *CVN 21*	800.971	27.168	36.673	31.638	-	31.638	37.297	40.833	40.650	39.234	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project provides for the development of 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 transitions the most promising technologies from the Navy technology base, other government laboratories, and the private sector into specific advanced development efforts. 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 significantly improve 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 78 procurement, including, but not limited to engineering support, programmatic and program support, logistics support, modeling and simulation, test and evaluation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment (IDE).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: CVN 78 Class Advanced Technology Design & Development	22.954	31.673	21.333
Articles:	0	0	0

Description: - CVN 78 Class Advanced Technology Design & Development: Continue development and transition of technologies to support CVN 78 Class Key Performance Parameters (KPPs): maintain sortie generation rate, reductions in manpower, and further recovery of weight and stability service life margins. Continue design activities to integrate the new technologies, such as the new propulsion plant and Electromagnetic Aircraft Launch System into the ship.

FY 2012 Accomplishments:

Continued design, development and transition of key technologies to support CVN 21 (CVN 78 Class) Key Performance Parameters (KPPs) which include sortie generation rate, reductions in manpower, and further recovery of weight and stability service life margins. Continued design activities to integrate new technologies, such as the new propulsion plant and Electromagnetic Aircraft Launch System into the ship.

Performed special studies and program management in support of warfare system integration and design. Identified risk mitigation options for a post-delivery installation of warfare systems. Provided an analysis on the changes required to incorporate

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 2208: *CVN 21*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
new systems in the CVN 78 design. Provided structural assessments for possible relocations of antennas which currently have interference issues with the Dual Band Radar (DBR) arrays. Identified options to resolve DBR high power issues. Modified the switchboard hardware design and software to provide the required ship signal interface. Located and provided impact for an Information Assurance solution within existing design parameters. Tested common display within flexible infrastructure design allowing for a single universal mounting option. Developed a Weapons System Explosive Safety Review Board (WSESRB) strategy and path forward, in collaboration with NAVSEA to include completion of a weapon system safety gap analysis to baseline the efforts and to identify shortfalls. ***FY 2013 Plans:*** Continue design, development and transition of key technologies to support CVN 21 (CVN 78 Class) Key Performance Parameters (KPPs) which include sortie generation rate, reductions in manpower, and further recovery of weight and stability service life margins. Continue design activities to integrate new technologies, such as the new propulsion plant and Electromagnetic Aircraft Launch System into the ship. Continue existing studies and commence new studies required for integrated warfare system and C4I design, integration, test and validation efforts. Develop and review Pre-Planned Product Improvement (P3I) Technical Data Packages. Continue engineering and technical support of aircraft launch and recovery systems. Develop ship integration side studies to support NAVSEA documented class baseline changes. Continue shipbuilder system and cost engineering support to assess ship impacts from selected Engineering Change Requests (ECRs) and changes to the GFE/CFE equipment split. ***FY 2014 Plans:*** Continue design, development and transition of key technologies to support CVN 21 (CVN 78 Class) Key Performance Parameters (KPPs) which include sortie generation rate, reductions in manpower, and further recovery of weight and stability service life margins. Continue design activities to integrate new technologies, such as the new propulsion plant and Electromagnetic Aircraft Launch System into the ship. Continue existing studies and commence new studies required for integrated warfare system and C4I design, integration, test and validation efforts. Develop and review Pre-Planned Product Improvement (P3I) Technical Data Packages. Continue engineering and technical support of aircraft launch and recovery systems. Develop ship integration side studies to support NAVSEA documented class baseline changes. Continue shipbuilder system and cost engineering support to assess ship impacts from selected Engineering Change Requests (ECRs) and changes to the GFE/CFE equipment split.			
Title: CVN 21 - Test & Evaluation (T&E)	4.214	5.000	10.305
Articles:	0	0	0
Description: - CVN 21 - Test & Evaluation (T&E)			
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 2208: *CVN 21*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continued to develop the Test and Evaluation Master Plan (TEMP) 1610, Rev C. Continued to collaboratively develop the Commander, Operational Test and Evaluation (COTF) Integrated Evaluation Framework (IEF). Continued to map requirements from the IEF to the test events in the TEMP 1610, Rev C. Continued to update and maintain the Overall Platform Integrated Test Schedule (OP-ITS). Continued to co-chair the Integrated Coordination Team (ICT) efforts to optimize the pre- and post-delivery tests & trials schedule, while identifying and mitigating testing risks. Continued to develop a Full Ship Shock Trial (FSST) Alternative process, concentrating on the analysis of the LPD 19 Model and the comparison of its results with the LPD 19 FSST data. Successfully completed the navigation system risk mitigation testing. Continued to execute Integrated Test-Phase 1 (IT-1), which included: planning the IT-1 Operational Assessment (OA) 1 (formerly OT-B3); conducting the IT-1 OA1 Test Readiness Review (TRR); completing sortie generation rate assessment (SGRA) 11; and setting up for land-based testing at the PEO C4I Test Integration Facility (TIF), the NAVAIR Production Integration Facility (PIF) and the HII-NNS Platform Integration Center (PIC). Continued the spiral development of the Virtual Carrier (VCVN) Model to increase operational fidelity that will support the validation of the SGR key performance parameter (KPP) during Initial Operational Test & Evaluation (IOT&E). Commenced development of the Test and Certification Plan (TCP), which will document the required pre- and post-delivery special tests and certifications, the applicable references and the supporting activities. ***FY 2013 Plans:*** Complete development of the TEMP 1610, Rev C and route for signature. Complete development of the TCP. Continue updating and maintaining the OP-ITS. Continue to co-chair the ICT, focusing on pre- and post-launch activities. Continue the FSST Alternative process development. Complete IT-1, which includes completing the IT-1 OA 1 (formerly OT-B3) and producing the IT-1 OA Report (IT-1 OAR1). Commence IT-Phase 2, which includes: (1) completing the IT-1 Developmental Test Report (IT-1 DT RPT); PEO C4I TIF testing; and SGRA 12; (2) continuing NAVAIR PIF testing; HII-NNS PIC testing; and spiral development of the VCVN Model to increase operational fidelity that will support the validation of the SGR KPP during IOT&E; and (3) commencing Dual Band Radar (DBR) land-based testing; SGRA 13; and Information Assurance (IA) testing on Contractor-Furnished Equipment (CFE) during PIC testing. ***FY 2014 Plans:*** Continue updating and maintaining the OP-ITS. Continue to co-chair the ICT, focusing on post-launch activities. Complete the FSST Alternative process development and conduct the FSST Alternative Process Gate Review to gain acceptance of the Process as a technically-feasible and cost-effective alternative to a traditional FSST. Continue IT-Phase 2, which includes: (1) completing IT-2 OA 1; IT-2 OA Report (IT-2 OAR1); SGRA 13; and NAVAIR PIF testing; (2) continuing DBR land-based testing; HII-NNS PIC testing; IA testing on CFE during PIC testing; and spiral development of the VCVN Model to increase operational fidelity that will support the validation of the SGR KPP during IOT&E; and (3) commencing the Radiation Hazard (RADHAZ) assessment; and the Steering Gear industrial testing.			
Accomplishments/Planned Programs Subtotals	27.168	36.673	31.638

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 2208: *CVN 21*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTEN/0604567N: *Project Units 3179, 4007*	20.325	13.862	15.572		15.572	20.365	21.315	22.885	20.140	Continuing	Continuing
• RDTEN/0603570N: *Propulsion Plant Development (PU 2692)*	65.808	62.020	57.499		57.499	56.693	0.000	0.000	0.000	0.000	1,526.874
• SCN/2001: *Carrier Replacement Program*	554.798	608.195	944.866		944.866	1,834.072	1,918.441	2,539.826	2,954.419	Continuing	Continuing
• SCN/5300: *Completion of Prior Year Shipbuilding Programs*	0.000	0.000	588.100		588.100	729.000	0.000	0.000	0.000	0.000	1,317.100

Remarks

D. Acquisition Strategy

The CVN 78 is 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, EMALS, advanced arresting gear (AAG) 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 development of TEMP 1610, Rev C and route for signature. Successfully complete all PEO C4I TIF testing. Successfully execute SGRA 12 and SGRA 13. Gain acceptance of the FSST Alternative Process as a technically-feasible and cost-effective alternative to the traditional FSST. Successfully complete the NAVAIR PIF testing and the Consolidated Afloat Networks and Enterprise Services (CANES) testing. Successfully conduct and support feasibility and tradeoff studies and data packages on new and modified shipboard systems, technologies and proposed modification. Data packages shall include information to support program decisions to integrate these efforts into the whole ship design efforts. Successfully conduct IDC shock testing and reporting in order to finalize IDC R&D efforts. Successfully complete Advanced Weapons Elevator Shock and Electromagnetic Interference (EMI) Test qualifications. Successfully complete Plasma Arc Waste Destruction System (PAWDS) Land-Based Test. Successfully create and deliver 21 Decision Memorandums (DM) for Bents/Bays 1-21.on the 03 Level (Gallery Deck) with Layer 31 information. Successfully develop the baseline Technical Data Packages for 39 systems and mature packages in preparation for final GFI arrival.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 2208: *CVN 21*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Propulsion Plant Development	SS/CPFF	Bettis:PA	71.627	0.000		0.000		0.000		-		0.000	0.000	71.627	
Propulsion Plant Development	C/CPFF	HII:VA	164.409	0.000		0.000		0.000		-		0.000	0.000	164.409	
Propulsion Plant Development	Various	Miscellaneous:Various	10.562	0.000		0.000		0.000		-		0.000	0.000	10.562	
Propulsion Plant Development	WR	NSWC Carderock:MD	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	
Advanced Design & Development	C/CPAF	HII:VA	155.748	0.378	Oct 2011	15.041	Nov 2012	7.080	Nov 2013	-		7.080	Continuing	Continuing	Continuing
Advanced Design & Development	WR	NSWC Carderock:MD	73.446	5.012	Oct 2011	4.989	Nov 2012	4.796	Nov 2013	-		4.796	Continuing	Continuing	Continuing
Advanced Design & Development	C/CPFF	SAIC:NM	49.488	0.085	Nov 2011	0.188	Dec 2012	0.196	Dec 2013	-		0.196	Continuing	Continuing	Continuing
Advanced Design & Development	WR	NAWCAD Patuxent River:MD	50.428	3.598	Oct 2011	2.355	Nov 2012	2.099	Nov 2013	-		2.099	Continuing	Continuing	Continuing
Advanced Design & Development	WR	NAWC Lakehurst:NJ	8.249	0.200	Dec 2011	0.000		0.000		-		0.000	0.000	8.449	
Advanced Design & Development	WR	NSWC Dahlgren:VA	26.555	1.938	Oct 2011	1.741	Nov 2012	1.630	Nov 2013	-		1.630	Continuing	Continuing	Continuing
Advanced Design & Development	C/CPAF	Raytheon:VA	33.365	3.229	Oct 2011	3.351	Dec 2012	2.874	Dec 2013	-		2.874	Continuing	Continuing	Continuing
Advanced Design & Development	WR	NSWC Port Hueneme:CA	6.000	0.077	Oct 2011	0.000		0.000		-		0.000	0.000	6.077	
Advanced Design & Development	WR	SPAWAR:CA	10.668	0.622	Oct 2011	0.635	Nov 2012	0.270	Nov 2013	-		0.270	Continuing	Continuing	Continuing
Advanced Design & Development	C/CPFF	NAVSEA Seaport:DC	37.375	4.838	Dec 2011	3.006	Dec 2012	2.030	Dec 2013	-		2.030	Continuing	Continuing	Continuing
Advanced Design & Development	WR	SSC Atlantic:SC	0.122	0.264	Nov 2011	0.000		0.000		-		0.000	0.000	0.386	
Advanced Design & Development	Various	Miscellaneous:Various	39.949	2.713	Oct 2011	0.367	Dec 2012	0.358	Dec 2013	-		0.358	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 2208: *CVN 21*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	738.041	22.954		31.673		21.333		0.000		21.333			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/CPAF	HII:VA	9.821	0.000	Dec 2011	0.341	Nov 2012	1.497	Nov 2013	-		1.497	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NAWCAD Patuxent River:MD	16.975	1.689	Nov 2011	0.000	Nov 2012	2.405	Nov 2013	-		2.405	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC Dahlgren:VA	4.147	1.044	Nov 2011	0.000	Nov 2012	0.842	Nov 2013	-		0.842	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC Carderock:MD	11.028	0.000	Nov 2011	3.321	Nov 2012	1.964	Nov 2013	-		1.964	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	SPAWAR:CA	3.291	0.000	Nov 2011	0.000	Nov 2012	0.517	Nov 2013	-		0.517	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	NAVSEA SeaPort:DC	0.143	0.075	Mar 2012	0.000		0.000		-		0.000	0.000	0.218	
Developmental Test & Evaluation	C/CPAF	Raytheon:VA	2.174	0.499	Dec 2011	0.341	Dec 2012	0.374	Dec 2013	-		0.374	Continuing	Continuing	Continuing
Developmental Test & Evaluation	Various	Miscellaneous:Various	10.328	0.120	Nov 2011	0.000	Dec 2012	0.678	Dec 2013	-		0.678	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	SSC Atlantic:SC	0.319	0.060	Nov 2011	0.000	Nov 2012	0.109	Nov 2013	-		0.109	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR:VA	4.429	0.727	Nov 2011	0.997	Dec 2012	1.919	Dec 2013	-		1.919	Continuing	Continuing	Continuing
		Subtotal	62.655	4.214		5.000		10.305		0.000		10.305			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 2208: *CVN 21*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Defense Acquisition Workforce	Various	Various:Various	0.275	0.000		0.000		0.000		-		0.000	0.000	0.275	
		Subtotal	0.275	0.000		0.000		0.000		0.000		0.000	0.000	0.275	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	800.971	27.168		36.673		31.638		0.000		31.638			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 2208: *CVN 21*

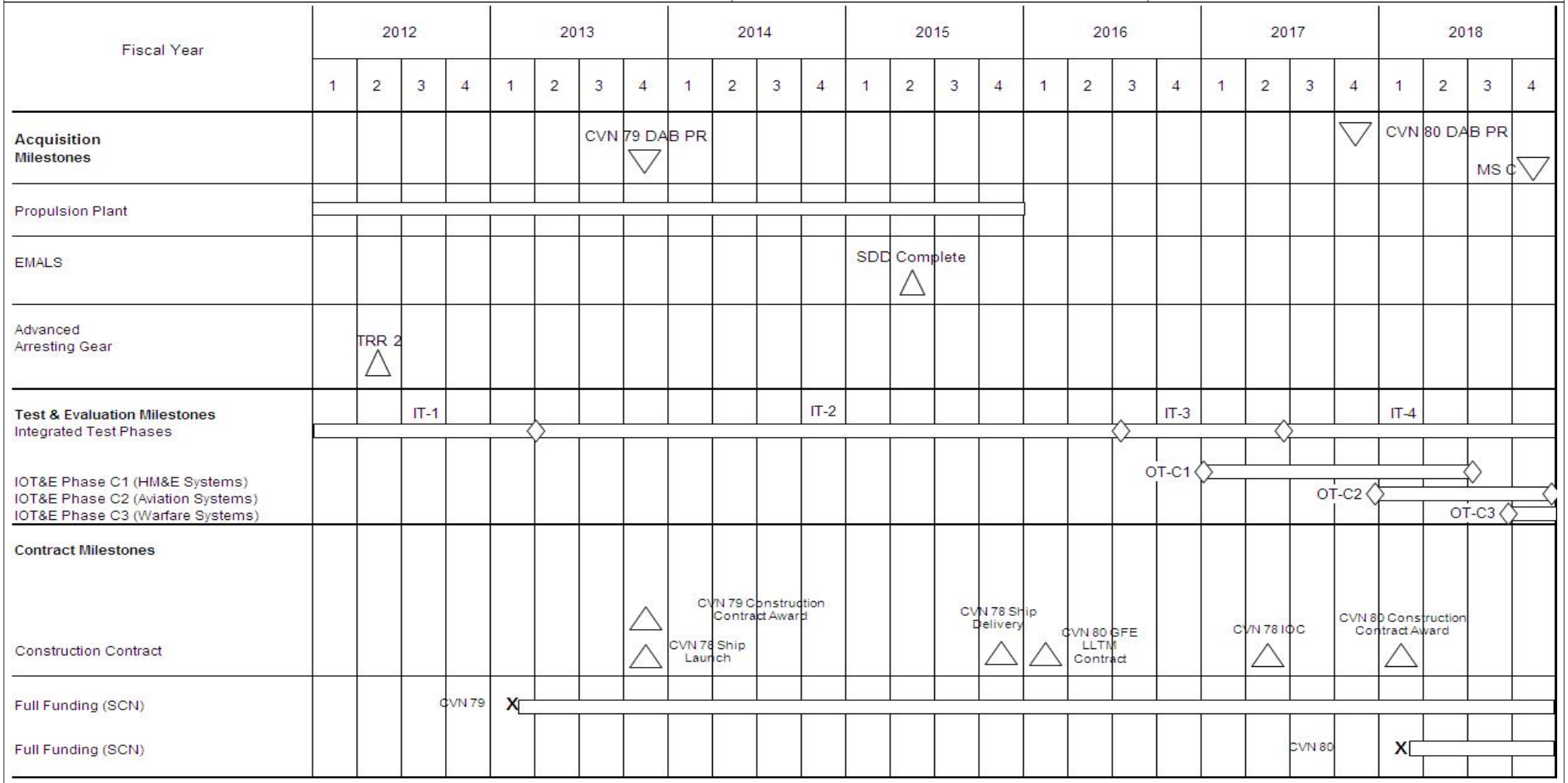


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 2208: *CVN 21*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2208				
CVN 79 DAB PR	4	2013	4	2013
CVN 80 DAB PR	4	2017	4	2017
Milestone C	4	2018	4	2018
Propulsion Plant	1	2012	4	2015
EMALS SDD Complete	2	2015	2	2015
AAG TRR 2 (IT)	2	2012	2	2012
Integrated Tests 1 (IT-1)	1	2012	1	2013
Integrated Tests 2 (IT-2)	1	2013	3	2016
Integrated Tests 3 (IT-3)	3	2016	2	2017
Integrated Tests 4 (IT-4)	2	2017	4	2018
Initial Operational Test & Evaluation - Phase 1 (OT-C1)	1	2017	3	2018
Initial Operational Test & Evaluation - Phase 2 (OT-C2)	4	2017	4	2018
Initial Operational Test & Evaluation - Phase C3 (OT-C3)	3	2018	4	2018
CVN 78 Ship Launch	4	2013	4	2013
CVN 78 Ship Delivery	4	2015	4	2015
CVN 78 Initial Operational Capability (IOC)	2	2017	2	2017
CVN 79 Construction Contract Award	4	2013	4	2013
CVN 80 GFE LLTM Contract Award	1	2016	1	2016
CVN 80 Construction Contract Award	1	2018	1	2018
CVN 79 SCN Full Funding	1	2013	4	2018
CVN 80 SCN Full Funding	1	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3216.: *Tactical Support Center-Integration*	14.338	2.060	9.600	4.546	-	4.546	4.660	4.724	4.831	4.901	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). Through the integration of off-board sensors with shipboard systems, including data processing and displays, the AN/SQQ-34 is utilized in detecting, classifying, and localizing threats. An integrated element of the Carrier Combat System, the AN/SQQ-34 supports the tactical deployment of embarked ASW and Surface Warfare (SUW) assets (SH-60F and MH-60R helicopters). This project provides the design, development and engineering foundation to refresh legacy AN/SQQ-34 systems on all Carriers and shore sites in support of Fleet introduction and shipboard integration of the MH-60R Multi-Mission Helicopter. Upgrades to legacy systems enable the exchange of sensor, tactical and imagery data with the MH-60R initially, followed by incremental upgrades to support CVN ASW improvements and air integration and efforts.

Additionally, this project will mature the development of low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems, and addresses the major cost drivers of planar arrays and their associated radios. This effort will be the first spiral of a major cost reduction effort for multi-beam arrays, with a goal of showing a path to a production cost of less than one third the cost of existing array technologies. This development will produce key integrated components needed to reduce the cost of arrays and will provide prototype multi-beam Ku-Band receiving and transmitting arrays/radios using these components. The effort will also emphasize advances in technologies associated with multi-path interference, scan angle losses and networking waveforms.
(Speed to Fleet) The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). A portion of this program will focus on maturing low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems that will be used to support data links to multiple MH-60Rs. This specific effort will address the need for low cost communications security (COMSEC) devices that are compatible with phased array systems, and that are needed to secure these data links.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: MH-60R Integration Development for CV-TSC	2.060	7.605	3.570
Articles:	0	0	0
FY 2012 Accomplishments:			
- Completed development of software version 7.0 to include new capabilities: additional MH-60R data exchange support, remote control of MH-60R shipboard data-link, automated acoustic analysis aids, improved Directional Command Active Sonobouy			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
System (DICASS) acoustic processing techniques, transition to Linux operating system, and coordinated replay of tactical and sensor data. - Completed interface testing with the MH-60R, Common Data Link System (CDLS), Ship Self-Defense System (SSDS), and Integrated Shipboard Network System (ISNS)/ Global Command and Control System (GCCS). - Completed notional definition of capabilities for software version 8.0. - Obtained Platform Information Technology (PIT) Platform Risk Assessment (PRA) for software version 8.0, providing authority to operate in shipboard environment. - Completed update of Navy Training System Plan (NTSP) and established new Navy Enlisted Classification (NEC) codes for operator and maintainer training of the new variants of the system. ***FY 2013 Plans:*** - Begin development on software version 8.0 to include: integration of Periscope Detection Radar (PDR) data, common Anti-Submarine Warfare (ASW) air control decision aids, sensor performance prediction tools for MH-60R acoustic sensors, required changes for interoperability with SSDS and CDL, transitioning Science and Technology (S&T) efforts for embedded training and automate sensor analysis aids. - Conduct incremental requirements, design, and test reviews. - Complete Technology Transition Agreement (TTA) between the Office of Naval Research (ONR), OPNAV N980C, and PEO IWS5 for low cost planar arrays to support multiple MH-60R datalinks. ***FY 2014 Plans:*** - Continue development on software version 8.0 to include: integration of PDR data, common ASW air control decision aids, sensor performance prediction tools for MH-60R acoustic sensors, required changes for interoperability with SSDS and CDL, transitioning S&T efforts for embedded training and automate sensor analysis aids. - Conduct incremental requirements, design, and test reviews. - Complete software and prepare for combat system certification testing. - Define capabilities definition and decompose requirements for software version 9.0.			
Title: Phased Array COMSEC ***Articles:*** ***Description:*** The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). A portion of this program will focus on maturing low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems that will be used to support data links to multiple MH-60Rs. This specific effort will address the need for low cost communications security (COMSEC) devices that are compatible with phased array systems, and that are needed to secure these data links.	0.000 0	1.995 0	0.976 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2013 Plans: - Develop low cost COMSEC suitable for use with phased array-based Ku-band data links to MH-60R. ***FY 2014 Plans:*** - Complete development of low cost COMSEC suitable for use with phased array-based Ku-band data links to MH-60R. - Initiate and complete testing and certification activities associated with COMSEC end units.			
Accomplishments/Planned Programs Subtotals	2.060	9.600	4.546

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/2176: *Undersea Support Equipment (CV-TSC/CDL portion)*	15.740	8.348	0.342		0.342	0.361	0.399	0.408	0.415	Continuing	Continuing

Remarks

D. Acquisition Strategy

The CV-TSC acquisition strategy utilizes an incremental development approach that aims to deliver required capability updates on two-year intervals to the fleet. This approach allows required capability to be delivered in a timely manner and provides frequent opportunities to ensure interoperability is synchronized with the Ship Self Defense System (SSDS) Advanced Capability Builds (ACBs). The acquisition strategy places heavy emphasis on the use of open architecture best practices to ensure ease of upgrades and make developed products available to other platforms.

In support of MH-60R, COMSEC development and certification will be conducted under the auspices of the Naval Center for High Assurance Computer Systems at the Naval Research Laboratory (NRL).

E. Performance Metrics

- Successfully complete Preliminary Design Review (PDR) and Critical Design Review (CDR) for MH-60R system upgrade.
- Successfully field system that supports integration of the MH-60R on the CVN.
- Utilize Commercial Off-The-Shelf (COTS) based Common Processor/Common Display Systems (CPS/CDS) to minimize Total Ownership Costs (TOC).

Successfully complete Certification requirements for COMSEC being developed.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering / H/W & S/W Devel / Integration	WR	NAWC/Pax River:MD	0.000	0.000		0.669	Apr 2013	0.359	Nov 2013	-		0.359	0.000	1.028	
Engineering / H/W & S/W Devel / Integration	WR	NRL:DC	0.000	0.000		0.500	Apr 2013	0.000		-		0.000	0.000	0.500	
Engineering / H/W & S/W Devel / Integration	WR	NSWC/ Carderock:MD	0.000	0.000		0.795	Dec 2012	0.000		-		0.000	0.000	0.795	
Engineering / H/W & S/W Devel / Integration	WR	NSWC/Dahlgren:VA	0.000	0.000		0.500	Apr 2013	0.000		-		0.000	0.000	0.500	
Engineering / H/W & S/W Devel / Integration	WR	NUWC/Keyport:WA	9.583	1.515	Dec 2011	3.090	Nov 2012	2.214	Nov 2013	-		2.214	Continuing	Continuing	Continuing
Engineering / H/W & S/W Devel / Integration	WR	NUWC/Newport:RI	0.000	0.000		0.266	Apr 2013	0.179	Nov 2013	-		0.179	0.000	0.445	
System Eng / S/W Development	C/CPFF	Adaptive Methods:VA	0.300	0.000		0.775	Feb 2013	0.538	Dec 2013	-		0.538	0.000	1.613	
System Eng / S/W Development	C/CPFF	JHU/APL:MD	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	
System Eng / S/W Development	WR	SPAWAR:CA	3.610	0.000		0.200	Nov 2012	0.000		-		0.000	0.000	3.810	
Engineering / H/W & S/W Development	C/CPFF	VAR*:VAR*	0.000	0.000		0.520	Apr 2013	0.000		-		0.000	0.000	0.520	
Advanced Design & Development	WR	NRL:DC	0.000	0.000		1.995	Nov 2012	0.000		-		0.000	0.000	1.995	
		Subtotal	13.743	1.515		9.310		3.290		0.000		3.290			

Remarks

Engineering/H/W & S/W Development/Integration

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Certification	WR	NUWC//Keyport:WA	0.500	0.470	Dec 2011	0.235	Nov 2012	0.225	Nov 2013	-		0.225	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Functional and Certification Testing	WR	NRL:DC	0.000	0.000		0.000		0.976	Oct 2013	-		0.976	0.000	0.976	
		Subtotal	0.500	0.470		0.235		1.201		0.000		1.201			

Remarks

Testing and Certification

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAE Systems:MD	0.095	0.075	Feb 2012	0.055	Apr 2013	0.055	Dec 2013	-		0.055	Continuing	Continuing	Continuing
		Subtotal	0.095	0.075		0.055		0.055		0.000		0.055			

Remarks

N/A

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	14.338	2.060		9.600		4.546		0.000		4.546			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 3216.: *Tactical Support Center-Integration*

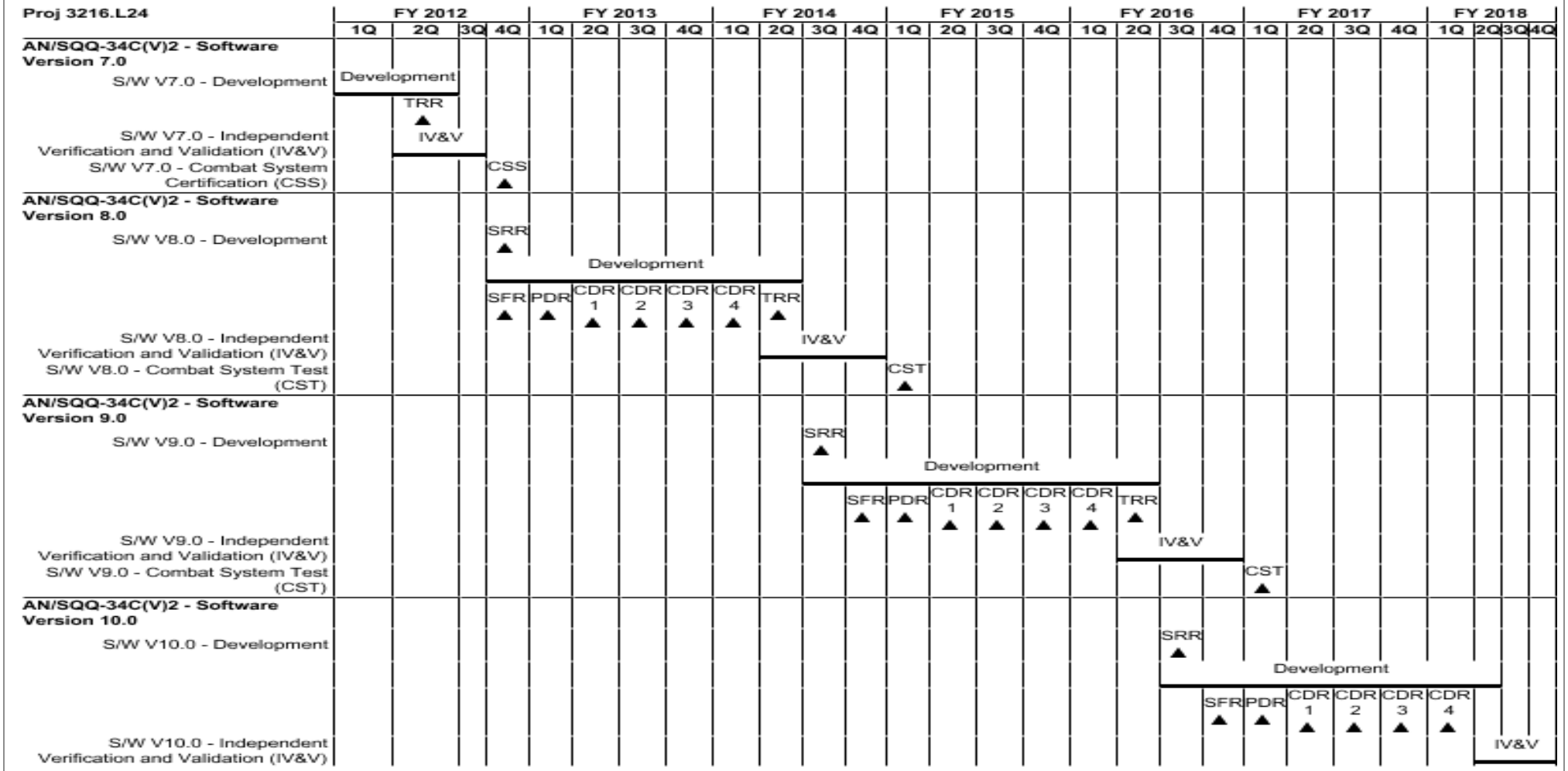
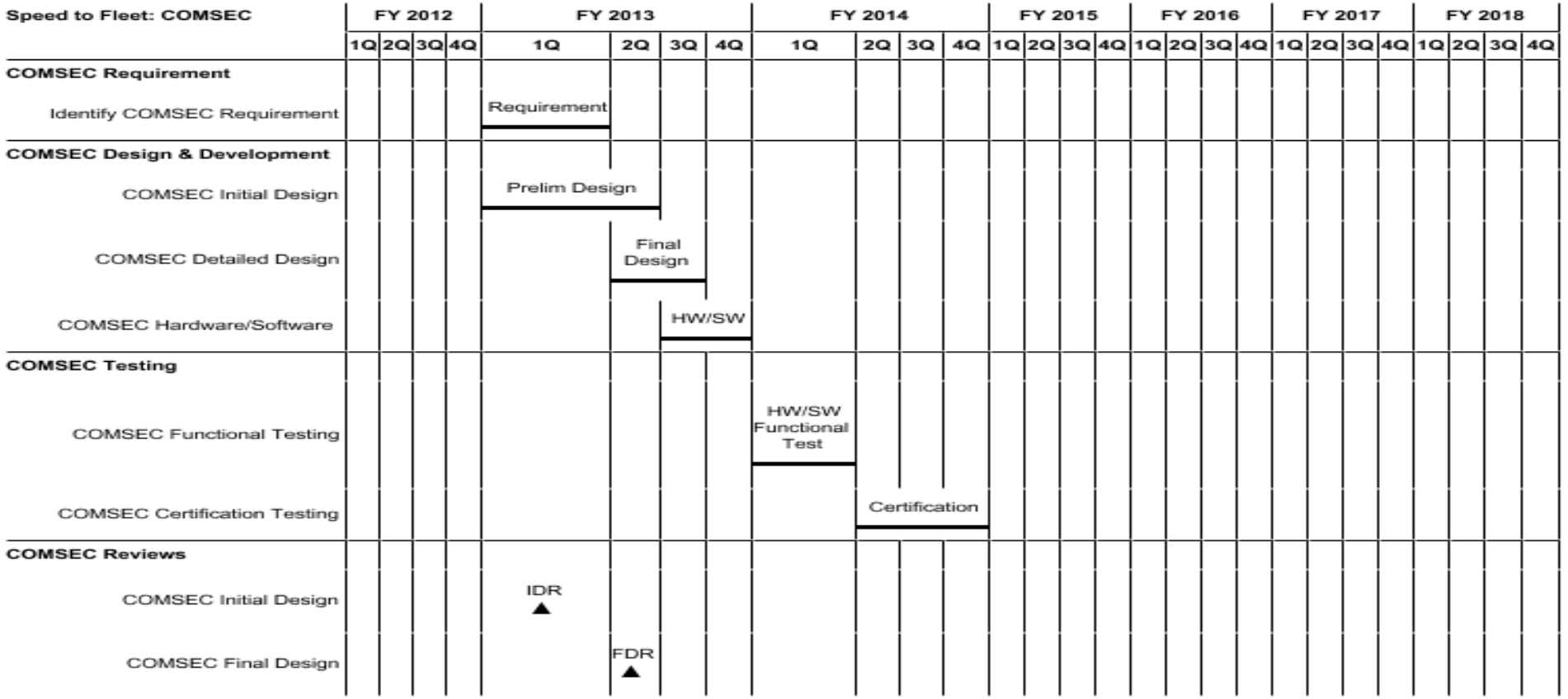


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 3216.: *Tactical Support Center-Integration*

2014PB - 0603512N - 3216.L24

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*



2014PB - 0603512N - 3216.S14

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 3216.: *Tactical Support Center-Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3216.L24				
AN/SQQ-34C(V)2 - Software Version 7.0: S/W V7.0 - Development: S/W V7.0 - Development	1	2012	2	2012
AN/SQQ-34C(V)2 - Software Version 7.0: S/W V7.0 - Development: S/W V7.0 - Test Readiness Review (TRR)	2	2012	2	2012
AN/SQQ-34C(V)2 - Software Version 7.0: S/W V7.0 - Independent Verification and Validation (IV&V): IV&V	2	2012	3	2012
AN/SQQ-34C(V)2 - Software Version 7.0: S/W V7.0 - Combat System Certification (CSS): CSS	4	2012	4	2012
AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - System Requirements Review (SRR)	4	2012	4	2012
AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Development	4	2012	2	2014
AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - System Functional Review (SFR)	4	2012	4	2012
AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Preliminary Design Review (PDR)	1	2013	1	2013
AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Critical Design Review (CDR) 1	2	2013	2	2013
AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Critical Design Review (CDR) 2	3	2013	3	2013
AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Critical Design Review (CDR) 3	4	2013	4	2013
AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Critical Design Review (CDR) 4	1	2014	1	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*

	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Test Readiness Review (TRR)	2	2014	2	2014
AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Independent Verification and Validation (IV&V): IV&V	2	2014	4	2014
AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Combat System Test (CST): CST	1	2015	1	2015
AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - System Requirements Review (SRR)	3	2014	3	2014
AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Development	3	2014	2	2016
AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - System Functional Review (SFR)	4	2014	4	2014
AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Preliminary Design Review (PDR)	1	2015	1	2015
AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Critical Design Review (CDR) 1	2	2015	2	2015
AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Critical Design Review (CDR) 2	3	2015	3	2015
AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Critical Design Review (CDR) 3	4	2015	4	2015
AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Critical Design Review (CDR) 4	1	2016	1	2016
AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Test Readiness Review (TRR)	2	2016	2	2016
AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Independent Verification and Validation (IV&V): IV&V	2	2016	4	2016
AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Combat System Test (CST): CST	1	2017	1	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - System Requirements Review (SRR)	3	2016	3	2016
AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Development	3	2016	2	2018
AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - System Functional Review (SFR)	4	2016	4	2016
AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Preliminary Design Review (PDR)	1	2017	1	2017
AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Critical Design Review (CDR) 1	2	2017	2	2017
AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Critical Design Review (CDR) 2	3	2017	3	2017
AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Critical Design Review (CDR) 3	4	2017	4	2017
AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Critical Design Review (CDR) 4	1	2018	1	2018
AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Independent Verification and Validation (IV&V): IV&V	2	2018	4	2018
Speed to Fleet: COMSEC				
COMSEC Requirement: Identify COMSEC Requirement: COMSEC Requirement	1	2013	1	2013
COMSEC Design & Development: COMSEC Initial Design: Preliminary Design	1	2013	2	2013
COMSEC Design & Development: COMSEC Detailed Design: Final Design	2	2013	3	2013
COMSEC Design & Development: COMSEC Hardware/Software: Hardware/Software Completion	3	2013	4	2013
COMSEC Testing: COMSEC Functional Testing: Hardware/Software Functional Testing	1	2014	1	2014
COMSEC Testing: COMSEC Certification Testing: Formal Certification Testing	2	2014	4	2014
COMSEC Reviews: COMSEC Initial Design: Initial Design Review	1	2013	1	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 3216.: *Tactical Support Center-Integration*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
COMSEC Reviews: COMSEC Final Design: Final Design Review	2	2013	2	2013

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4004: *EMALS*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
4004: *EMALS*	694.848	30.995	60.861	43.003	-	43.003	2.443	2.507	0.000	0.000	0.000	834.657
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project provides for the development of an advanced technology aircraft launch system in support of the CVN 78 design and construction schedule, as well as Engineering and Life Cycle System (E&LCS) design. The Electromagnetic Aircraft Launch System (EMALS) will be the aircraft catapult for CVN 78 Class ships. EMALS provides better control of applied forces, both peak and transient dynamic, improved reliability and maintainability, increased operational availability, and reduced operator and maintainer workload.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: EMALS	30.995	60.861	43.003
Articles:	0	0	0

Description: EMALS

FY 2012 Accomplishments:

(1) EMALS System Development and Demonstration (SDD) Phase - Transition to Test and Evaluation phase. Continued shipboard representative system development, testing and risk mitigation efforts including: 1) Highly Accelerated Life Testing (HALT) of trough components; 2) High Cycle Testing (HCT) of power equipment; 3) Full Scale Catapult System Functional Demonstration (SFD); 4) Aircraft Compatibility Testing (ACT) Phase I; 5) Site re-configuration to support further risk mitigation testing for shared Energy Storage Subsystem (ESS) and Shared Inverter Testing; 6) Electromagnetic Interference (EMI) tests; 7) Shock and Vibration of the EMALS Control and Instrumentation Unit, Cable Disconnect Unit and Large Capacity Deck Simulation Fixture; 8) Humidity, Harmonics and Thermal Performance Testing of the Transformer/Rectifier and General Environment Testing of various other EMALS components. Continued and completed EMALS Integrated Logistics Support (ILS) Development tasks under the SDD contract.

(2) EMALS ILS Development Order against the EMALS Basic Ordering Agreement (BOA) with General Atomics - Developed and released the Request for Proposal, conducted Technical and Cost Evaluations against contractor proposals, entered formal negotiations for a 4Q FY12 Award.

FY 2013 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4004: *EMALS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
EMALS SDD - Conduct and complete Shared ESS Testing, Shared Inverter Testing and ACT Phase 2 at the SFD site and perform shipboard risk mitigation testing prior to conducting multiple ESS motor generators feeding multiple launchers onboard ship. The shared Inverter testing will execute no load and deadload launches with Inverters in a shipboard master/two slave configuration vice the SFD master/one slave configuration that has already been demonstrated. Complete ACT Phase 2 requirements verification testing at SFD requiring aircraft launches as well as development of the aircraft launch bulletins for shipboard operations. Continue Environmental Qualification Testing of EMALS components including the completion of General Environment Tests and EMI Susceptibility Tests. (2) EMALS BOA ILS Order - Continue the execution of the EMALS ILS Development Program. Conduct annual Logistics Reviews, Training In Process Reviews (IPRs) and Organizational and Intermediate (O & I) Technical Manual IPRs. Develop or update Failure Mode Effectiveness and Criticality Analyses (FMECA), the Logistics Management Information (LMI) Database, Reliability-Centered Maintenance (RCM) Analyses, Calibration Analysis, Calibration/Measurements Requirements Summary / Instrument Calibration Procedures (CMRS/ICP), Manpower Analyses, O&I Maintenance Plans, Task Analyses/Narratives, Provisioning Documentation, Post Production Support Planning/ Diminishing Manufacturing Sources & Material Shortages (PPSP/ DMSMS) Screening and Analyses, and Support Equipment Identification and Technical Data. Continue to develop and complete O&I Level Interactive Electronic Technical Manuals for both the Operators and Maintainers. Continue to develop Training Documents and the Navy Formal Training Course. Develop the Maintenance Demonstration (M-Demo) Plan, Shipboard Facility Requirements Document (FRD) and the Training FRD. ***FY 2014 Plans:*** EMALS SDD - Conduct full system and risk mitigation testing at the SFD site by completing Repeated Cycles with Deadload Testing and Gap Variation Tests. Run multiple Cycles with Deadloads to bring the EMALS system up to 4000 deadload launches as part of the reliability growth Program. Perform Gap Variation Tests to simulate shipboard variations in the Launch Motor Subsystem gap at the SFD site as a shipboard risk mitigation. (2) EMALS BOA ILS Order - Continue the execution of the EMALS ILS Development Program. Conduct annual Logistics Reviews, Training IPR and O & I Level Technical Manual IPRs. Based on the development and availability of Engineering source data for each of the six EMALS subsystems and allocated resources, develop or update FMECAs, LMI Database, CMRS/ ICP, Manpower Analyses, O&I Maintenance Plans, Provisioning Documentation, PPSP/DMSMS Screening and Analyses, and Support Equipment Identification and Technical Data. Continue to develop Training Documents, the Navy Formal Training Course and conduct Pre-Commissioning Unit Training. Conduct the M-Demo at the SFD facility. Complete the Shipboard FRD and the Training FRD.			
Accomplishments/Planned Programs Subtotals	30.995	60.861	43.003

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4004: *EMALS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTEN/0604567N: *Project Units 3179, 4007*	20.325	13.862	15.572		15.572	20.365	21.315	22.885	20.140	Continuing	Continuing
• RDTEN/0603570N: *Propulsion Plant Development (PU 2692)*	65.808	62.020	57.499		57.499	56.693	0.000	0.000	0.000	0.000	1,526.874
• SCN/2001: *Carrier Replacement Program*	554.798	608.195	944.866		944.866	1,834.072	1,918.441	2,539.826	2,954.419	Continuing	Continuing
• SCN/5300: *Completion of Prior Year Shipbuilding Programs*	0.000	0.000	588.100		588.100	729.000	0.000	0.000	0.000	0.000	1,317.100

Remarks

D. Acquisition Strategy

The CVN 78 is 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 (EMALS), advanced arresting gear (AAG) 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 Highly Accelerated Life Test (HALT) Phase II. Successfully complete System Functional Demonstration (SFD) testing. Successfully complete Environmental Qualification Testing (EQT). Successfully complete Shipset Controls Lab testing.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4004: *EMALS*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Launch, Recovery & Support	C/CPAF	Northrop Grumman:VA	86.673	0.000		0.000		0.000		-		0.000	0.000	86.673	
Aircraft Launch, Recovery & Support	C/CPAF	General Atomics (PDRR):CA	82.719	0.000		0.000		0.000		-		0.000	0.000	82.719	
Aircraft Launch, Recovery & Support	C/CPAF	General Atomics (SDD):CA	390.728	16.698	Dec 2011	23.861	Dec 2012	22.203	Dec 2013	-		22.203	0.000	453.490	408.301
Aircraft Launch, Recovery & Support	C/CPFF	General Atomics (BOA):CA	0.000	4.000	Aug 2012	21.300	Nov 2012	15.000	Nov 2013	-		15.000	0.000	40.300	
Aircraft Launch, Recovery & Support	WR	NAWC Lakehurst:NJ	44.704	0.000		0.000		0.000		-		0.000	0.000	44.704	
Aircraft Launch, Recovery & Support	C/CPAF	HIINC:VA	3.126	0.000		0.000		0.000		-		0.000	0.000	3.126	
Aircraft Launch, Recovery & Support	C/CPAF	General Atomics (SDD) - Award Fee:CA	14.253	0.000		0.000		0.000		-		0.000	0.000	14.253	14.253
		Subtotal	622.203	20.698		45.161		37.203		0.000		37.203	0.000	725.265	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Launch, Recovery & Support	WR	NAWC Lakehurst:NJ	72.346	10.297	Dec 2011	15.700	Dec 2012	5.800	Dec 2013	-		5.800	0.000	104.143	
		Subtotal	72.346	10.297		15.700		5.800		0.000		5.800	0.000	104.143	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Defense Acquisition Workforce	Various	Not Specified:Not Specified	0.299	0.000		0.000		0.000		-		0.000	0.000	0.299	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4004: *EMALS*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.299	0.000		0.000		0.000		0.000		0.000	0.000	0.299	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	694.848	30.995		60.861		43.003		0.000		43.003	0.000	829.707	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 4004: *EMALS*

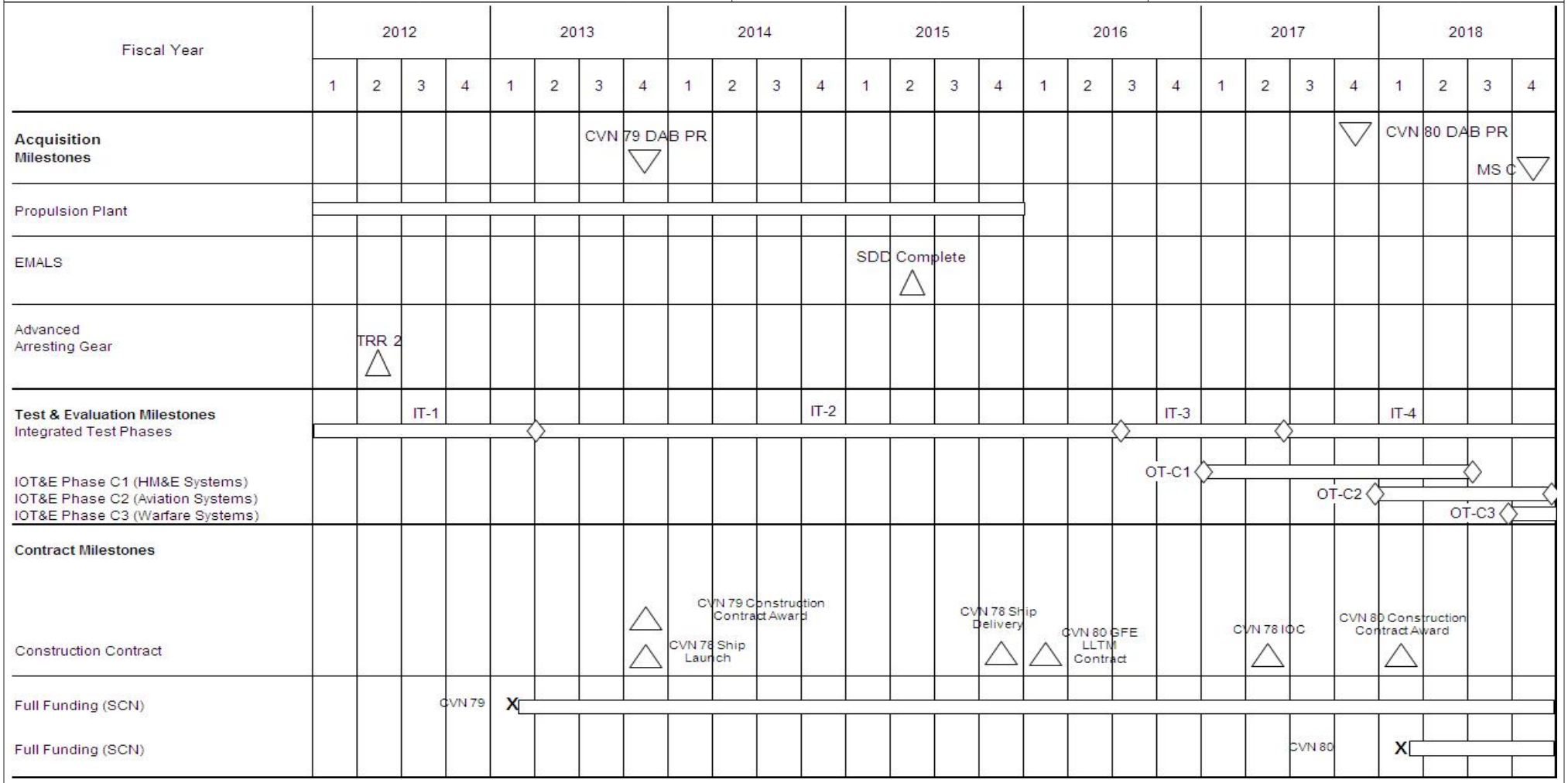


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 4004: *EMALS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4004				
CVN 79 DAB PR	4	2013	4	2013
CVN 80 DAB PR	4	2017	4	2017
Milestone C	4	2018	4	2018
Propulsion Plant	1	2012	4	2015
EMALS SDD Complete	2	2015	2	2015
AAG TRR 2 (IT)	2	2012	2	2012
Integrated Tests 1 (IT-1)	1	2012	1	2013
Integrated Tests 2 (IT-2)	1	2013	3	2016
Integrated Tests 3 (IT-3)	3	2016	2	2017
Integrated Tests 4 (IT-4)	2	2017	4	2018
Initial Operational Test & Evaluation - Phase 1 (OT-C1)	1	2017	3	2018
Initial Operational Test & Evaluation - Phase 2 (OT-C2)	4	2017	4	2018
Initial Operational Test & Evaluation - Phase 3 (OT-C3)	3	2018	4	2018
CVN 78 Ship Launch	4	2013	4	2013
CVN 78 Ship Delivery	4	2015	4	2015
CVN 78 Ship Initial Operational Capability (IOC)	2	2017	2	2017
CVN 79 Construction Contract Award	4	2013	4	2013
CVN 80 GFE LLTM Contract Award	1	2016	1	2016
CVN 80 Construction Contract Award	1	2018	1	2018
CVN 79 SCN Full Funding	1	2013	4	2018
CVN 80 SCN Full Funding	1	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
4005: *In-Service Carrier Systems Development*	15.833	1.686	1.737	4.715	-	4.715	4.795	2.817	1.863	1.887	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

A portion of this effort in FY 2014 ($3.0 million) is classified. Details are available at a higher classification level.

A. Mission Description and Budget Item Justification

The In-Service Carrier Systems Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs. Initial technologies include the Ship Control System Governor Software Development, Tank Preservation, Uninterruptible Power Supply (UPS) Replacements, Advanced Damage Control System (ADCS), Weapons Elevator Control Accumulator Replacement, and the Integrated Condition Assessment System. Demonstration technologies include Advanced Damage Control System (ADCS) software improvements, A/C Plant Model, Input/Output Controller (IOC) Replacement, Fleet Wireless Personal digital Assistant (PDA), Weapons Elevator Laser Positioning System, Legacy Steering Interface upgrades, CVN Integrated Topside Design (ITD) location option evaluation tools, Antenna to Antenna coupling analysis tools. Wireless systems, smart sensors, lighting systems, knowledge-based systems, automated casualty control, automated technology for workload reduction, linked smart devices, common software tools for interoperability, and self-healing network are technologies being considered for future applications including the following: Integrated Bridge control Data Logger, C4I Network Performance Modeling and Analysis, NCDS Packet Filtering Device, Network Data Logger Device, Portable Communication System (PCS) proof of concept, Ship Control System (SCS) Onboard trainer, Universal Portable Command and Control Unit (PCCU). Additionally there is a classified project starting in FY14.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: In-Service Carrier Systems Development	1.686	1.737	1.715
Articles:	0	0	0
FY 2012 Accomplishments: Continued support to technologies with modifications, upgrades and development of systems and software support of In-Service aircraft carrier modernization initiatives.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue support to technologies with modifications, upgrades and development of systems and software support of In-Service aircraft carrier modernization initiatives. ***FY 2014 Plans:*** Continue support to technologies with modifications, upgrades and development of systems and software support of In-Service aircraft carrier modernization initiatives.			
Title: Classified Effort	0.000	0.000	3.000
Articles:			0
FY 2014 Plans: N/A			
Accomplishments/Planned Programs Subtotals	1.686	1.737	4.715

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Investigate, demonstrate, and implement available technologies to deliver a robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment to reduce workload, manpower requirements, and Total Ownership Costs (TOC).

E. Performance Metrics

Successfully complete Ship Control System Governor Software Development, AC Plant Model Capacity Optimization, Uninterruptible Power Supply (UPS) Replacements, Advanced Damage Control System (ADCS) Software Improvements, Automatic Fire Sensing and Suppression System/Flooding and Casualty Control Software (AFSSS/FCCS) Software Development Test, Input/Output Controller (IOC) replacement demonstration, Tank Preservation models, Weapons Elevator Laser Positioning demonstration, Legacy Steering Interface Upgrades, CVN Integrated Topside Design (ITD) location option evaluation tool development, Antenna to Antenna coupling analysis tool development, Universal Portable Command and Control Unit (PCCU) development, Ship Control System (SCS) Trainer, Integrated Bridge Control Data Logger, Weapons Elevator Control Accumulator Replacement, and C4I Network Performance Requirements Modeling and Analysis.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Integration	WR	NAVSEA:Phil	1.112	0.115	Nov 2011	0.187	Nov 2012	0.245	Nov 2013	-		0.245	0.000	1.659	
Ship Integration	WR	NAVSEA:Dahlgren	0.060	0.090	Nov 2011	0.031	Nov 2012	0.000		-		0.000	0.000	0.181	
Classified effort	WR	Classified:Classified	0.000	0.000		0.000		1.500	Nov 2013	-		1.500	0.000	1.500	
		Subtotal	1.172	0.205		0.218		1.745		0.000		1.745	0.000	3.340	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	NAVSEA:Phil	6.616	0.240	Nov 2011	0.341	Nov 2012	0.413	Nov 2013	-		0.413	0.000	7.610	
Program Management Support	WR	NAVSEA:Phil	2.218	0.188	Nov 2011	0.221	Nov 2012	0.225	Nov 2013	-		0.225	0.000	2.852	
Training Development	WR	NAVSEA:Phil	0.652	0.093	Nov 2011	0.166	Nov 2012	0.174	Nov 2013	-		0.174	0.000	1.085	
Integrated Logistics Support	WR	NAVSEA:Phil	1.160	0.068	Nov 2011	0.102	Nov 2012	0.109	Nov 2013	-		0.109	0.000	1.439	
Software Development	WR	NAVSEA:Dahlgren	0.115	0.140	Nov 2011	0.068	Nov 2012	0.000		-		0.000	0.000	0.323	
Program Management Support	WR	NAVSEA:Dahlgren	0.150	0.120	Nov 2011	0.047	Nov 2012	0.000		-		0.000	0.000	0.317	
		Subtotal	10.911	0.849		0.945		0.921		0.000		0.921	0.000	13.626	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	SPAWAR:Atlantic	0.000	0.214	Dec 2011	0.200	Nov 2012	0.061	Nov 2013	-		0.061	0.000	0.475	
Classified effort	WR	Classified:Classified	0.000	0.000		0.000		1.500	Nov 2013	-		1.500	0.000	1.500	
Developmental Test & Evaluation	WR	NAVSEA:Phil	3.692	0.268	Nov 2011	0.343	Nov 2012	0.488	Nov 2013	-		0.488	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAVSEA:Dahlgren	0.050	0.150	Nov 2011	0.031	Nov 2012	0.000		-		0.000	0.000	0.231	
		Subtotal	3.742	0.632		0.574		2.049		0.000		2.049			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DAWF	Various	Various:Various	0.008	0.000		0.000		0.000		-		0.000	0.000	0.008	
		Subtotal	0.008	0.000		0.000		0.000		0.000		0.000	0.000	0.008	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.833	1.686		1.737		4.715		0.000		4.715			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*

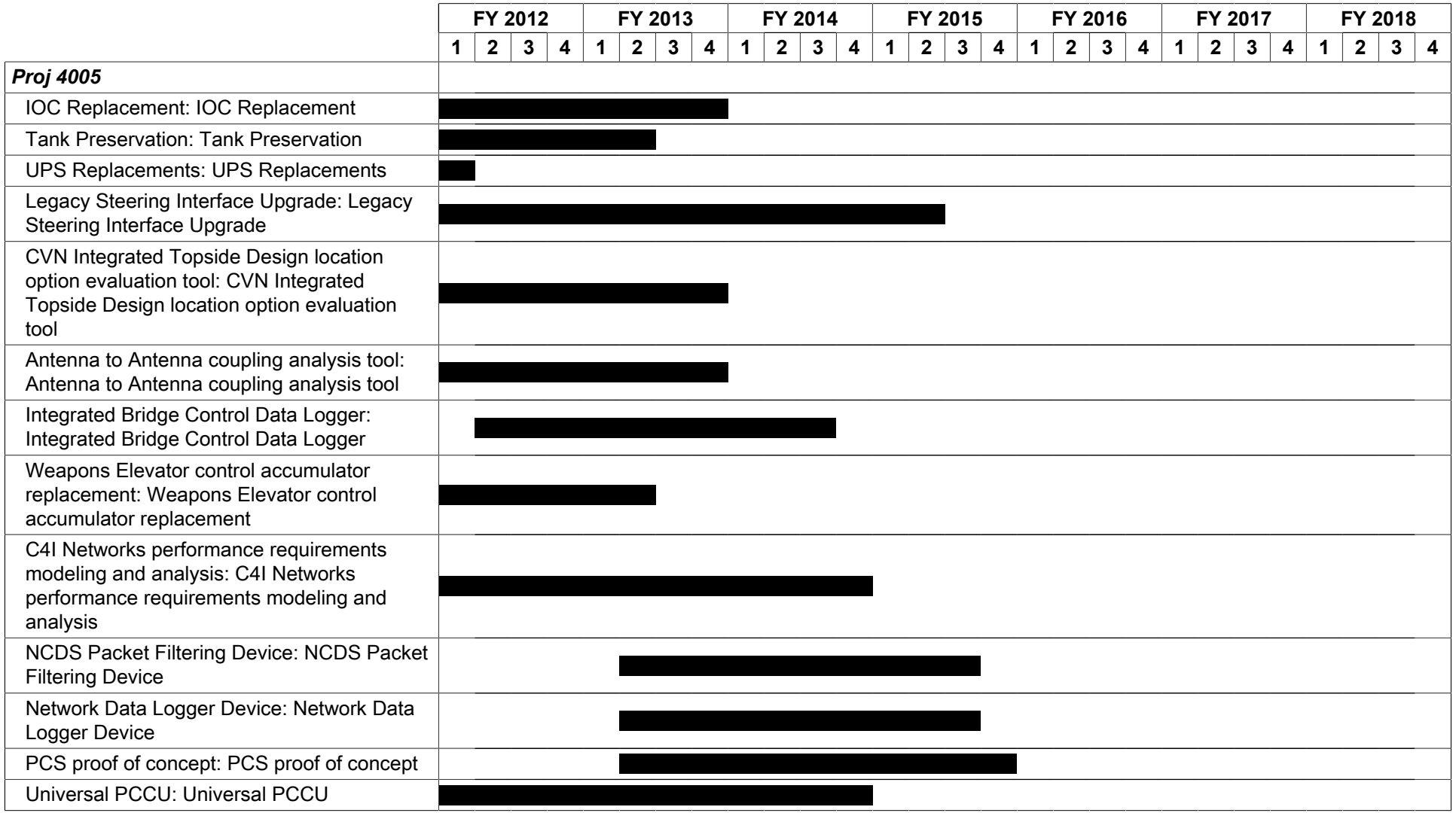


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*

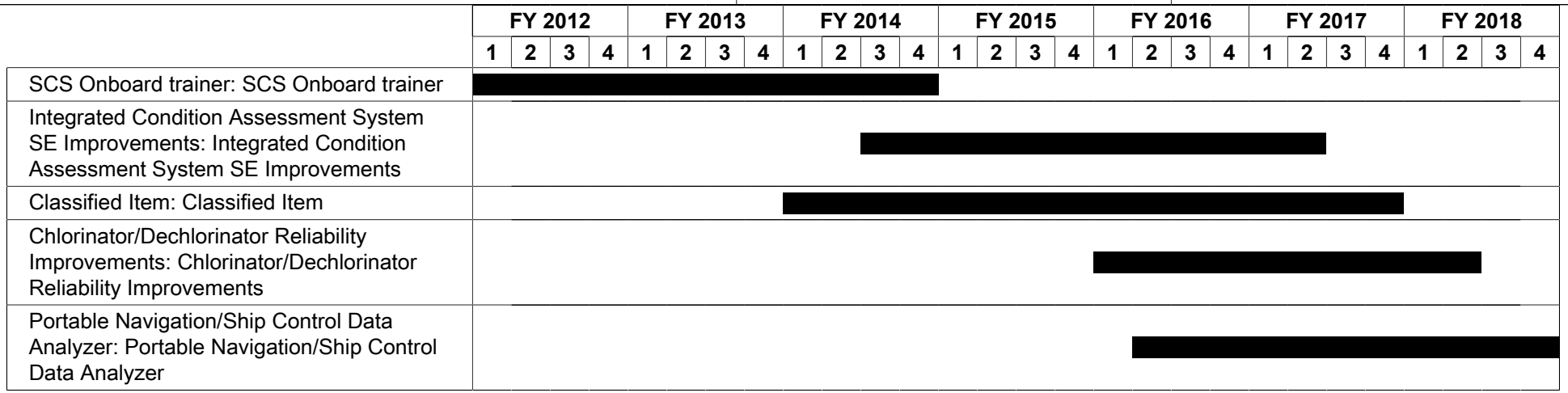


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603512N: *Carrier Systems Development*	**PROJECT** 4005: *In-Service Carrier Systems Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4005				
IOC Replacement: IOC Replacement	1	2012	4	2013
Tank Preservation: Tank Preservation	1	2012	2	2013
UPS Replacements: UPS Replacements	1	2012	1	2012
Legacy Steering Interface Upgrade: Legacy Steering Interface Upgrade	1	2012	2	2015
CVN Integrated Topside Design location option evaluation tool: CVN Integrated Topside Design location option evaluation tool	1	2012	4	2013
Antenna to Antenna coupling analysis tool: Antenna to Antenna coupling analysis tool	1	2012	4	2013
Integrated Bridge Control Data Logger: Integrated Bridge Control Data Logger	2	2012	3	2014
Weapons Elevator control accumulator replacement: Weapons Elevator control accumulator replacement	1	2012	2	2013
C4I Networks performance requirements modeling and analysis: C4I Networks performance requirements modeling and analysis	1	2012	4	2014
NCDS Packet Filtering Device: NCDS Packet Filtering Device	2	2013	3	2015
Network Data Logger Device: Network Data Logger Device	2	2013	3	2015
PCS proof of concept: PCS proof of concept	2	2013	4	2015
Universal PCCU: Universal PCCU	1	2012	4	2014
SCS Onboard trainer: SCS Onboard trainer	1	2012	4	2014
Integrated Condition Assessment System SE Improvements: Integrated Condition Assessment System SE Improvements	3	2014	2	2017
Classified Item: Classified Item	1	2014	4	2017
Chlorinator/Dechlorinator Reliability Improvements: Chlorinator/Dechlorinator Reliability Improvements	1	2016	2	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603512N: *Carrier Systems Development*	PROJECT 4005: *In-Service Carrier Systems Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Portable Navigation/Ship Control Data Analyzer: Portable Navigation/Ship Control Data Analyzer	2	2016	4	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603525N: *(U)PILOT FISH*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	98.052	101.169	108.713	-	108.713	86.264	79.210	84.757	85.554	Continuing	Continuing
0428: *Pilot Fish*	0.000	98.052	101.169	108.713	-	108.713	86.264	79.210	84.757	85.554	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	95.605	101.169	76.829	-	76.829
Current President's Budget	98.052	101.169	108.713	-	108.713
Total Adjustments	2.447	0.000	31.884	-	31.884
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	3.849	0.000			
• SBIR/STTR Transfer	-1.402	0.000			
• Program Adjustments	0.000	0.000	6.000	-	6.000
• Rate/Misc Adjustments	0.000	0.000	25.884	-	25.884

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603527N: *(U)RETRACT LARCH*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	80.180	74.312	9.316	-	9.316	34.368	29.477	24.893	25.341	Continuing	Continuing
2690: *Retract Larch*	0.000	80.180	74.312	9.316	-	9.316	34.368	29.477	24.893	25.341	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	73.421	74.312	24.316	-	24.316
Current President's Budget	80.180	74.312	9.316	-	9.316
Total Adjustments	6.759	0.000	-15.000	-	-15.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	8.397	0.000			
• SBIR/STTR Transfer	-1.638	0.000			
• Rate/Misc Adjustments	0.000	0.000	-15.000	-	-15.000

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603536N: *(U)RETRACT JUNIPER*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	120.904	90.730	77.108	-	77.108	68.303	65.012	63.175	64.429	Continuing	Continuing
4016: *Retract Sycamore*	0.000	120.904	90.730	77.108	-	77.108	68.303	65.012	63.175	64.429	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	130.153	90.730	98.240	-	98.240
Current President's Budget	120.904	90.730	77.108	-	77.108
Total Adjustments	-9.249	0.000	-21.132	-	-21.132
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-7.340	0.000			
• SBIR/STTR Transfer	-1.909	0.000			
• Program Adjustments	0.000	0.000	-16.710	-	-16.710
• Rate/Misc Adjustments	0.000	0.000	-4.422	-	-4.422

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	16.172	1.312	0.777	0.762	-	0.762	0.807	0.831	0.849	0.863	Continuing	Continuing
1830: *RADIAC Development*	16.172	1.312	0.777	0.762	-	0.762	0.807	0.831	0.849	0.863	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Mission Description: The Radiation Detection, Indication and Computation (RADIAC) Program is responsible for providing radiation monitoring instruments that detect and measure ionizing radiation. These instruments are used on all Navy, Coast Guard and Military Sealift Command vessels, and at every Navy shore installation, in order to ensure the safety of personnel, continuity of operations in radiological contingencies, and protection of the environment.

Justification: Title 10 of the Code of Federal Regulations, Part 20 (10CFR20) requires RADIAC instruments be used to ensure the safety of personnel who work with or are exposed to radioactive materials in their work. Additionally, the Navy's mission requires personnel and ships to have the ability to operate in radiological environments and the ability to identify and interdict radiological Weapons of Mass Destruction (WMD). Navy programs that require RADIAC instruments for Occupational Safety & Health (OSH) reasons under the provisions of 10CFR20 include Naval Nuclear Propulsion, Nuclear Weapons, Medical, and Radiological Affairs Support. Non-OSH programs include Radiological Defense, Consequence Management, Training, Technical (RADIAC calibration, shielding evaluation, research, etc.) and Radiological Search (maritime interdiction and radiological search missions to locate or intercept WMD).

This budget item develops new, highly reliable, more easily calibrated, easy to care and maintain, light weight and modern RADIAC instruments in order to improve the effectiveness of radiation safety, to make instruments simpler to use, and to reduce life cycle costs. The ultimate goal is to replace old, bulky, costly to maintain and repair, unreliable and obsolete instrumentation with multifunction equipment that can be automatically calibrated at greatly reduced cost.

This budget item also provides for improvement to nuclear weapons intrinsic radiation (gamma and neutron) shielding calculations, mixed field (neutron and gamma) dosimetry, and in neutron measurement. The objective is to develop less costly and more effective integral shielding for better personnel protection and safety. Improvement in personnel dosimetry and neutron measurement is also a major emphasis.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	1.338	0.777	0.799	-	0.799
Current President's Budget	1.312	0.777	0.762	-	0.762
Total Adjustments	-0.026	0.000	-0.037	-	-0.037
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.026	0.000			
• Program Adjustments	0.000	0.000	-0.028	-	-0.028
• Rate/Misc Adjustments	0.000	0.000	-0.009	-	-0.009

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*	PROJECT 1830: *RADIAC Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1830: *RADIAC Development*	16.172	1.312	0.777	0.762	-	0.762	0.807	0.831	0.849	0.863	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Mission: The Radiation Detection, Indication and Computation (RADIAC) Program is responsible for providing radiation monitoring instruments that detect and measure radiation in accordance with the provisions of Title 10 of the Code of Federal Regulations (10CFR). These instruments are used on all vessels afloat and at every shore installation in order to ensure the safety of personnel and the environment. RADIACs are also required after an act of terrorism or war that involves nuclear material in order to enable continuing warfighting ability.

Justification: Many RADIAC instruments and dosimetry systems are decades old and approaching the end of their useful lives. In some cases the equipment and replacement parts are no longer manufactured, making the equipment logistically unsupportable. In other cases increasing failure rates due to age make replacements an economic efficiency
improvement. In all cases a technology refresh will make both economic sense and provide increased operational capabilities.
Naval Nuclear Propulsion Program (NNPP): Instruments are developed to support the safe operation and maintenance of nuclear powered vessels and at nuclear maintenance facilities.
Non-NNPP: Instruments are developed to support other than NNPP end users, such as Explosive Ordnance Disposal, Weapons, Medical, Industrial Radiography and Training.
Visit, Board, Search & Seizure (VBSS): The Navy has been tasked to intercept and board vessels at sea to search for nuclear or radiological materials that could be used for terrorist attacks. These instruments would have different characteristics than those used for NNPP and non-NNPP purposes and prototypes must be developed and/or tested and evaluated.
The AN/PDR-65 Ship Board Monitoring System is obsolete and will be replaced. The IM-239/WDQ Air Particle Detector (APD) and the HD-732, HD-1150 and HD-1151 Air Particle Samplers (APS) are obsolete and will be replaced.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Next Generation Air Particle Detector	0.666	0.000	0.000
Articles:	0		
Description: The IM-239/WDQ Air Particle Detector (APD) is a 400-pound piece of installed equipment on nuclear powered ships and submarines that monitors emissions into the air from the ships' nuclear power plants. The current version is approximately 30 years old and despite component upgrades, has reached the end of its useful life due to parts and technological obsolescence.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*	PROJECT 1830: *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Naval Reactors requires a new version for the nuclear fleet. To develop the new IM-272/WDQ the RADIAC Program is working with the pre-eminent facility in the U.S. for sampling air for radioactivity, the DoE Remote Sensing Laboratory at Nellis AFB, NV. ***FY 2012 Accomplishments:*** Selected the winning prototype and prepared final specifications prior to production.			
Title: Radiological Affairs Support Program Survey Meter ***Articles:*** ***Description:*** The Radiological Affairs Support Program (RASP) survey meter is obsolete and must be replaced. ***FY 2012 Accomplishments:*** Tested and evaluated RASP survey meter. Issued final report and recommendation.	0.079 0	0.000	0.000
Title: Electronic Personal Dosimeter Telemetry ***Articles:*** ***Description:*** Naval Reactors has requested the study of adding capabilities to the Electronic Personal Dosimeter (EPD). Besides its basic functionality for recording dose exposure, this instrument also has the ability to remotely monitor and report the radiation exposure of on-scene emergency responders. This feature has not been implemented in the Navy EPDs that were recently procured and fielded, but the USAF already makes extensive use of the same EPD, along with the extra hardware and software required for the purpose of keeping track of responders in emergencies in terms both of their accumulated exposure and precise location while working inside the boundaries of a radiological scene. A second application of the EPD telemetry capability is for radiological work. This would include workers wearing EPDs during high radiation level work, and EPDs being posted at locations where radiation level measurements are required in high radiation background areas. Posting of EPDs in such a situation would preclude having a technician enter the danger area with a survey meter to measure the radiation level. An example would be monitoring the radiation level of the pipe through which primary plant resin is being discharged from the ship. Exploitation of the full potential of this COTS item will maximize the Navy's return on this hardware investment. ***FY 2012 Accomplishments:*** Issued final report and recommendations.	0.066 0	0.000	0.000
Title: Optically Stimulated Luminescence ***Articles:***	0.072 0	0.069 0	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*	PROJECT 1830: *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Description: The need for dosimetry is a very significant consequence of working with or around ionizing radiation. The expensive infrastructure and investments by the Navy in its dosimetry program is evidence of the importance attributed by the Navy to the health and safety of the Navy's military and civilian personnel, and that of the general public. As new and improved technologies appear, it is important to evaluate them for their potential to improve performance while reducing total operating costs. Optically Stimulated Luminescence (OSL) is a relatively new technology where the benefits appear to be significant but have yet to be fully evaluated. This project's objective is to make modest investments with the labor of a Navy Health Physicist to explore, in collaboration with a U.S. Army colleague interested in the same technology for Army use, the potential of the joint military application for OSL dosimetry. ***FY 2012 Accomplishments:*** Researched dosimetric properties of OSL material for suitability as a Navy dosimeter. ***FY 2013 Plans:*** Research dosimetric properties of OSL material for suitability as a Navy dosimeter.			
Title: Radiological Shipboard Defense Monitor	0.052	0.067	0.044
Articles:	0	0	0
Description: All surface combatants require an instrument to detect and measure radiological activity in the event of a nuclear detonation in order for the ship to avoid the radiological danger and continue its mission. The AN/PDR-65, at over 40 years of age, was the instrument used for this purpose, but it is obsolete and has been de-fielded. An interim replacement has been fielded while OPNAV finalizes updating the Cold War requirements under which the AN/PDR-65 was designed in order to include radiological (terrorist dirty bomb) threats. The interim replacement is the IM-265 Survey Meter, which is already in the Navy inventory, but it was not designed for this requirement and cannot measure radiation external to the ship and is therefore not suitable as the permanent replacement. In light of Operation Tomodachi this requirement has taken on more significance. ***FY 2012 Accomplishments:*** Begin studying and analyzing replacement equipment and possibility of integration of a shipboard radiological warning system with a chemical and biological warning system called JWARNS. ***FY 2013 Plans:*** Finalize specification development for follow-on procurement. ***FY 2014 Plans:*** Continue working with Navy end users to develop technical specification.			
Title: Visit, Board, Search & Seizure	0.087	0.112	0.049

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*	PROJECT 1830: *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	8	4	0
Description: The Visit, Board, Search & Seizure (VBSS) mission of the Navy includes the requirement to be able to board ships and be able to detect and identify potential radiological or nuclear Weapons of Mass Destruction (WMD). Such a sensitive mission requires leading edge technology and capabilities to ensure success. The AN/PDX-1 RADIAC Set was fielded in response to a Joint Urgent Operational Needs Statement to meet this requirement. It contains several instruments that serve different purposes, including the search detector, isotope identifier, and personal dosimeter. Current technology dictates that the sensitivity of the detector is directly proportional to the size of the detector element; i.e., the larger the detector, the more sensitive and capable it is. However, in VBSS there must be a tradeoff between size/weight and capability, since it is difficult and hazardous for boarding parties to carry a backpack-sized detector, along with their weapons and other gear, up a rope ladder to board a vessel on the high seas. This will be a continuing and growing effort to find smaller, lighter instruments with enhanced sensitivity, reach-back capability, and other enhancements to provide the Navy the best and most cost effective equipment possible for this critical mission. ***FY 2012 Accomplishments:*** Procured Radiological Search and Dosimetry articles for evaluation. ***FY 2013 Plans:*** Procure Isotope Identifier articles for evaluation, issue report on testing to date. ***FY 2014 Plans:*** Continue testing of previously purchased units.			
Title: Naval Nuclear Propulsion Program Survey Meter	0.023	0.035	0.077
Articles:	0	0	0
Description: A survey meter for the Naval Nuclear Propulsion Program (NNPP) must meet military specifications for shipboard use, to include high tolerances for exposure to characteristics such as shock, temperature, humidity and sea water. COTS survey meters, which in most cases might be adequate in the mentioned environmental regards for shore-based requirements, cannot meet military requirements. COTS equipment is evaluated for compliance with technical specifications, and for potential hardening for shipboard use. ***FY 2012 Accomplishments:*** Tested and evaluated commercial prototypes for suitability for Navy use. ***FY 2013 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*	PROJECT 1830: *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Test and evaluate commercial prototypes for suitability for Navy use, begin surveying manufacturers regarding options. ***FY 2014 Plans:*** Continue testing previously purchased units. Provide product demonstrations to end users and capture feedback.			
Title: Naval Academy Midshipman Summer Internship ***Articles:*** ***Description:*** Every summer a Midshipman is selected to conduct laboratory studies in support of the Naval Dosimetry System to research various responses and issues with thermoluminescent dosimetry. Funds pay for materials. ***FY 2012 Accomplishments:*** Accomplished study assigned by Naval Academy instructor. Presented paper to American Health Physics Society on FY11 findings. ***FY 2013 Plans:*** Accomplish study assigned by Naval Academy instructor. ***FY 2014 Plans:*** Accomplish study assigned by Naval Academy instructor.	0.015 0	0.015 0	0.015 0
Title: Neutron Electronic Personal Dosimeter ***Articles:*** ***Description:*** A neutron EPD will show real-time neutron accumulated doses in accelerator facilities producing high neutron yields. Currently, the DT-702 dosimeter is worn, but it must be processed at an off-site facility to obtain a dose report, which are not available for several weeks after exposure. With increased demand of accelerator facility use, the lag time between dose receipt and dose report poses increased risk to personnel safety. ***FY 2012 Accomplishments:*** Evaluated COTS examples for neutron detection characteristics and suitability for use alongside the Navy's new Neutron Area Monitor.	0.038 0	0.000	0.000
Title: Calibrators ***Articles:*** ***Description:*** Calibrators are the basic tool used to calibrate all Navy radiological detection equipment. Essentially they consist of a high energy radiological source (Cs-137) in a shielded container that is located in a specially constructed room, or "range." A technician places the instrument to be calibrated at a specific calibration point in the range and remotely operates the calibrator	0.043 0	0.165 0	0.067 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*	PROJECT 1830: *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
by raising the source out of its container so that it irradiates the object instrument. The instrument's response to the radiation is measured so that it can be calibrated to specific tolerances. The current suite of AN/UDM-1B calibrators is over 20 years old and the natural decay of the strength of the radioactive source over time restricts calibration effectiveness by limiting the scale of calibration points below American National Standards Institute (ANSI) requirements that are followed in accordance with Navy policy. Also due to the age of the calibrators, there are several parts no longer supported by the manufacturer, and a malfunctioning calibrator poses a very high safety risk. COTS equipment will be surveyed to find the best solution with which to equip the Navy's seven RADIAC Calibration Laboratories with modern calibrators. ***FY 2012 Accomplishments:*** Studied state of the art COTS calibrators for suitability. ***FY 2013 Plans:*** Study state of the art COTS calibrators for suitability. ***FY 2014 Plans:*** Compare performance of Hopewell GC-60 irradiator with J.L. Shepherd irradiator. Evaluate results for possible replacement of current complement of aging Navy irradiators. A report will be generated that details results and recommendations.			
Title: Neutron Area Monitor	0.029	0.049	0.000
Articles:	0	0	
Description: Several facilities throughout the Navy, particularly accelerator facilities, produce significant neutron radiation fields. Having a monitor to provide instant readings on the neutron level provides data on high dose procedures and experiments. The current system requires environmental dosimeters to be used and sent out for processing, taking weeks to obtain results. Waiting on dosimeter results may cause excessive exposures to individuals because safe radiological boundaries may not be maintained where the radiation level is not known. ***FY 2012 Accomplishments:*** Surveyed affected facilities to determine specific neutron monitoring requirements. Developed specification and obtain concurrence from technical sponsors. ***FY 2013 Plans:*** Issue report with findings and recommendations, and determination of a need for First Articles.			
Title: Casualty Dosimeter	0.075	0.073	0.000
Articles:	0	40	

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*	PROJECT 1830: *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Description: A Casualty Dosimeter is issued to every individual under certain operational conditions. The dosimeter is used for triage of casualties from a radiological event. The current IM-270's useful life will expire in 2016 so a replacement must be found. ***FY 2012 Accomplishments:*** Studied alternatives, to include leveraging Army and Marine systems for Navy use. Collaborated with BUMED to develop specification. ***FY 2013 Plans:*** Issue report on test results, finalize specification for follow-on procurement.			
Title: Air Particle Sampler ***Articles:*** ***Description:*** Portable Air Particle Samplers (APS) are used to sample for airborne radioactivity on board nuclear powered ships and in nuclear ship maintenance facilities in confined work areas where the installed Air Particle Detectors (IM-239/WDQ) are ineffective. The current HD-732 (AC powered) and HD-1151 (DC powered) are obsolete and will shortly be unsupportable. COTS equipment will be evaluated to replace the two current models, to include the feasibility of finding an AC/DC unit that would simplify logistical support by combining the two units into one. ***FY 2012 Accomplishments:*** Procured COTS models for evaluation to determine if they meet Navy requirements. ***FY 2013 Plans:*** Issue report on prototype evaluation; finalize specification for follow-on procurement.	0.067 3	0.048 0	0.000
Title: Telescoping Rate Meter ***Articles:*** ***Description:*** Telescoping rate meters play a vital role in the practice of radiation safety in the Naval Nuclear Propulsion Program. The detector is attached to the end of an extendable, telescoping pole, thus allowing the operator to maintain a safe distance for high exposure areas. This allows the Navy to comply with federal regulations that radioactive doses received by operators are As Low As Reasonably Achievable (ALARA). ***FY 2013 Plans:*** Develop specification by collaborating with technical sponsor and collecting end user input. ***FY 2014 Plans:***	0.000	0.046 0	0.054 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*	PROJECT 1830: *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Begin follow-on procurement specification development using results from testing and feedback received during product demonstrations.			
Title: Neutron Detector ***Articles:*** ***Description:*** Several commands use non-destructive interrogation techniques when searching cargo containers. These techniques expose the container to a 14 MeV neutron generator and analyze the reflected data. These end users require a portable neutron detector capable of accurately measuring the neutrons produced by the interrogation in order to monitor the work area to ensure dose limits are not exceeded. This work may also prove to be a suitable technology that would also enable replacement of the aging AN/PDR-70 Neutron Survey Meter. ***FY 2013 Plans:*** Procure, test and evaluate vendor prototypes. ***FY 2014 Plans:*** Purchase three units designed to meet AN/PDR-70 neutron survey meter requirements and perform radiological testing at NSWCCD and other agencies as needed. Issue technical summary detailing the results.	0.000	0.098 3	0.122 3
Title: Primary Dosimetry ***Articles:*** ***Description:*** The need for primary dosimetry is inherent due to the Navy's operation of nuclear reactors and their emission of ionizing radiation. Title 10 of the Code of Federal Regulations, Part 20.1502, states "Each licensee shall monitor exposures to radiation and radioactive material at levels sufficient to demonstrate compliance with the occupational dose limits." A primary dosimeter must pass accreditation proficiency testing, allowing the reading obtained to become a part of an individual's permanent health record. This permanent record is used to protect the individual radiation worker's health, and the Navy from future liability. The Navy's current primary device is the DT-702, a Thermo Luminescence Dosimeter (TLD). Existing TLD and newer technologies (e.g., Optically Stimulated Luminescence, or OSL) must be continually researched to determine on-going performance parameters, cost to field and cost to maintain. ***FY 2014 Plans:*** Initiate testing on new primary dosimetric devices and stay current on the latest dosimetry standards.	0.000	0.000	0.075 0
Title: Secondary Dosimetry ***Articles:***	0.000	0.000	0.159 10

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*	PROJECT 1830: *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Description: A secondary dosimeter provides an accurate, real-time readout of the radiation exposure being obtained in operational environments, and is utilized in conjunction with a primary dosimeter. The primary dosimeter does not provide real-time exposure information, so the secondary dosimeter is worn for that purpose. The Navy's secondary dosimeter is the Mk2 Electronic Personal Dosimeter (EPD). Evaluation of the current detector must be accomplished to establish a militarized environmental capability. Also, research is required to find a secondary dosimeter that can measure the type of radiation encountered with pulsed X-ray machines, and to see if this new capability can be incorporated into one device such as the existing Mk2. ***FY 2014 Plans:*** Initiate testing on secondary dosimetric devices capable of responding to pulsed X-ray radiation.			
Title: Tritium Monitor ***Articles:*** ***Description:*** The AN/PDR-73 Tritium Monitor is used at nuclear weapons storage facilities and research laboratories to sample the air for the presence of Tritium. The current instrument is 30 years old and cannot be repaired due to obsolete components. At the current loss rate due to normal wear and tear there will be insufficient assets to meet operational requirements, so a replacement must be found. ***FY 2014 Plans:*** Purchase six COTS examples from multiple vendors. Provide units to end users for field testing and evaluation.	0.000	0.000	0.100 6
Accomplishments/Planned Programs Subtotals	1.312	0.777	0.762

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN 2920: *RADIAC*	6.201	8.083	9.842		9.842	10.285	9.553	8.296	8.443	Continuing	Continuing

Remarks

D. Acquisition Strategy

Development efforts are focused on evaluation, modification (as required to meet operational requirements) and adaptation of commercial-off-the-shelf (COTS) technology in order to minimize total ownership costs. To the maximum extent possible new contracts are targeted for fixed price efforts to control development cost.

E. Performance Metrics

Program Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*	PROJECT 1830: *RADIAC Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NSWCCD:West Bethesda, MD	12.241	0.599	Oct 2012	0.033	Nov 2012	0.000		-		0.000	0.000	12.873	
		Subtotal	12.241	0.599		0.033		0.000		0.000		0.000	0.000	12.873	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	U.S. Naval Academy:Annapolis, MD	0.045	0.015	Mar 2012	0.015	Mar 2013	0.015	Mar 2014	-		0.015	Continuing	Continuing	Continuing
		Subtotal	0.045	0.015		0.015		0.015		0.000		0.015			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	NSWCCD:West Bethesda, MD	1.052	0.428	Nov 2011	0.479	Nov 2012	0.677	Apr 2014	-		0.677	Continuing	Continuing	Continuing
		Subtotal	1.052	0.428		0.479		0.677		0.000		0.677			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	C/FFP	Orbis, Inc.:Charleston, SC	2.834	0.270	Feb 2012	0.250	Feb 2013	0.070	Feb 2014	-		0.070	Continuing	Continuing	Continuing
		Subtotal	2.834	0.270		0.250		0.070		0.000		0.070			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603542N: *Radiological Control*	PROJECT 1830: *RADIAC Development*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	16.172	1.312		0.777		0.762		0.000		0.762			

Remarks

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	143.458	38.943	6.704	2.349	-	2.349	1.094	1.141	1.163	1.183	Continuing	Continuing
1704.: *Undersea Warfare*	143.458	38.943	6.704	2.349	-	2.349	1.094	1.141	1.163	1.183	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Anti-Submarine Warfare (ASW) Advanced Development project provides advanced development demonstration and validation of technology for potential surface sonar and combat system applications. Program Element (PE) 0603553N has been designated to support emerging multi-static technologies, and the Chief of Naval Operations' (CNO) ASW Initiative. For FY09 and prior, efforts focused on resolution of technical issues associated with providing capability against the FY09 and beyond threat, with emphasis on shallow water/littoral areas, deep water Undersea Warfare (USW), and demonstration and validation of USW concepts and technology. Key technology areas included active sonar transmissions; advanced signal and data processing; active sonar classification; towed and hull arrays; transducer technology; and periscope detection techniques. Starting in FY07, the CNO's ASW Initiative (formerly known as Task Force ASW) included the development of new and innovative technologies. Efforts associated with these technologies include design, development, integration, and testing of future undersea superiority systems. These systems include distributed sensor systems; Vertical Line Array (VLA); static active buoy fields; submarine countermeasures; compact rapid-effect weapons; longer-range radio systems; multi-static sonar; Continuous Active Sonar (CAS) and Variable Depth Sonar (VDS); and multi-sensor data fusion, including multi-platform data fusion and net-centric USW concepts. An Office of the Chief of Naval Operations (OPNAV) letter of direction limits the scope of this project, beginning in FY10, to the development of CAS/VDS and the continuation of studies in support of the ASW Initiative.

B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	29.787	6.704	5.696	-	5.696
Current President's Budget	38.943	6.704	2.349	-	2.349
Total Adjustments	9.156	0.000	-3.347	-	-3.347
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	9.896	0.000			
• SBIR/STTR Transfer	-0.740	0.000			
• Program Adjustments	0.000	0.000	-0.007	-	-0.007
• Rate/Misc Adjustments	0.000	0.000	-3.340	-	-3.340

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603553N: *Surface ASW*

Change Summary Explanation

FY12 includes $11.0M from the 2012 DoD Omnibus Above Threshold Reprogramming for 'ASW/ISR Capability' as well as a ($1.1M) Below Threshold Reprogramming to support early deployment of the Littoral Combat Ship.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1704.: *Undersea Warfare*	143.458	38.943	6.704	2.349	-	2.349	1.094	1.141	1.163	1.183	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The CNO's ASW initiative is a focused effort to identify the most promising ASW technologies through a process of discovery, assessment, experimentation, and analysis. The CNO's ASW initiative will coordinate the development of technologies which move beyond incremental or marginal improvements in ASW effectiveness. The CNO's vision of "fundamentally changing the way ASW is currently conducted to render the enemy submarine irrelevant against US and coalition forces" necessitates a change in the calculus of how the US Navy conducts ASW. Central to the CNO's ASW initiatives achieving the CNO's vision are several innovative approaches which include using the art-of-the-technologically-possible; minimizing force-on-force; reducing the ASW end-to-end time line; supporting rapid maneuver; developing off-board and distributed ASW detection systems; and finding innovative weapons solutions. To achieve these key approaches, it is essential to develop new ASW technologies and conduct at-sea experiments to prove/disprove technology concepts and collect corroborating data. An OPNAV letter of direction limits the scope of this project, beginning in FY10, to the development of CAS/VDS and the continuation of studies in support of the ASW Initiative.

The CAS/VDS sonar is intended, at a minimum, to support ASW escort missions for the Littoral Combat Ship (LCS). The system shall be developed as an effective and affordable LCS deep water, wide area, and active sonar search capability in the form of a VDS for inclusion as part of the ASW Mission Module. The program shall target LCS-2 as the test platform. Efforts shall include development of a Launch and Retrieval system designed to survive high tow speeds, provide a high sweep rate capability and large stand-off detection ranges and should outperform current systems under all conditions. Components should leverage existing systems such as the Multi-Function Towed Array (MFTA) to limit costs and reduce risk of early efforts. Efforts will also include the conduct of studies to validate performance goals and design options and should leverage the UK 2087 VDS test program to the maximum practical extent. The technology development timeline should be aligned to provide an introduction of the technology through the Advanced Capability Build (ACB) process.
The detection and identification of underwater mines based on structural acoustic features has been successfully demonstrated This structural acoustics (SA) approach offers significant increases in coverage rates together with higher probabilities of detection and lower false alarm rates against most of the threat mines the Navy is expected to encounter in the foreseeable future. Highly successful blind tests have been carried out demonstrating high performance detection and classification with low false alarm rates. This technology is now in transition to the fleet. The work proposed here, is to develop and demonstrate a long range/high coverage rate ASW systems concept based on the Low-Frequency Broadband (LFBB) technology using a fleet sonar AN/SQQ-89 on surface combatants.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: CNO ASW Initiatives (Including CAS/VDS)	27.943	4.209	1.109
Articles:	0	0	0
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Completed CAS/VDS Advanced Development Model (ADM) development, fabrication and land-based testing of towed source, receive array, handling system and in-board electronics, controls and displays. Initiated ship alteration data package preparation for installation of CAS/VDS on both LCS hull types. Installed CAS/VDS ADM on surrogate LCS platform (white ship) and conducted at-sea testing. Initiated efforts to mature ADM to Engineering Development Model (EDM) level and prepared for future production program. Commenced design of VDS handling system for use on LCS Independence Class hulls. Continued independent critical review and analysis of alternatives of selected and potential CNO ASW initiative technologies. ***FY 2013 Plans:*** Install CAS/VDS ADM on Littoral Combat Ship (LCS) platform and conduct at-sea testing of ADM. Continue efforts to mature ADM to EDM level. Continue independent critical review and analysis of alternatives of selected and potential CNO ASW initiative technologies. Collect systems and performance data during select Fleet exercises and at-sea testing events. Analyze and distribute collected data to support studies and analysis of alternatives in support of the CNO ASW initiative. Develop improvements to the MFTA Telemetry to take advantage of the LCS/VDS source frequencies and enhanced reliability and durability. ***FY 2014 Plans:*** Collect and analyze systems and performance data during select Fleet exercises and at-sea testing experiments. Continue to develop and test improvements to the MFTA Telemetry to take advantage of the LCS/VDS source frequencies and enhanced reliability and durability.			
Title: Littoral Remote Sensing (LRS) ***Articles:*** ***FY 2012 Accomplishments:*** - Implement advanced development and testing of remote sensing algorithms for detection and classification for maritime targets. - Develop and test simultaneous retrieval of environmental parameters from imagery for use in reducing false alarms and improving classification of maritime targets. - Develop and test fusion of multiple remote sensing retrievals to enhance target exploitation. - Prepare necessary transition paths to allow acceptance of algorithms for operational evaluation, user training, and minimal timelines for operational use. Note: LRS was part of the 2012 DoD Omnibus Reprogramming for ASW/ISR Capability. This FY12 funding is a continuation of the effort stood up via the 2011 DoD Omnibus Reprograming for ASW/ISR Capability.	11.000 0	0.000	0.000
Title: AN/SQS-53C Structural Acoustics Sensor Program ***Articles:***	0.000	2.495 0	1.240 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Description: The detection and identification of underwater mines based on structural acoustic features has been successfully demonstrated. This structural acoustics (SA) approach offers significant increases in coverage rates together with higher probabilities of detection and lower false alarm rates against most of the threat mines the Navy is expected to encounter in the foreseeable future. Highly successful blind tests have been carried out demonstrating high performance detection and classification with low false alarm rates. This technology is now in transition to the fleet. The Navy will develop and demonstrate a long range/high coverage rate ASW systems concept based on the LFBB technology using a fleet sonar AN/SQQ-89 on surface combatants. Specifically, using a standard AN/SQQ-53C as a source and the Multi-Function Towed Array (MFTA) as a receiver. In the Speed to Fleet effort, the Navy will build a special processor that will "roll on" the surface combatant and be integrable into the existing AN/SQQ-89 system. The processor will run codes already developed in the ONR programs, but now adapted to the ASW problem. Ultimately, the demonstration will involve testing and documenting the ability of the approach to distinguish and correctly identify low Doppler bottom, near bottom, submarines and false targets as a function of speed and range from target fields. ***FY 2013 Plans:*** -Continue processor build. -Continue Software Build. ***FY 2014 Plans:*** -Continue all efforts of FY2013, unless noted as completed. -Completed demonstration test planning. -Completed system install.			
Accomplishments/Planned Programs Subtotals	38.943	6.704	2.349

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.
N/A

E. Performance Metrics

Conduct CAS/VDS ADM Sea Tests 3Q12 (White Ship) and 1Q13 (LCS platform).
Conduct Demonstration Sea Tests 3Q14 (Gray Ship).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Development	C/CPFF	AAC:NY	1.134	0.000		0.000		0.000		-		0.000	0.000	1.134	
Technology Development	C/CPFF	Adaptive Methods:VA	3.788	0.000		0.000		0.000		-		0.000	0.000	3.788	
Technology Development	C/CPFF	Alion Sciences:VA	7.000	1.000	Dec 2011	0.000		0.000		-		0.000	0.000	8.000	
Technology Development	C/CPAF	EG&G:VA	1.550	0.500	Jan 2012	0.000		0.000		-		0.000	0.000	2.050	
Technology Development	C/CPFF	In-Depth Engineering:VA	2.375	1.260	Dec 2011	0.000		0.000		-		0.000	0.000	3.635	
Technology Development	C/CPFF	JHU/APL:MD	25.333	0.000		0.000		0.000		-		0.000	0.000	25.333	
Technology Development	C/CPFF	L-3 Communications:VA	3.000	0.000		0.000		0.000		-		0.000	0.000	3.000	
Technology Development	C/CPFF	Lockheed Martin - ISS:NY	4.610	2.500	Dec 2011	0.000		0.000		-		0.000	0.000	7.110	
Technology Development	WR	NSWC/ Carderock:MD	2.701	0.500	Dec 2011	0.000		0.000		-		0.000	0.000	3.201	
Technology Development	WR	NUWC/Keyport:WA	0.790	0.000		0.000		0.000		-		0.000	0.000	0.790	
Technology Development	WR	NUWC/Newport:RI	26.466	6.794	Nov 2011	0.000		0.000		-		0.000	0.000	33.260	
Technology Development	C/CPFF	Northrop Grumman:VA	4.684	0.000		0.000		0.000		-		0.000	0.000	4.684	
Technology Development	C/CPFF	UT/ARL:TX	4.908	0.000		0.000		0.000		-		0.000	0.000	4.908	
Technology Development	C/CPFF	VAR:VAR*	4.694	0.000		0.000		0.000		-		0.000	0.000	4.694	
Technology Development	WR	NFESC/PH:CA	0.300	5.050	Dec 2011	0.000		0.000		-		0.000	0.000	5.350	
Technology Development	MIPR	SSGC:MS	0.153	3.100	Jan 2012	0.000		0.000		-		0.000	0.000	3.253	
Detection/Classification Algorithms (LRS)	WR	NAWC/Pax River:MD	1.400	1.000	Nov 2012	0.000		0.000		-		0.000	0.000	2.400	
Detection/Classification Algorithms (LRS)	C/CPFF	VAR:VAR*	6.200	2.400	Dec 2012	0.000		0.000		-		0.000	0.000	8.600	
Technology Development (LRS)	WR	NRL:DC	1.400	1.100	Jan 2013	0.000		0.000		-		0.000	0.000	2.500	
Technology Development (LRS)	C/CPFF	VAR:VAR*	8.450	6.500	Dec 2012	0.000		0.000		-		0.000	0.000	14.950	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Processor Build	WR	NRL:District of Columbia	0.750	0.000		1.000	Oct 2012	0.000		-		0.000	0.000	1.750	
Software Build	WR	NRL:District of Columbia	0.750	0.000		1.195	Oct 2012	0.000		-		0.000	0.000	1.945	
System Install	WR	NRL:District of Columbia	0.000	0.000		0.200	Oct 2012	0.700	Oct 2013	-		0.700	0.250	1.150	
Demonstration Planning and Design	WR	NRL:District of Columbia	0.000	0.000		0.100	Oct 2012	0.000		-		0.000	0.100	0.200	
Demonstration test	WR	NRL:District of Columbia	0.000	0.000		0.000		0.000		-		0.000	0.750	0.750	
Analysis and Documentation of Demonstration Tests	WR	NRL:District of Columbia	0.000	0.000		0.000		0.000		-		0.000	0.150	0.150	
		Subtotal	112.436	31.704		2.495		0.700		0.000		0.700	1.250	148.585	

Remarks

Note: Funds identified as LRS (Littoral Remote Sensing) are part of the 2011/2012 DoD Omnibus Reprogrammings for ASW/ISR Capability.
*Consists of multiple performing activities with funding for each not greater than $1M per year.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
At-Sea Test/Experiment	WR	ONR:VA	5.500	0.000		0.000		0.000		-		0.000	0.000	5.500	
Developmental Test & Evaluation	C/CPFF	AAC:NY	1.067	0.000		0.000		0.000		-		0.000	0.000	1.067	
Developmental Test & Evaluation	C/CPFF	JHU/APL:MD	0.000	1.000	Dec 2011	2.008	Jan 2013	0.650	Dec 2013	-		0.650	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NRL:DC	0.537	0.000		0.000		0.000		-		0.000	0.000	0.537	
Developmental Test & Evaluation	WR	NSMA:VA	0.907	0.000		0.000		0.000		-		0.000	0.000	0.907	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC/ Carderock:MD	0.672	0.500	Dec 2011	0.000		0.000		-		0.000	0.000	1.172	
Developmental Test & Evaluation	WR	NUWC/Newport:RI	8.972	2.000	Nov 2011	1.200	Dec 2012	0.112	Nov 2013	-		0.112	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	UT/ARL:TX	1.844	0.000		0.000		0.000		-		0.000	0.000	1.844	
Developmental Test & Evaluation	C/CPFF	VAR:VAR*	1.025	2.996	Jan 2012	0.801	Dec 2012	0.177	Dec 2013	-		0.177	Continuing	Continuing	Continuing
Enhanced Data Collection	C/CPFF	JHU/APL:MD	4.462	0.000		0.000		0.000		-		0.000	0.000	4.462	
Enhanced Data Collection	C/CPFF	UT/ARL:TX	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	
Demonstration Execution	Various	NRL:District of Columbia	0.000	0.000		0.000		0.220	Oct 2013	-		0.220	0.000	0.220	
Demonstration Performance Analysis	Various	NRL:District of Columbia	0.000	0.000		0.000		0.170	Oct 2013	-		0.170	0.000	0.170	
		Subtotal	26.986	6.496		4.009		1.329		0.000		1.329			

Remarks

*Consists of multiple performing activities with funding for each not greater than $1M per year.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAE Systems:MD	3.736	0.693	Feb 2012	0.175	Dec 2012	0.150	Dec 2013	-		0.150	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA PEO IWS 5:DC	0.250	0.050	Jan 2012	0.025	Oct 2012	0.020	Oct 2013	-		0.020	Continuing	Continuing	Continuing
Travel (LRS)	Allot	ONR:DC	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	
Demonstration Planning and Test Plan	Various	NRL:District of Columbia	0.000	0.000		0.000		0.150	Oct 2013	-		0.150	0.000	0.150	
		Subtotal	4.036	0.743		0.200		0.320		0.000		0.320			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*	

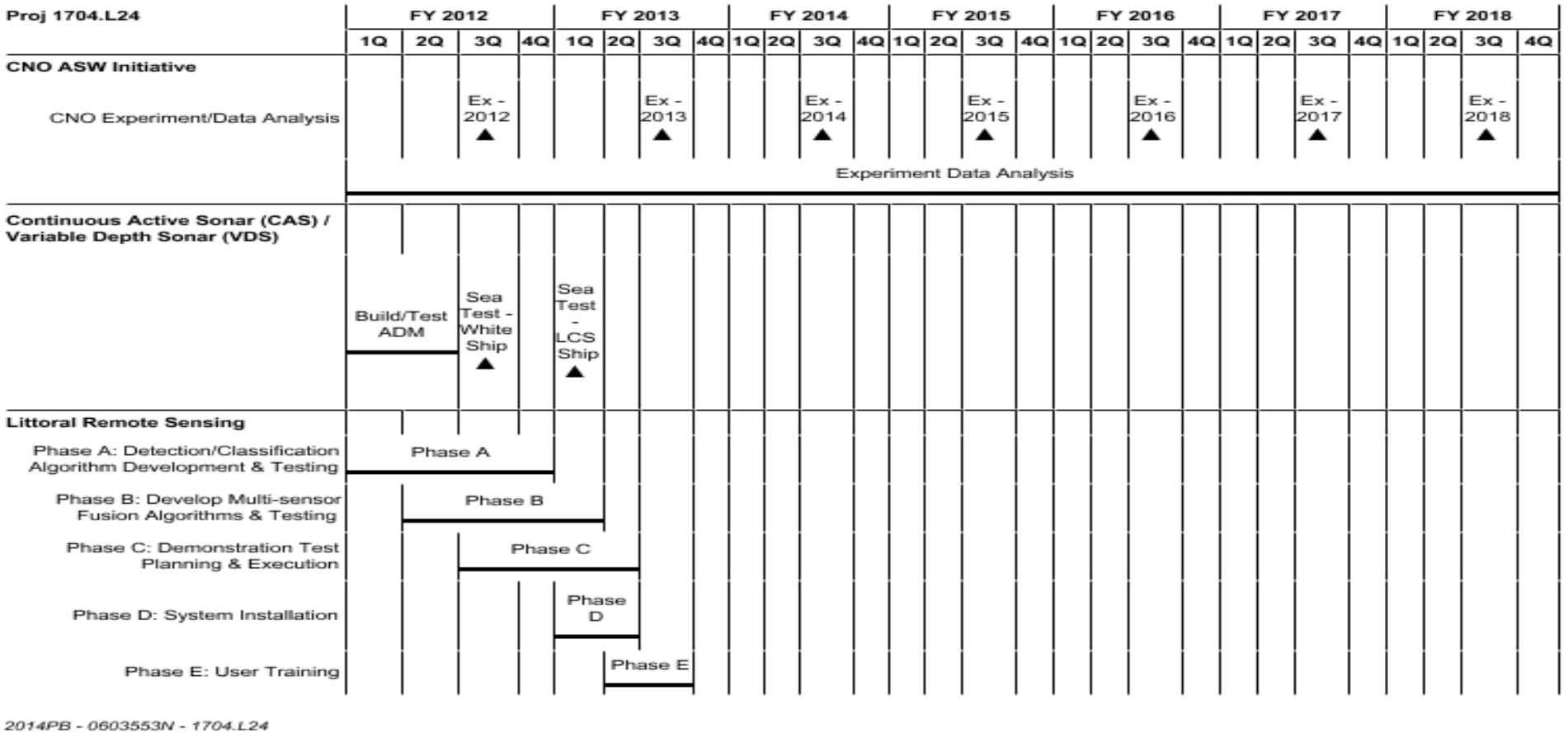
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks															
Note: Funds identified as LRS (Littoral Remote Sensing) are part of the 2011/2012 DoD Omnibus Reprogrammings for ASW/ISR Capability.															

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	143.458	38.943		6.704		2.349		0.000		2.349			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*



2014PB - 0603553N - 1704.L24

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603553N: *Surface ASW*	**PROJECT** 1704.: *Undersea Warfare*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1704.L24				
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2012)	3	2012	3	2012
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2013)	3	2013	3	2013
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2014)	3	2014	3	2014
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2015)	3	2015	3	2015
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2016)	3	2016	3	2016
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2017)	3	2017	3	2017
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2018)	3	2018	3	2018
CNO ASW Initiative: CNO Experiment/Data Analysis: Analyze Experimental Data/ Studies	1	2012	4	2018
Continuous Active Sonar (CAS) / Variable Depth Sonar (VDS): Build/Test VDS ADM	1	2012	2	2012
Continuous Active Sonar (CAS) / Variable Depth Sonar (VDS): CAS/VDS ADM Sea Test (White Ship)	3	2012	3	2012
Continuous Active Sonar (CAS) / Variable Depth Sonar (VDS): CAS/VDS ADM Sea Test (LCS Platform)	1	2013	1	2013
Littoral Remote Sensing: Phase A: Detection/Classification Algorithm Development & Testing: Phase A: Detection/Classification Algorithm Development & Testing	1	2012	4	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Littoral Remote Sensing: Phase B: Develop Multi-sensor Fusion Algorithms & Testing: Phase B: Develop Multi-sensor Fusion Algorithms & Testing	2	2012	1	2013
Littoral Remote Sensing: Phase C: Demonstration Test Planning & Execution: Phase C: Demonstration Test Planning & Execution	3	2012	2	2013
Littoral Remote Sensing: Phase D: System Installation: Phase D: System Installation	1	2013	2	2013
Littoral Remote Sensing: Phase E: User Training: Phase E: User Training	2	2013	3	2013
AN/SQS-53C SAS pg. 1				
Phase A: Build: Processor Build	1	2013	4	2013
Phase A: Build: Software Build	1	2013	4	2013
Phase A: Build: Milestone B	4	2013	4	2013
Phase A: Build: System Install	1	2014	2	2014
Phase B: Demonstration: Demonstration Test Planning	2	2014	2	2014
Phase B: Demonstration: Demonstration Tests	3	2014	3	2014
Phase B: Demonstration: Analysis and Documentation of Demonstration Tests	4	2014	4	2014
Phase B: Demonstration: Milestone C	4	2014	4	2014

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy												DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	1,439.133	843.645	555.123	852.977	-	852.977	926.177	1,099.748	778.495	794.581	Continuing	Continuing
0223: *Sub Combat System Improvement (ADV)*	310.770	39.678	36.873	32.813	-	32.813	36.037	37.336	37.930	37.561	Continuing	Continuing
2033: *Adv Submarine Systems Development*	334.245	37.372	35.155	32.546	-	32.546	30.580	25.258	31.435	36.014	Continuing	Continuing
3220: *SBSD Advanced Submarine System Development*	794.118	761.215	483.095	787.618	-	787.618	859.560	1,037.154	709.130	721.006	Continuing	Continuing
9999: *Congressional Adds*	0.000	5.380	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.380
MDAP/MAIS Code(s): P444												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program element supports innovative research and development in submarine hull and combat systems technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently feasible. The program element also supports programs
transitioning from Science and Technology (S&T), Defense Advanced Research Projects Agency (DARPA), Independent Research and Development, and Small Business Innovation Research (SBIR) projects.

Project Unit 0223:
The Advanced Submarine Combat Systems Development non-acquisition (NON-ACAT) Project supports Navy Submarine Acoustic Superiority and Technology Insertion Initiatives through the application of advanced development and testing of sonar and tactical control systems improvements. This Project transitions technologies developed by Navy Technology bases, the private sector, Office of Naval Research (ONR), Future Naval Capabilities (FNC), and DARPA. The Project addresses technology challenges to improve tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battle space preparation, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. Prototype hardware/software systems are developed to demonstrate technologically promising system concepts in laboratory and at-sea submarine environments. Specifically, the focus of the technology efforts will be Advanced Processing Build - Acoustic (APB-A), Advanced Processing Build - Tactical (APB-T), Advanced Processing Build - Imaging (APB-I) and Advanced Sonar Arrays. APBs develop and demonstrate improvements to current and future sonar/combat control systems. The Advanced Sonar Arrays program develops and tests new sensors and demonstrates large array configuration. This Project is funded under demonstration and validation, as it develops and integrates hardware for experimental tests related to specific platform applications.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*

Project Unit 2033:
The Advanced Submarine Systems Development (ASSD) Program is a non-acquisition program that develops and matures technologies for successful integration into future and modernized submarine classes, thus lowering acquisition and life cycle program costs while improving mission capability. ASSD transitions Hull, Mechanical, and Electrical (HM&E) technologies and future naval concepts from Science & Technology (S&T) and Research and Development (R&D) to operational platforms; performs tests and demonstrates submarine design and naval architecture products destined for integration into future submarine classes or backfit into existing fleet assets; develops, initially integrates, and does test validation of leading payload concepts for submarine integration in support of the Design for Undersea Warfare, and operates unique R&D experimentation, modeling, testing and simulation facilities to enhance submarine stealth, maneuverability, capability, and affordability. The program is structured to support Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs and near and mid-term technology insertion to achieve future submarine class total ownership cost reductions, and influence future submarine concept designs and core technologies. Experimentation and demonstration is conducted in a joint warfighting context with other services, (i.e. the U.S. Marines, U.S. Army, and the U.S. Air Force), to enable early assessment of warfighting capabilities, and to contribute to smarter technology selection decisions for potential incremental development. This program also supports Information Exchange Programs and joint Project Arrangements (PA) with the United Kingdom, Canada, Australia and other international partners.

Project 2033 is comprised of four budget categories: Stealth, Payloads & Sensors, Advanced Propulsion/Ship Concept Development and Total Ownership Cost/ Affordability.

The major developmental efforts include:
Sustainment of Vital Submarine Stealth R&D Capabilities
- Large Scale Vehicle (LSV)
- Intermediate Scale Measurement System (ISMS)
- Submarine Signature Management
- Stone Mason
- SSN/SSGN Survivability (S3P)

Development of Technologies to Reduce Submarine Total Ownership Cost:
- Hydraulics Elimination through Electrification
- Advanced CO2 Scrubber
- Corrosion Control

Development of Advanced Propulsion Systems and Ship Concepts:
- Advanced Material Propeller (AMP) Future Naval Capability (FNC)
- DARPA/Navy Tango Bravo Technology Transition
- Electric Actuation of Retractable Bow Plane Control Surfaces
- Hybrid Multi-Material Rotor Development (HMMR)

Improved Payload & Sensor Capabilities
- Next Generation Towed Array Handler System and Towed Array Reliability

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603561N: *Advanced Submarine System Development*

- Innovation Technology Transition
- Universal Launch and Recovery Module (ULRM)
- Large Displacement Unmanned Undersea Vehicle/Unmanned Air Vehicle (LDUUV/UAV)

Project Unit 3197:
The Undersea Superiority Project supports offboard Anti-Submarine Warfare (ASW) technologies selected by the Chief of Naval Operations (CNO) ASW Cross Functional Team for technologies that hold the potential for deployment and/or use by submarine platforms. Efforts associated with these technologies include design, development, integration and testing of future Undersea Superiority systems.

Project Unit 3220:
The objective of the Sea Based Strategic Deterrent (SBSD) Advanced Submarine System Development project is to design and prepare for construction of the replacement of the OHIO Class SSBN.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	861.366	555.123	860.236	-	860.236
Current President's Budget	843.645	555.123	852.977	-	852.977
Total Adjustments	-17.721	0.000	-7.259	-	-7.259
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.469	0.000			
• SBIR/STTR Transfer	-20.190	0.000			
• Program Adjustments	0.000	0.000	-1.538	-	-1.538
• Rate/Misc Adjustments	0.000	0.000	-5.721	-	-5.721

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2012	FY 2013
Project: 9999: *Congressional Adds*		
Congressional Add: *Adv Sub Sys Dev (Cong)*	5.380	-
Congressional Add Subtotals for Project: 9999	5.380	0.000
Congressional Add Totals for all Projects	5.380	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 0223: *Sub Combat System Improvement (ADV)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0223: *Sub Combat System Improvement (ADV)*	310.770	39.678	36.873	32.813	-	32.813	36.037	37.336	37.930	37.561	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Project Unit 0223: The Advanced Submarine Combat Systems Development Non-ACAT program supports Navy Submarine Acoustic Superiority and Technology Insertion Initiatives by the application of advanced development and testing of sonar and tactical control systems improvements. This Project addresses technology challenges to improve tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battle space preparation, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. These technologies, developed by Navy technology bases, the private sector, ONR, FNC, and DARPA are then transitioned. Prototype hardware / software systems are developed to demonstrate technologically promising system concepts in laboratory and at-sea submarine environments. Specifically, the focus of the technology efforts are APB-A, APB-T, APB-I, tactical control, and Advanced Sonar Arrays. APBs develop and demonstrate improvements to current and future sonar/combat control systems. The Advanced Sonar Arrays program develops and tests new sensors and demonstrates large array configuration.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Advanced Processing Build - (Acoustic/Imaging/Tactical)	32.316	34.176	30.913
Articles:	0	0	0

FY 2012 Accomplishments:

Completed land-based and at-sea testing and the transition for APB-11. Established content and continued the development of capabilities for APB-13. APB-13 will focus on revitalizing Operator Machine Interfaces (OMI) to apply commercial industry design thinking and technologies to support ease of use and reduced training burden; continued improvement of new passive acoustic ranging techniques; automated contact tracking; enhanced software architecture to improve system reliability; improved periscope image clarity; periscope image automation and tracking; and continued refinement of technologies initiated in APB-11. Additionally, initiated development of a Submarine Mission Planning capability.

FY 2013 Plans:

Continue development of APB-13 focusing on revitalizing OMI to apply commercial industry design thinking and technologies to support ease of use and reduced training burden; continued improvement of new passive acoustic ranging techniques; automated contact tracking; enhanced software architecture to improve system reliability; improved periscope image clarity; periscope image automation and tracking; and continued refinement of technologies initiated in APB-11. Integrate APB-13 for testing.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 0223: *Sub Combat System Improvement (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Conduct land-based testing of APB-13, including laboratory string testing, and Return-On-Investment (ROI) Watch Section Task Analysis (WSTA) testing using the Submarine Mission Module Team Trainer (SMMTT). Initiate planning for APB-15 to include establishment of the tactical scenario to guide development focus; conduct of a WSTA gaps and seams test to inform system shortfalls in the context of the selected scenarios; and conduct of an Industry Day and Broad Agency Announcement (BAA) Solicitation to drive competition for APB-15 innovative technologies. Continue development of the Submarine Mission Planning capability. APB tactical scenarios and capability focus areas are provided by the Submarine Fleet via the Submarine Tactical Requirements Group (STRG), COMSUBFOR and CNO N97. ***FY 2014 Plans:*** Conduct at-sea testing and the transition of APB-13. Use the product of FY14 ROI, WSTA gaps and seams, and BAA evaluations along with direction from the Fleet/STRG/COMSUBFOR/N97 to establish content and continue the development of capabilities for APB-15. Development will include the first two steps of the 4 Step APB process; Step 1 - algorithm assessment by peer review panels of subject matter experts to down-select technologies and assist developers with technical guidance; Step 2 - algorithm/ technology testing with open and closed data sets to further down-select and refine capabilities prior to integration and test. Continue development, conduct system integration and initiate testing of the Submarine Mission Planning capability.			
Title: Advanced Sensors	7.362	2.697	1.900
Articles:	0	0	0
FY 2012 Accomplishments: Conformal Acoustic Velocity Sonar (CAVES) Large Vertical Array (LVA) completed cold water at-sea testing and analysis. Completed system integration of 12X single line towed array Advanced Development Model (ADM). Conducted 12X ADM Lake Pend Oreille (LPO) and Research Vessel (RV) tests. Completed the 12X ADM TEMPALT development and conducted submarine demonstration. Initiated advanced development of fat line Vector Sensor Towed Array (VSTA). ***FY 2013 Plans:*** Conduct Light Weight (LW) Low Cost Conformal Array (LCCA) sea test and transition to 688I program. Continue development and test of Advanced Towed Array Technologies. Conduct 12X ADM at sea test and analysis. Initiate studies for development of sensors for the Ohio Class Replacement Program. Continue fat line VSTA ADM development. ***FY 2014 Plans:*** Complete fat line VSTA ADM development. Continue Ohio Class Replacement Program sensor development studies.			
Accomplishments/Planned Programs Subtotals	39.678	36.873	32.813

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 0223: *Sub Combat System Improvement (ADV)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Use competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.

E. Performance Metrics

- Advanced Processing Build (APB): Deliver at-sea tested submarine capability improvements to PEO Submarines as prescribed by the Fleet every two years. Conduct milestone reviews with the Milestone Decision Authority and PEO Submarines prior to delivery.
- Conducted Conformal Acoustic Velocity Sonar (CAVES) sea test. CAVES provides significant advantages over existing technology; 2/3 of acquisition and installation costs, 10% of life cycle costs, and less impact on hull structure. CAVES/Wide Aperture Array (WAA) replacement of Light Weight WAA provides a cost savings of $8M - $13M/ship.
- Conducted Low Cost Conformal Array (LCCA) Advanced Development Model (ADM) sea test.
- Deliver Twin Line Thin Line (TLTL) Short Aperture (3X) Array, Vector Sensor Towed Array (VSTA) Short Aperture (3X) Array, TLTL & VSTA (3X) Lake Pend Oreille Test Reports.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 0223: *Sub Combat System Improvement (ADV)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPFF	Adaptive Methods:VA	0.925	0.000		0.000		0.000		-		0.000	0.000	0.925	Continuing
Product Development	C/CPFF	Alion Sciences:VA	3.267	0.000		0.000		0.000		-		0.000	0.000	3.267	Continuing
Product Development	C/CPFF	Chesapeake Science:MD	6.626	0.750	Feb 2012	0.750	Apr 2013	0.700	Dec 2013	-		0.700	Continuing	Continuing	Continuing
Product Development	C/CPFF	Electric Boat:ME	0.725	1.040	Jan 2012	0.975	Apr 2013	0.925	Dec 2013	-		0.925	Continuing	Continuing	Continuing
Product Development	C/CPFF	General Dynamics:VA	13.547	0.300	Jan 2012	0.300	Dec 2012	0.300	Dec 2013	-		0.300	Continuing	Continuing	Continuing
Product Development	C/CPFF	GA Tech Research Institute:GA	2.916	0.000		0.000		0.000		-		0.000	0.000	2.916	Continuing
Product Development	C/CPFF	In Depth Engineering:VA	2.650	0.750	Dec 2011	0.750	Dec 2012	0.700	Dec 2013	-		0.700	Continuing	Continuing	Continuing
Product Development	C/CPFF	JHU/APL:MD	55.816	8.250	Dec 2011	8.350	Dec 2012	7.437	Dec 2013	-		7.437	Continuing	Continuing	Continuing
Product Development	C/CPFF	Lockheed Martin:VA	33.456	5.400	Dec 2011	5.330	Dec 2012	4.650	Dec 2013	-		4.650	Continuing	Continuing	Continuing
Product Development	C/CPFF	Lockheed Martin:NY	8.314	0.400	Dec 2011	0.200	Dec 2012	0.200	Dec 2013	-		0.200	Continuing	Continuing	Continuing
Product Development	C/CPFF	METRON:VA	4.158	0.000		0.000		0.000		-		0.000	0.000	4.158	Continuing
Product Development	WR	NSWC/ Carderock:MD	22.665	0.750	Dec 2011	0.750	Nov 2012	0.650	Nov 2013	-		0.650	Continuing	Continuing	Continuing
Product Development	WR	NUWC/Newport:RI	65.228	7.099	Nov 2011	7.290	Nov 2012	6.199	Nov 2013	-		6.199	Continuing	Continuing	Continuing
Product Development	C/CPAF	NSMA:VA	7.944	1.250	Mar 2012	1.000	Jan 2013	0.650	Dec 2013	-		0.650	Continuing	Continuing	Continuing
Product Development	WR	ONI:DC	1.545	0.750	Feb 2012	0.500	Dec 2012	0.250	Dec 2013	-		0.250	Continuing	Continuing	Continuing
Product Development	WR	ONR:VA	2.725	0.000		0.000		0.000		-		0.000	0.000	2.725	Continuing
Product Development	C/CPFF	Progeny:VA	3.888	0.200	Jan 2012	0.150	Dec 2012	0.150	Dec 2013	-		0.150	Continuing	Continuing	Continuing
Product Development	C/CPFF	PSU/ARL:PA	5.058	1.570	Dec 2011	1.340	Dec 2012	1.200	Dec 2013	-		1.200	Continuing	Continuing	Continuing
Product Development	C/CPFF	SAIC:VA	3.555	0.000		0.000		0.000		-		0.000	0.000	3.555	Continuing
Product Development	C/CPFF	SEDNA:VA	5.714	0.750	Dec 2011	0.950	Dec 2012	0.900	Dec 2013	-		0.900	Continuing	Continuing	Continuing
Product Development	WR	SSC/San Diego:CA	1.513	0.000		0.000		0.000		-		0.000	0.000	1.513	Continuing
Product Development	MIPR	U.S. Army Research Lab:MD	1.700	0.000		0.000		0.000		-		0.000	0.000	1.700	Continuing
Product Development	MIPR	U.S. Army/MITRE:NJ	4.595	0.000		0.000		0.000		-		0.000	0.000	4.595	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 0223: *Sub Combat System Improvement (ADV)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	MIPR	U.S. Hanscom AFB/ MIT Lincoln Labs:MA	10.884	1.400	Feb 2012	1.200	Dec 2012	0.775	Dec 2013	-		0.775	Continuing	Continuing	Continuing
Product Development	C/CPFF	UT/ARL:TX	20.575	2.520	Dec 2011	2.350	Feb 2013	2.000	Dec 2013	-		2.000	Continuing	Continuing	Continuing
Product Development	C/CPFF	VAR:VAR*	9.047	4.424	Dec 2011	3.292	Dec 2012	3.767	Dec 2013	-		3.767	Continuing	Continuing	Continuing
		Subtotal	299.036	37.603		35.477		31.453		0.000		31.453			

Remarks

*Consists of multiple performing activities with funding for each not greater than $1M per year.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAE Systems:MD	9.399	1.050	Feb 2012	0.766	Feb 2013	0.700	Dec 2013	-		0.700	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	EG&G:VA	1.900	0.950	Jan 2012	0.580	Mar 2013	0.600	Dec 2013	-		0.600	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA PEO IWS5:DC	0.435	0.075	Jan 2012	0.050	Oct 2012	0.060	Oct 2013	-		0.060	Continuing	Continuing	Continuing
		Subtotal	11.734	2.075		1.396		1.360		0.000		1.360			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	310.770	39.678		36.873		32.813		0.000		32.813			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603561N: *Advanced Submarine System Development*	**PROJECT** 0223: *Sub Combat System Improvement (ADV)*

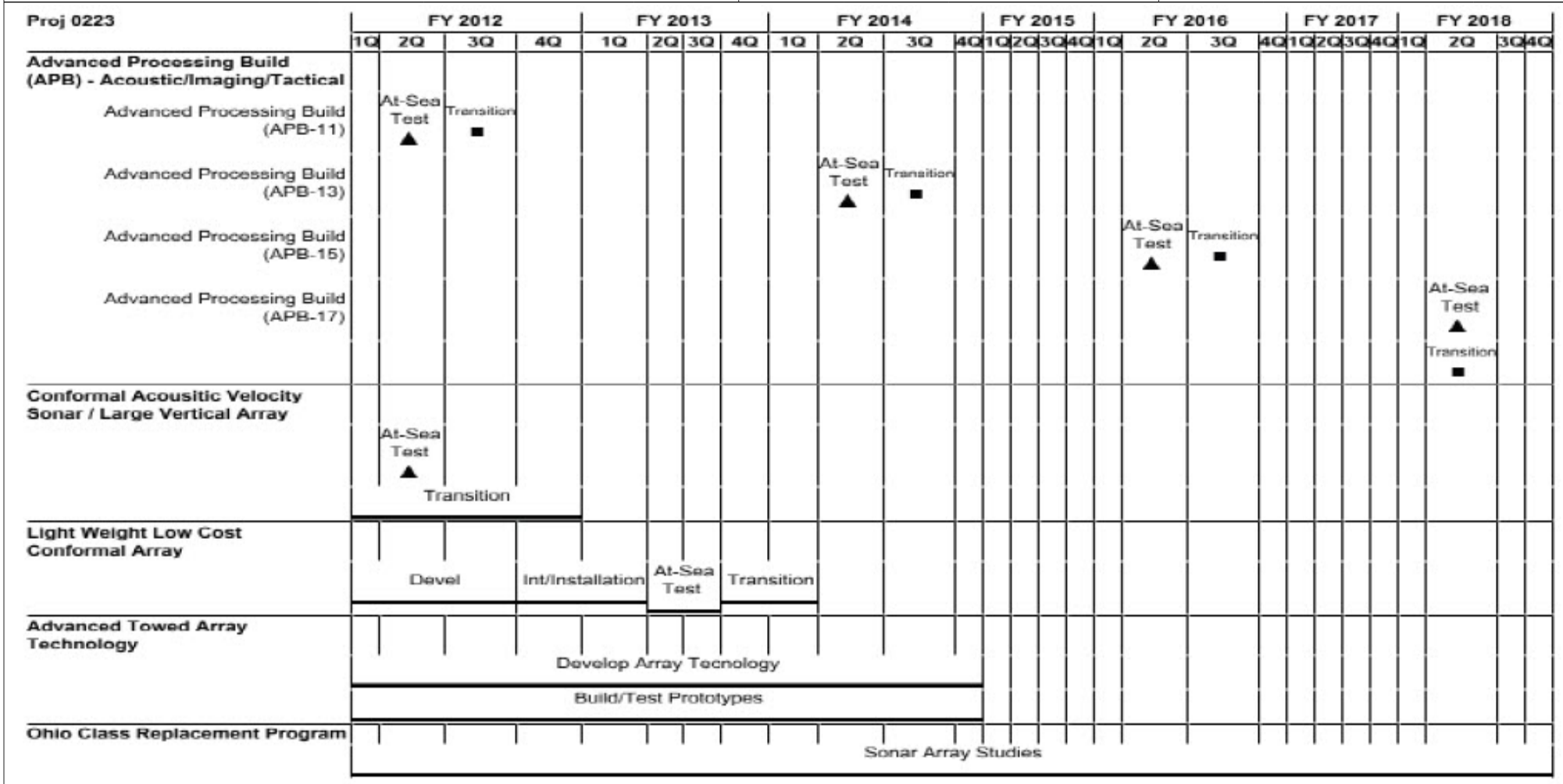


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603561N: *Advanced Submarine System Development*	**PROJECT** 0223: *Sub Combat System Improvement (ADV)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0223				
Advanced Processing Build (APB) - Acoustic/Imaging/Tactical: Advanced Processing Build (APB-11): APB-11 At-Sea Test	2	2012	2	2012
Advanced Processing Build (APB) - Acoustic/Imaging/Tactical: Advanced Processing Build (APB-11): Transition APB-11 to ARCI/BYG-1	3	2012	3	2012
Advanced Processing Build (APB) - Acoustic/Imaging/Tactical: Advanced Processing Build (APB-13): APB-13 At-Sea Test	2	2014	2	2014
Advanced Processing Build (APB) - Acoustic/Imaging/Tactical: Advanced Processing Build (APB-13): Transition APB-13 to ARCI/BYG-1	3	2014	3	2014
Advanced Processing Build (APB) - Acoustic/Imaging/Tactical: Advanced Processing Build (APB-15): APB-15 At-Sea Test	2	2016	2	2016
Advanced Processing Build (APB) - Acoustic/Imaging/Tactical: Advanced Processing Build (APB-15): Transition APB-15 to ARCI/BYG-1	3	2016	3	2016
Advanced Processing Build (APB) - Acoustic/Imaging/Tactical: Advanced Processing Build (APB-17): APB-17 At-Sea Test	2	2018	2	2018
Advanced Processing Build (APB) - Acoustic/Imaging/Tactical: Advanced Processing Build (APB-17): Transition APB-17 to ARCI/BYG-1	2	2018	2	2018
Conformal Acousitic Velocity Sonar / Large Vertical Array: CAVES LVA At-Sea Test (cold water)	2	2012	2	2012
Conformal Acousitic Velocity Sonar / Large Vertical Array: Transition to VA Class SSNs (CAVES/LVA)	1	2012	4	2012
Light Weight Low Cost Conformal Array: LW LCCA ADM Development	1	2012	3	2012
Light Weight Low Cost Conformal Array: LW LCCA Integration/Installation	4	2012	1	2013
Light Weight Low Cost Conformal Array: LW LCCA ADM At-Sea Test	2	2013	3	2013
Light Weight Low Cost Conformal Array: Transition to 688I	4	2013	1	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 0223: *Sub Combat System Improvement (ADV)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Advanced Towed Array Technology: Develop Array Technologies	1	2012	4	2014
Advanced Towed Array Technology: Build & Test Prototype Arrays	1	2012	4	2014
Ohio Class Replacement Program: Conduct Ohio Class Repacement Array Studies	1	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy												DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*				PROJECT 2033: *Adv Submarine Systems Development*			
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
2033: *Adv Submarine Systems Development*	334.245	37.372	35.155	32.546	-	32.546	30.580	25.258	31.435	36.014	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Advanced Submarine Systems Development (ASSD) Program is a non-acquisition program that develops and matures technologies for successful integration into future and modernized submarine classes, thus lowering acquisition and life cycle program costs while improving mission capability. ASSD transitions Hull, Mechanical, and Electrical (HM&E) technologies and future naval concepts from Science & Technology (S&T) and Research and Development (R&D) to operational platforms; performs tests and demonstrates submarine design and naval architecture products destined for integration into future submarine classes or backfit into existing fleet assets; develops, initially integrates, and does test validation of leading payload concepts for submarine integration in support of the Design for Undersea Warfare, and operates unique R&D experimentation, modeling, testing and simulation facilities to enhance submarine stealth, maneuverability, capability, and affordability. The program is structured to support Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and near and mid-term technology insertion to achieve future submarine class total ownership cost reductions, and influence future submarine concept designs and core technologies. Experimentation and demonstration is conducted in a joint warfighting context with other services, (i.e. the U.S. Marines, U.S. Army, and the U.S. Air Force), to enable early assessment of warfighting capabilities, and to contribute to smarter technology selection decisions for potential incremental development. This program also supports Information Exchange Programs and joint Project Arrangements (PA) with the United Kingdom, Canada, Australia other international partners.

Project 2033 is comprised of four budget categories: Stealth, Payloads & Sensors, Advanced Propulsion/Ship Concept Development and Total Ownership Cost (TOC)/ Affordability.

The major developmental efforts include:
Sustainment of Vital Submarine Stealth R&D Capabilities
- Large Scale Vehicle (LSV)
- Intermediate Scale Measurement System (ISMS)
- Submarine Signature Management
- Stone Mason
- SSN/SSGN Survivability Program (S3P)

Development of Technologies to Reduce Submarine Total Ownership Cost:
- Hydraulic Elimination through Electrification
- Advanced CO2 Scrubber

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603561N: *Advanced Submarine System Development*	**PROJECT** 2033: *Adv Submarine Systems Development*

- Corrosion Control

Development of Advanced Propulsion System and Ship Concepts
- DARPA/Navy Tango Bravo Technology Transition
- Electric Actuation of Retractable Bow Plane Control Surfaces
- Advanced Material Propeller (AMP) Technology
- Hybrid Multi-Material Rotor (HMMR)

Improved Payload & Sensor Capabilities
- Next Generation Towed Array Handler System and Towed Array Reliability
- Innovation Technology Transition
- Universal Launch and Recovery Module (ULRM)- Advanced Weapons Enabled by Submarine UAS against Mobile targets (AWESUM)

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Payloads and Sensors/Subtotal Cost	9.533	13.323	14.279
Articles:	0	0	0

Description: Develop promising advanced technologies and/or concepts capable of revolutionizing submarine design, reducing cost, improving payload flexibility, increasing capability, reducing weight and space requirements, exploring alternative payload launch mechanisms, increasing reliability with accompanying decreases in required maintenance, and improving material strength. Develop payload demonstrations targeted at improving flexible ocean interfaces, Intelligence, Surveillance, Reconnaissance (ISR) requirements, and payload and launch retrieval methods from undersea platforms. Conduct Navy and joint SEA TRIALS that take demonstrations to the Fleet in order to assess the operational value of the technologies and systems under consideration. The SEA TRIALS/experiments support examination and assessment of potential new Fleet capabilities based on Sea Power 21.

FY 2012 Accomplishments:
Commenced concept development, systems improvements and prototype development for Towed Array Handling System (TAHS). Continued leveraging products between Small Business and Future Naval Concepts. Perform preliminary requirements definition for technology transfer initiatives based on Small Business Research studies. Completed prototype development, fabrication and commence land-based integration of the Universal Launch and Recovery Module (ULRM).

FY 2013 Plans:
Complete Infuser and Conformal Belt prototypes and conduct land-based testing for TAHS. Continue Handler Reliability System Improvements. Commence supporting the Towed Systems Future Naval Capabilities (FNC) project. Commence development of TEMPALT package and conduct land based testing for towed handler improvements for 688 class OA-9070B Handling System. Transition TAHS FCT. Continue to leverage products between Small Business and Future Naval Concepts. Complete ULRM TEMPALT and conduct fully integrated system testing. Lead the technology development and demonstrate, via Fleet Exercise

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 2033: *Adv Submarine Systems Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
(FLEX), for Submarine Launched UAS in support of Advanced Weapons Enabled by Submarine UAS against Mobile targets (AWESUM) capability. ***FY 2014 Plans:*** Complete TAHS TEMPALT package, install handler improvements, and test at sea for 688 Class OA-9070B Handling System. Continue OA-9070 Handler Improvements. Commence VA Class (OA-9070E) design efforts and land-based testing. Continue to leverage products between Small Business and Future Naval Concepts (FNC). Install ULRM TEMPALT, conduct at-sea test on SSGN and remove TEMPALT. Demonstrate submarine launch UAS capability via FLEX in support of AWESUM. Continue submarine LDUUV/UAV submarine integration CONOPs development in support of ULRM and AWESUM.			
Title: Stealth/Subtotal Cost	17.619	13.734	14.290
Articles:	0	0	0
Description: Develop technologies and tools to increase the survivability of submarines by recognizing and mitigating sources of noise and non-acoustic vulnerabilities to ensure submarines can penetrate contested waters and remain undetected in the littorals. Develop technologies and Tactics, Techniques, and Procedures (TTPs) that facilitate new or enhance existing warfighting concepts. Operate the Large Scale Vehicle (LSV 2) and the Intermediate Scale Measurement System (ISMS) to conduct large model experiments for submarines focusing on stealth, maneuvering and control, affordability, and operational effectiveness. Address gaps in stealth and survivability for current and future SSN/SSGN force. ***FY 2012 Accomplishments:*** Exercised wake signature prediction tool to analyze design concepts associated with future advanced submarine platforms. Conducted LSV maintenance, support, and operations and maintain LSV and ISMS test ranges. Supported Virginia Class and Ohio Replacement signature trials. Continued Electromagnetic Silencing PA with the UK executing second stress magnetization and electric model tests focusing on development of signature control algorithms and validation test planning. Funding to address gaps in stealth and survivability for current and future SSN/SSGN force to execute submarine tactical and strategic operations. ***FY 2013 Plans:*** Conduct LSV maintenance, support, and operations and maintain LSV and ISMS test ranges. Perform tech refresh at ISMS range. Support Virginia Class and Ohio Replacement signature trials. Continue Electromagnetic Silencing PA with the UK executing the third (four planned) scale stress magnetization and electric model experiments. Funding addresses gaps in stealth and survivability for current and future SSN/SSGN force to execute submarine tactical and strategic operations. ***FY 2014 Plans:*** Conduct LSV maintenance, support, and operations and maintain LSV and ISMS test ranges. Support Ohio Replacement signature trials. Continue Electromagnetic Silencing PA with the UK executing the third (four planned) scale stress magnetization			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 2033: *Adv Submarine Systems Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
and electric model experiments. Funding addresses gaps in stealth and survivability for current and future SSN/SSGN force to execute submarine tactical and strategic operations.			
Title: Total Ownership Cost/Affordability/Subtotal Cost	5.898	2.180	1.773
Articles:	0	0	0
Description: Demonstrate technologies with potential to reduce total ownership costs of submarine systems by lowering construction costs, improving commonality of interfaces, extending the life of parts, and lowering life cycle maintenance requirements.			
FY 2012 Accomplishments: Below Threshold Reprogramming (BTR) to fund Submarine Valve Regulated Lead Acid Batteries (SVRLA) to develop and evaluate battery test equipment and procedures and develop and test MFX (antimony and cadmium) alloy battery. Conducted at-sea demonstration and monitored the Ball Valve Rotary Electrical Actuation System (EAS) TEMPALT on USS Missouri. Designed and built a full-capacity advanced CO2 Scrubber (VA Class Block IV qualified) prototype and performed vendor test and evaluation. Began full transition of the CO2 Scrubber technology to VA Class program office. Commenced transition of ONR Corrosion Control Future Naval Capabilities (FNC) with mutual approved Technology Transition Agreements (TTA).			
FY 2013 Plans: Remove Ball Valve Rotary EAS and Universal Modular Mast (UMM) Linear EAS TEMPALTs from USS Missouri and restore shipboard hydraulic service systems. Conduct Navy Test and Evaluation on CO2 Scrubber unit in Navy Laboratory. Complete the transition of the CO2 Scrubber technology to VA Class program office. Remove the CO2 Scrubber SSN shipboard test cube. Begin prototyping of ONR Corrosion FNC deliverables on VA Class.			
FY 2014 Plans: Remove the CO2 Scrubber SSBN shipboard test cube. Continue transition of submarine corrosion prevention technology to VA Class with prototype TEMPALT/OPALT development.			
Title: Advanced Propulsion/Ship Concept Developments/Subtotal Cost	4.322	5.918	2.204
Articles:	0	0	0
Description: Overcome technological barriers that have significant impact on submarine HM&E systems so as to enable design options for a submarine with VIRGINIA Class capability in technical area for Radical Ship HM&E Infrastructure Reduction. Develop submarine alternative propulsion, propeller designs, and stern configurations with potential to significantly reduce submarine acquisition costs. Demonstrate critical performance parameters through appropriate scale demonstrators in realistic environmental conditions. Evaluate integration of technologies and approaches for cost reduction in future submarines. Develop understanding of ship concept studies and submarine cost drivers and model analysis. Develop and demonstrate technologies for			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 2033: *Adv Submarine Systems Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
future submarines in areas of hull and platform technologies, propulsors, propellers, ship control, electric actuation, sensors, and self defense. This work will apply to future submarine designs including the long-lead concept work on the OHIO Replacement Program. Evaluate current platforms via full scale signature measurement trials to guide future R&D investments. ***FY 2012 Accomplishments:*** Completed fabrication of Retractable Bow Plane (RBP) Electrical Actuation System (EAS) and continued performing engineering efforts in support of planned land-based testing. Continued partnership with DARPA on Hybrid Multi-Material Rotor (HMMR) program to include delivery of coupled design software tool sets and multi-material characterization. ***FY 2013 Plans:*** Monitoring Advanced Material Propeller (AMP) Future Naval Capabilities (FNC) to influence project direction for FY14 partnership kickoff. Conduct land-based testing of RBP Control Surface EAS. Continue partnership with DARPA on HMMR program to include delivery of coupled design software tool sets and fabrication of DARPA HMMR multi-material rotor solution for testing on LSV-2. ***FY 2014 Plans:*** Continue partnership with ONR on the AMP FNC program. Initiate efforts to integrate the AMP into a follow-on 6.4 development effort to further mature the AMP technology to TRL 7, leading to fabrication of a propeller supporting U.S. submarines. Support the U.S. and Australian collaborative project to demonstrate a full scale AMP on the Australian Collins Class submarine. Test DARPA HMMR multi-material rotor solution on LSV-2.			
Accomplishments/Planned Programs Subtotals	37.372	35.155	32.546

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

F2033: Sole source Concept Formulation (CONFORM) contracts with the only two submarine design/construction shipyards, General Dynamics Electric Boat (GDEB) and Huntington Ingalls Industries (HII). Engagement with industry to build vendor base and support development of R&D products for enhanced submarine capability via competitively awarded Small Business Innovation Research (SBIR) contracts to support Hull Mechanical & Electrical systems (HM&E).

E. Performance Metrics

To enable transition of a minimum of three technology challenge solutions supporting emergent warfighter needs.
-Sustain critical one of a kind national R&D hydroacoustic infrastructure enabling the design and assessment of VIRGINIA Class and OHIO Replacement designs and affordability assessments.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 2033: *Adv Submarine Systems Development*

-Refine the design of the Advanced Carbon Dioxide Removal System (ACRU) CO2 Scrubber System based on at-sea testing of new solid sorbent materials and the removal of liquid amine system from future submarines.
-Install and perform at-sea demonstrations for electric actuation of critical ship control and ship system operational components in support of the OHIO Replacement and follow-on VIRGINIA Class Block Upgrades.
-Assess as-built VIRGINIA and OHIO Class SSBN/SSGN submarine for design drivers/design tools and model validation to define R&D needs for OHIO Class component development and technical design maturity.
-Develop and test innovation Towed Array Handler concepts focused on improving system reliability and fleet operational availability.
-Conduct in depth assessment of SSN/SGN Survivability for peacetime and wartime operations in anti-access area denial environment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 2033: *Adv Submarine Systems Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	MIPR	DARPA:Arlington, VA	3.084	0.000		4.500	Mar 2013	0.000		-		0.000	Continuing	Continuing	Continuing
Product Development	SS/CPFF	NGSB:Newport News, VA	3.332	0.394	Dec 2011	1.075	Mar 2013	2.800	Mar 2014	-		2.800	Continuing	Continuing	Continuing
Product Development	WR	NSWC:Dahlgren, VA	5.241	0.000		0.000		0.000		-		0.000	0.000	5.241	5.241
Product Development	SS/CPFF	Kollmorgen:N. Hampton, MA	1.100	0.000		0.000		0.000		-		0.000	0.000	1.100	1.100
Product Development	SS/CPFF	Oceaneering:Chesapeake, VA	1.900	0.000		0.000		0.000		-		0.000	0.000	1.900	1.900
Product Development	SS/CPFF	Boeing:St. Louis, MO	0.925	0.000		0.000		0.000		-		0.000	0.000	0.925	Continuing
Product Development	SS/CPFF	EB:Groton, CT	36.281	4.329	Mar 2012	6.992	Mar 2013	7.622	Mar 2014	-		7.622	Continuing	Continuing	Continuing
Product Development	SS/CPFF	Raytheon:Portsmouth, RI	16.034	0.000		0.000		0.000		-		0.000	0.000	16.034	16.340
Product Development	WR	NSWC:Carderock, MD	69.183	5.007	Mar 2012	5.236	Mar 2013	5.200	Mar 2014	-		5.200	Continuing	Continuing	Continuing
Product Development	SS/CPFF	ARL/PSU:State College, PA	4.787	0.700	Jan 2012	0.700	Feb 2013	0.700	Apr 2014	-		0.700	Continuing	Continuing	Continuing
Product Development	SS/CPFF	UT/ARL:Austin, TX	6.050	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Product Development	SS/CPFF	JHU/APL:Laurel, MD	15.794	0.000		0.000		0.300	May 2014	-		0.300	Continuing	Continuing	Continuing
Product Development	Various	Various:Various	31.924	1.168	Mar 2012	0.500	Mar 2013	0.499	Mar 2014	-		0.499	Continuing	Continuing	Continuing
Product Development	WR	NUWC:Newport, RI	52.789	5.671	Mar 2012	2.570	Mar 2013	2.350	Mar 2014	-		2.350	Continuing	Continuing	Continuing
Product Development	WR	ONR:Arlington, VA	8.066	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Product Development	SS/CPFF	Lockheed Martin:Bethesda, MD	8.934	1.849	Aug 2012	2.000	Mar 2013	2.500	Apr 2014	-		2.500	Continuing	Continuing	Continuing
Product Development	WR	SPAWAR:San Diego, CA	5.850	0.000		0.000		0.000		-		0.000	0.000	5.850	Continuing
		Subtotal	271.274	19.118		23.573		21.971		0.000		21.971			

Remarks

Various/VAR is used to group multiple activities with small funding levels.
Activities will be incrementally funded. The award dates reflect the latest incremental portion funds will obligate.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 2033: *Adv Submarine Systems Development*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	SS/CPFF	Various:Various	8.397	0.885	Dec 2011	0.800	Dec 2012	0.800	Feb 2014	-		0.800	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various:Various	4.353	0.780	Dec 2011	0.700	Jan 2013	0.700	Feb 2014	-		0.700	Continuing	Continuing	Continuing
Travel	WR	NAVSEA HQ:Not Specified	0.509	0.100	Nov 2011	0.100	Dec 2012	0.100	Dec 2013	-		0.100	Continuing	Continuing	Continuing
Acquisition Workforce	Various	Not Specified:Not Specified	0.293	0.000		0.000		0.000		-		0.000	0.000	0.293	0.293
		Subtotal	13.552	1.765		1.600		1.600		0.000		1.600			

Remarks

Various/VAR is used to group multiple activities with small funding levels.
Activities will be incrementally funded. The award dates reflect the latest incremental portion funds will obligate.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	SS/CPFF	EB:Groton, CT	4.846	4.041	Mar 2012	2.827	Mar 2013	2.875	Apr 2014	-		2.875	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	Raytheon:Portsmouth, VA	9.104	0.000		0.000		0.000		-		0.000	0.000	9.104	9.104
Developmental Test & Evaluation	WR	NAVAIR:Patuxent, MD	2.593	0.000		0.000		0.000		-		0.000	0.000	2.593	2.593
Developmental Test & Evaluation	Various	Various:Various	6.372	0.000		0.250	Apr 2013	0.000		-		0.000	0.000	6.622	6.372
Developmental Test & Evaluation	WR	NUWC:Newport, RI	10.121	6.357	Mar 2012	2.780	Feb 2013	2.225	Mar 2014	-		2.225	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC:Carderock, MD	13.255	6.091	Mar 2012	3.125	Feb 2013	3.125	Apr 2014	-		3.125	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	NGSB:Newport News, VA	0.783	0.000		1.000	Mar 2013	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 2033: *Adv Submarine Systems Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	SS/CPFF	JHU/ARL:Laurel, MD	0.305	0.000		0.000		0.750	May 2014	-		0.750	0.000	1.055	0.305
Developmental Test & Evaluation	SS/CPFF	ARL/PSU:State College, PA	0.720	0.000		0.000		0.000		-		0.000	0.000	0.720	0.720
Developmental Test & Evaluation	WR	NSWC:Dahlgren, VA	1.320	0.000		0.000		0.000		-		0.000	0.000	1.320	1.320
		Subtotal	49.419	16.489		9.982		8.975		0.000		8.975			

Remarks

Various/VAR is used to group multiple activities with small funding levels.
Activities will be incrementally funded. The award dates reflect the latest incremental portion funds will obligate.

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	334.245	37.372		35.155		32.546		0.000		32.546			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 2033: *Adv Submarine Systems Development*

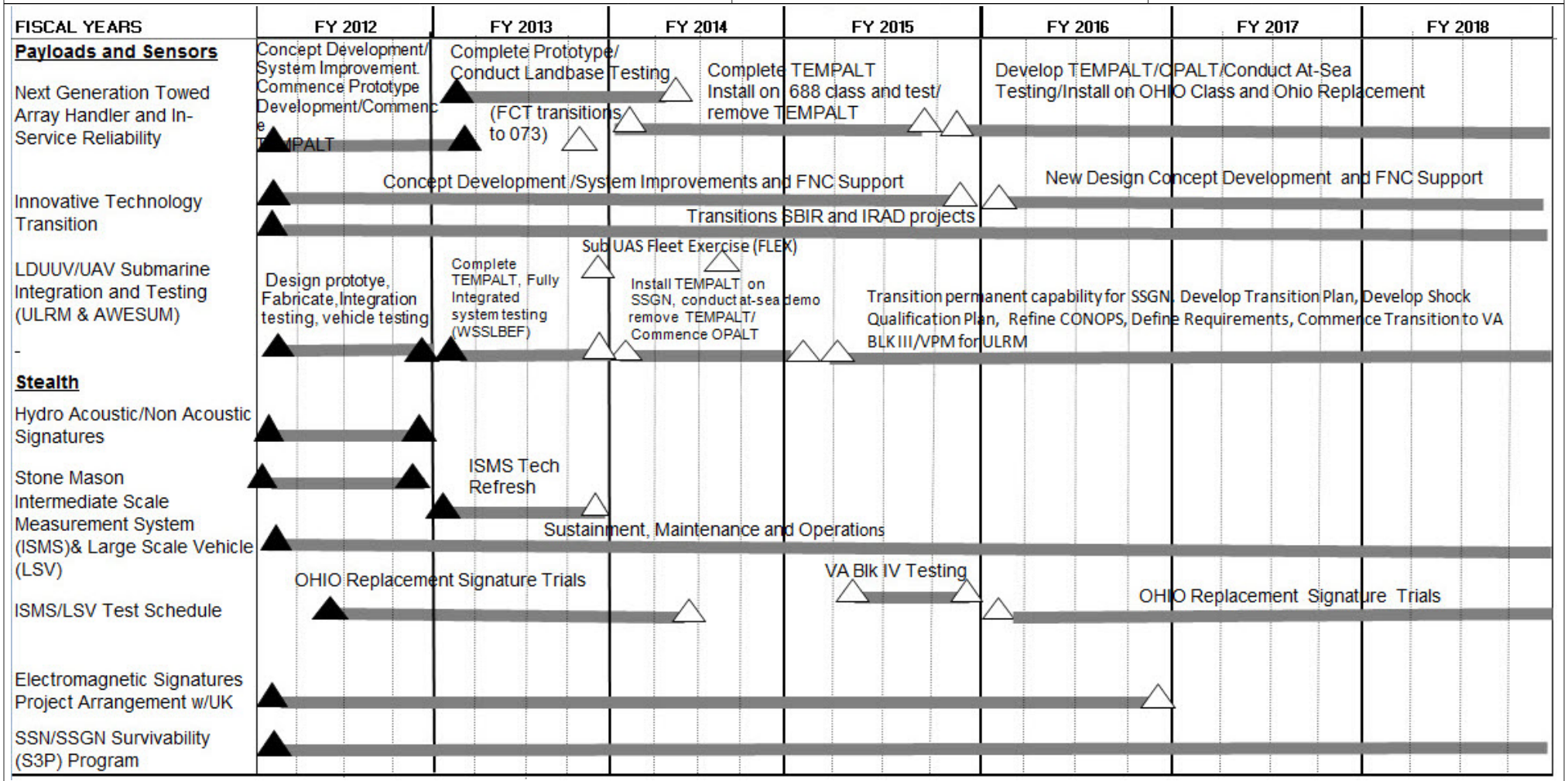
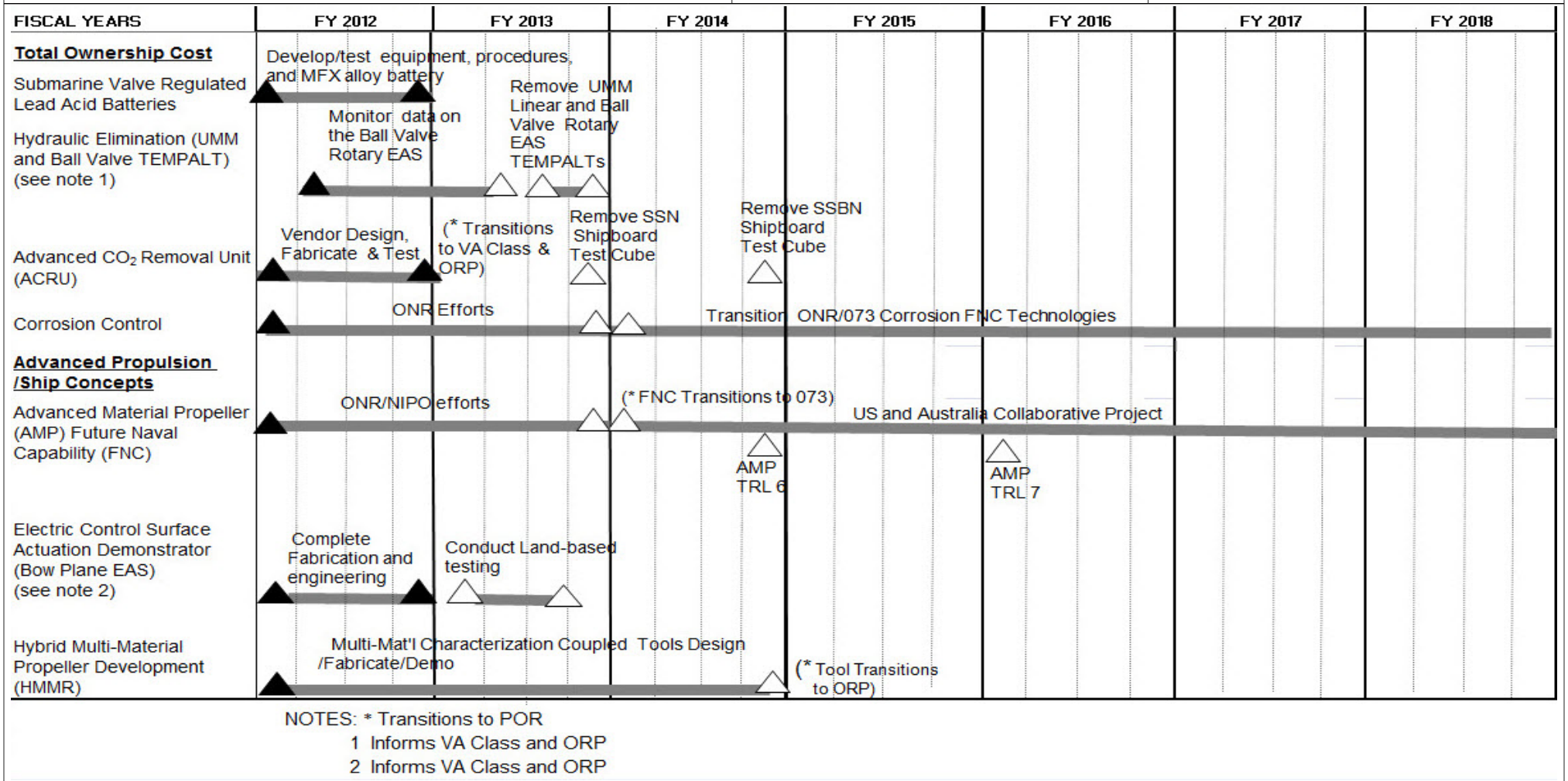


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 2033: *Adv Submarine Systems Development*



NOTES: * Transitions to POR
1 Informs VA Class and ORP
2 Informs VA Class and ORP

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603561N: *Advanced Submarine System Development*	**PROJECT** 2033: *Adv Submarine Systems Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2033				
P&S - TAHS - Concept Dev/Sys Improv/Prototype Dev/Commence TEMPALT	1	2012	1	2013
P&S TAHS - Complete Prototype Dev & Landbase Testing	1	2013	2	2014
P&S TAHS - Complete TEMPALT/Install on 688/Conduct At-Sea Testing/remove TEMPALT	1	2014	3	2015
P&S TAHS - Develop TEMPALT/OPALT/Conduct At-sea test/Install on OHIO Class and ORP	4	2015	4	2018
P&S TAHS - Foreign Comparative Test (FCT) Transitons	4	2013	4	2013
P&S Innovation Technology Transition - Concept Dev/Sys Improv. and FNC Spt	1	2012	4	2015
P&S Innovation Technology Transition - New Design Concept/Dev and FNC Spt	1	2016	4	2018
P&S Innovation Technology Transition - Transitions SBIR and IRAD Projects	1	2012	4	2018
P&S LDUUV/UAV Submarine Integration and Testing - Design Prototype, Fabricate, and integrate and vehicle testing	1	2012	4	2012
P&S LDUUV/UAV Submarine Integration and Testing - Complete TEMPALT/conduct fully integrated testing	1	2013	4	2013
P&S LDUUV/UAV Submarine Integration and Testing - Install TEMPALT on SSGN / conduct at-sea test demo/remove TEMPALT/Commence OPALT	1	2014	1	2015
P&S LDUUV/UAV Submarine Integration and Testing - Sub UAS Fleet Exercise (FLEX)	4	2013	4	2013
-P&S LDUUV/UAV Submarine Integration and Testing - Sub UAS FLEX	3	2014	3	2014
-P&S LDUUV/UAV Submarine Integration and Testing - Transition permanent capability for SSGN/ Dev Transition Plan & Shock Qual Plan/Refine CONOPS/ Commence Transition to VA Blk III/VPM for ULRM	2	2015	4	2018
STEALTH Hydro Acoustic & Non-Acoustic Signatures	1	2012	4	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 2033: *Adv Submarine Systems Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
STEALTH Stone Mason	1	2012	4	2012
STEALTH Intermediate Scale Measurement System (ISMS)/Large Scale Vehicle (LSV) Tech Refresh	1	2013	4	2013
STEALTH ISMS /LSV Sustainment, Maintenance and Operations	1	2012	4	2018
STEALTH ISMS/LSV Test Schedule OHIO Replacement Signature Trials	2	2012	2	2014
STEALTH ISMS/LSV Test Schedule VA Blk IV Testing	2	2015	4	2015
STEALTH ISMS/LSV Test Schedule OHIO Replacement Signature Trial	1	2016	4	2018
STEALTH Electromagnetic Signatures Project Arrangement (PA) w/UK	1	2012	4	2016
STEALTH SSN/SSGN Survivability (S3P)	1	2012	4	2018
TOC - Submarine Valve Regulated Lead Acid Batteries - Develop/test MFX Alloy batteries	1	2012	4	2012
TOC Hydraulic Elimination Ball Valve & UMM Linear TEMPALT - Monitor data on Ball Valve Rotary EAS	2	2012	2	2013
TOC Hydraulic Elimination Ball Valve & UMM TEMPALTs Removal (Informs VA Class and ORP)	3	2013	4	2013
TOC Advanced CO2 Removal System Vendor Design, Build and Test	1	2012	4	2012
TOC Advanced CO2 Remove SSN Shipboard Test Cube	4	2013	4	2013
TOC Advanced CO2 Remove SSBN Shipboard Test Cube	4	2014	4	2014
TOC - Transition Corrosion FNC Technologies	1	2014	4	2018
Adv Prop/Ship Concept AMP FNC - US and Australia Collaborative Project	1	2014	4	2018
Adv Prop/Ship Concept AMP FNC - AMP TRL -6	4	2014	4	2014
Adv Prop/Ship Concept AMP FNC - AMP TRL -7	1	2016	1	2016
Adv Prop/Ship Concept Electric Control Surface Actuation Complete Fabrication and Engineering	1	2012	4	2012
-Adv Prop/Ship Concept Electric Control Surface Actuation - Conduct Land-based Testing (Informs VA Class and ORP)	1	2013	3	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 2033: *Adv Submarine Systems Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Adv Prop/Ship Concept Hybrid Multi-Material Propeller Dev (HMMR) - Characterization Coupled Design Tools/Fabricate/demo	1	2012	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy												DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*				PROJECT 3220: *SBSD Advanced Submarine System Development*			
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
3220: *SBSD Advanced Submarine System Development*	794.118	761.215	483.095	787.618	-	787.618	859.560	1,037.154	709.130	721.006	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Sea Based Strategic Deterrent (SBSD) Advanced Submarine System Development project supports the OHIO Replacement (OR) program. The funding applies to the design, systems engineering, prototyping, and vendor qualification activities needed to execute the schedule for Common Missile Compartment (CMC) design, whole ship design, and component technologies development for the next generation U.S. ballistic missile submarine. This RDT&E program supports cooperation with the United Kingdom (UK) to maintain strategic deterrence, based on a single effort to develop a CMC as agreed by the UK Secretary of State for Defence and the U.S. Secretary of Defense in 2009.

The OHIO Replacement program strategy is to maximize the re-use of existing OHIO systems and new designs from VIRGINIA Class (as applicable), focus on Life Cycle Total Ownership Cost (TOC) affordability, and meet the military requirements established for this SSBN to achieve mission success in a challenging environment.

The FY 2013 funding level reflects the shifted procurement of the OHIO Replacement lead ship by two years and requires a portion of FY 2012 funding be available to finance FY 2013 requirements.
The following key activities support a ship acquisition program to replace the OHIO Class SSBNs:
1. Design and development of a missile compartment, launch system, and strategic support systems to meet U.S. strategic requirements while cooperating with the UK on modernizing its strategic deterrent in accordance with Presidential direction (December 2006).

2. Concept and System Definition for remaining portions of the ship will be accomplished by the design / build / sustain approach modeled after the VIRGINIA Class program.

3. Development of advanced submarine platform technologies to provide capabilities needed to enhance platform operational effectiveness and minimize life cycle cost.

OR Concept and System Definition Prototyping, and Technology Development Efforts

The OR program supports design, systems engineering, prototyping and vendor qualification activities needed to develop CMC design, the OHIO Replacement whole ship design, and component development. The OR design timelines are based on the approach proven on VIRGINIA Class Program, adjusted for the additional complexity of a missile compartment and Strategic Weapons Systems (SWS). Planned technical studies and prototyping are necessary to reduce risks associated

with updating SSBN system designs for current technical standards and demonstrating design feasibility of technical options to inform the establishment of detailed requirements.

The Navy continues investing $150M ($50M/year in FY 2012-2014) in Design for Affordability (DFA) initiatives similar to those employed successfully for VIRGINIA Class, but tailored to the uniqueness of OHIO Replacement to drive down overall program costs. Efforts will focus on reducing ship construction costs through implementing more effective design features to produce a more affordable/producible class. As part of this effort, alternative contracting strategies will be examined.

Activities planned for FY 2014 are required to maintain the development schedule for the first article prototype of the CMC in 2015 to support the UK SUCCESSOR progamme. The CMC program will mature required technologies and re-host the TRIDENT II D5 SWS (Launcher, Fire Control and Navigation) while ensuring no degradation to D5 security, safety and performance. In addition, whole ship design efforts are focused on technologies requiring significant development times and those technologies with early design impacts. These include propulsor development, ship control (e.g., control surfaces), and ship signatures. These technologies are critical for stealth capability for a ship class that will be in service until the 2080s. Ship concept design efforts include important pre-construction activities such as trade studies of ship requirements, risk characterization of technology options, improvement and validation of performance prediction tools and improvement of design tools. Technology development will address maturation of technologies that are required to support ship design and construction schedules such as the propulsor, maneuvering/ship control and signatures.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: CMC Design and Prototyping	356.087	101.377	262.623
Articles:	0	0	0
FY 2012 Accomplishments: Continued efforts for the design and development of the CMC to include: related sections of the first article quad pack ship specification, missile tube requirements review and continuation of the missile tube detail design and first article missile tube quad pack design. Continued CMC system diagrams. On-site installation of the missile tube integration fixture and execution of the missile tube quarter crown and barrel prototype quad pack. Continued concept studies and preliminary designs for additional fixtures. Continued casting vendor qualification and concept design of missile tube quad to hull manufacturing prototypes to validate planned missile compartment production techniques. Completed validation of the forged barrel prototyping for the Integrated Tube and Hull (ITH) shape in support of the CMC build strategy. Completed the CMC quad pack ship specification. Competitive ITH shape and missile tube manufacturing process development. Continued system engineering efforts to refine the required CMC build strategy. Continued planning activities and trade studies for CMC test facilities. Continued initial planning, development, and testing of missile tube to keel robotic welding.			
FY 2013 Plans: Continue efforts for the design and development of the CMC to include: completion of CMC ship specifications, continue missile tube design and first article missile quad pack design, and continue CMC system diagrams. Continue design and prototype efforts and manufacturing of additional fixtures. Continue validation of missile tube to missile tube quad pack production techniques. Complete validation and verification of the ITH shape weldment design and preliminary design/prototyping of the missile tube			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 3220: *SBSD Advanced Submarine System Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
quad to hull manufacturing fixture prototypes to validate planned missile compartment production techniques. Continue system engineering efforts to define the required CMC testing during the build cycle. Commence design for the missile compartment. Commence planning activities for CMC test facilities. Continue development and testing of missile tube to keel robotic welding techniques. ***FY 2014 Plans:*** Continue efforts for the design and development of the CMC to include: drawings of the first article missile tube quad pack, and CMC system diagrams. Review missile tube drawings and commence CMC arrangements. Continue validation of missile tube to missile tube quad pack production techniques. Continue design and prototype efforts and manufacturing of additional fixtures. Continue validation and verification of the casting design and preliminary design of the missile tube quad to hull manufacturing fixture prototypes to validate planned missile compartment production techniques. Continue system engineering efforts to define the required CMC testing during the build cycle. Continue design for the missile compartment. Finalize planning activities for CMC test facilities. Continue development and testing of missile tube to keel robotic welding techniques to support process certification.			
Title: Ship Study and Design ***Articles:*** ***FY 2012 Accomplishments:*** Continued with preliminary design of forward and aft ends of OHIO Replacement Class. Continued Rest of Ship concept development, system integration, component design, system definition documents, system diagrams, ship arrangements, construction drawings, control surface design and studies. Continued Rest of Ship specifications development. Continued CMC interface with Rest of Ship. ***FY 2013 Plans:*** Continue with preliminary design of forward and aft ends of OHIO Replacement Class. Continue Rest of Ship concept development, system integration, component design, system definition documents, system diagrams, ship arrangements, construction drawings, control surface design and studies. Continue Rest of Ship specifications development. Continue CMC interface with Rest of Ship. Develop ship manufacturing assembly plan. ***FY 2014 Plans:*** Continue with preliminary design of forward and aft ends of OHIO Replacement Class. Complete ship specifications. Continue Rest of Ship concept development, system integration, component design, system definition documents, system diagrams, ship arrangements, construction drawings, control surface design and studies. Continue Ship specifications development. Continue CMC interface with Rest of Ship.	36.525 0	39.276 0	101.205 0
Title: NAVSEA R&D and Prototyping ***Articles:***	84.383 0	83.820 0	107.603 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 3220: *SBSD Advanced Submarine System Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: Completed scale model testing, numerical simulations, and man-in-the-loop testing of various candidate control surface configurations. Accepted delivery of a motion simulator to support ship control Concept of Operation Exercises (COOPEX). Developed propulsor design guidance and propulsor interface control documents. Completed initial small scale propulsor testing. Implemented strategies for developing various components (i.e. diesel generator, trim and drain pump, heat exchangers, thin line towed array handler, etc.) to meet requirements in support of ship design and construction timelines. Completed large scale model testing to provide design information for superstructure and hatch fairing concepts. Completed drawings for a temporary installation of equipment on a full scale surrogate platform that will be tested to generate information to support the design of the ship's stern. Continued component development to support ship requirements. ***FY 2013 Plans:*** Final model testing and simulations to support selection of the control surface configuration. Continue Generation 1 design for propulsor concepts including testing in the large cavitation channel. Conduct resistance and powering testing for Generation 1 propulsors. Demonstrate capability to manufacture a concept for a propulsor to shaft inner hub connection. Deliver an instrumented rotor to support large scale vehicle testing. Initial testing and simulations to support control surface design. Fabrication and testing of CMC pressure hull models. Populate motion simulator with electronics to support a ship control COOPEX. Conduct a full scale low voltage anode test. Equipment surrogate full scale test platform to support stern design. Continue component development to support ship requirements. ***FY 2014 Plans:*** Finalize Generation 1 propulsor designs for OHIO Replacement. Test Generation 1 Propulsor models on the large scale vehicle. Initiate large scale vehicle modifications. Conduct CMC pressure hull model testing. Initial full scale bearing test rig evaluation of VA-like design. Conduct high Reynolds number testing for control surface design. Conduct full scale low voltage anode simulations. Development of the cathodic protection system preliminary design. Conduct full scale at-sea test on surrogate platform to inform stern design. Continue component development to support ship requirements.			
Title: Test and Evaluation	2.515	2.700	2.795
Articles:	0	0	0
FY 2012 Accomplishments: Continued efforts to identify T&E requirements for the program and interface with OSD oversight organizations for T&E. ***FY 2013 Plans:*** Continue efforts to identify T&E requirements for the program and interface with OSD oversight organizations for T&E. Draft Test and Evaluation Master Plan (TEMP) and refine LFT&E Master Plan. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 3220: *SBSD Advanced Submarine System Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue efforts to identify T&E requirements for the program and interface with OSD oversight organizations for T&E. Complete TEMP and LFT&E Master Plan. Complete Commander Operational Test and Evaluation Force (COMOPTEVFOR) Mission Based Test Design Integrated Evaluation Framework.			
Title: Strategic Weapons Systems Integration	151.179	149.354	178.764
Articles:	0	0	0
FY 2012 Accomplishments: Continued system engineering efforts required for the technical repackaging of the TRIDENT II (D5) SWS on the OHIO Replacement submarine. Continued concept and design work to develop a missile launch tube test capability and test stand including refurbishment of a test vehicle to support launch system prototype effort and qualification. Initiated system engineering efforts related to development of Special Test Vehicles. Continued system engineering design efforts associated with the physical arrangement drawings for SWS equipment within the CMC and Missile Control Center Module (MCCM).			
FY 2013 Plans: Continue system engineering efforts required for the technical re-hosting of the TRIDENT II (D5) SWS on the OHIO Replacement submarine; including review and modification of SWS Interface Drawings, SWS subsystem preliminary design and software requirements development. Continue system engineering design efforts associated with the physical arrangement drawings for SWS equipment within the CMC and MCCM. Limited SWS test systems material procurement and builds, Test berth / facility modifications and development of special test vehicles. SWS Ashore test capability development. SWS training capability / requirements development. Material procurement and build of Fire Control Engineering Test Systems. Continue design efforts for the development of a missile launch tube test capability and test stand including refurbishment of a test vehicle to support launch system prototype efforts and evaluation / qualification.			
FY 2014 Plans: Continue system engineering efforts required for the technical re-hosting of the TRIDENT II (D5) SWS on the OHIO Replacement submarine including review and modification of SWS Interface Drawings, SWS subsystem preliminary design, and Software requirements development. Continue system engineering design efforts associated with the physical arrangement drawings for SWS equipment within the CMC and MCCM. Limited SWS test systems material procurement and builds, test berth / facility modifications and development of special test vehicles. SWS Ashore test capability development. SWS training capability / requirements development. Build and delivery of Fire Control Engineering Test Systems. Continue design efforts for the development of a missile launch tube test capability and test stand including refurbishment of a test vehicle to support launch system prototype efforts and evaluation / qualification. Initiate design and development efforts for shipboard & ashore navigation center engineering development models. Initiate systems engineering design efforts related to the OHIO Replacement guidance handling carts. Material procurement for underwater launch risk mitigation testing.			
Title: Systems Engineering/Program Management	80.526	56.568	84.628

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 3220: *SBSD Advanced Submarine System Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0	0	0
FY 2012 Accomplishments: Continued to provide technical oversight including Program Office management and technical support from government laboratories for review, analysis and modeling. Commenced maintenance planning and design for sustainment activities. ***FY 2013 Plans:*** Continue to provide technical oversight including Program Office management and technical support from government laboratories for review, analysis and modeling. Continue maintenance planning and design for sustainment activities. ***FY 2014 Plans:*** Continue to provide technical oversight including Program Office management and technical support from government laboratories for review, analysis and modeling. Continue maintenance planning and design for sustainment activities.			
Title: Design for Affordability	50.000	50.000	50.000
Articles:	0	0	0
FY 2012 Accomplishments: Initiated execution of the DFA program and related design initiatives by establishing the DFA team within the program office. Established bi-weekly review of DFA initiatives with government and industry stakeholders. Established an Operations and Support (O&S) Cost Reduction Integrated Product Team (IPT) and action plan. ***FY 2013 Plans:*** Continue execution of the DFA program and related design initiatives. Commence execution of government cost reduction plans to reduce non-recurring engineering (NRE) costs. Commence execution of cost reduction plans to reduce O&S costs. ***FY 2014 Plans:*** Continue execution of the DFA program and related design initiatives in order to achieve OR cost objectives for NRE, construction and O&S costs.			
Accomplishments/Planned Programs Subtotals	761.215	483.095	787.618

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTEN/3219: *SBSD Nuclear Technology Development*	285.367	81.817	296.050		296.050	361.827	422.492	411.428	401.525	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 3220: *SBSD Advanced Submarine System Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• SCN/1045: *Ohio Replacement Submarine*	0.000	0.000	0.000		0.000	0.000	0.000	777.793	791.793	Continuing	Continuing

Remarks

D. Acquisition Strategy

The common missile compartment will be designed and developed to support the U.S. and UK in development of the OHIO Replacement and SUCCESSOR SSBN programs enabling a common U.S.-UK CMC and maximizing the benefit of the ongoing U.S.-UK partnership in strategic deterrence. The OHIO Replacement R&D efforts will incentivize cost reduction initiatives in the design, construction and operations & support portions of the program. R&D efforts will be performed by Navy laboratories, shipyards, private industry, and University Affiliated Research Centers.

E. Performance Metrics

Updated Integrated Master Schedule and CMC build strategy down-select. Development of signature management efforts to address knowledge gap, concepts for propulsor and shafting, and design guidance and interface control requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 3220: *SBSD Advanced Submarine System Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	SS/CPFF	Ship Design Contractor-EB:Groton, CT	117.096	36.525	Oct 2011	39.276	Dec 2012	101.205	Dec 2013	-		101.205	Continuing	Continuing	Continuing
Product Development	SS/CPFF	Ship Design Contractor DFA Support-EB:Groton, CT	0.000	40.000	Jan 2012	40.000	Jan 2013	40.000	Dec 2013	-		40.000	Continuing	Continuing	Continuing
Product Development	WR	NSWC:Carderock, MD	93.080	91.620	Oct 2011	72.626	Dec 2012	80.032	Oct 2013	-		80.032	Continuing	Continuing	Continuing
Product Development	WR	NSWC DFA Support:Carderock, MD	0.000	2.000	Jan 2012	2.000	Jan 2013	2.000	Jan 2014	-		2.000	Continuing	Continuing	Continuing
Product Development	SS/CPFF	ARL Penn State University:State College, PA	3.219	0.356	Dec 2011	0.363	Dec 2012	0.370	Dec 2013	-		0.370	Continuing	Continuing	Continuing
Product Development	SS/CPFF	EB:Groton, CT	29.431	27.872	Oct 2011	22.001	Dec 2012	55.149	Dec 2013	-		55.149	Continuing	Continuing	Continuing
Product Development	SS/CPFF	NGMS:Sunnyvale, CA	32.550	48.891	Oct 2011	24.024	Dec 2012	46.206	Dec 2013	-		46.206	Continuing	Continuing	Continuing
Product Development	WR	NUWC:Newport, RI	16.750	6.398	Oct 2011	8.315	Dec 2012	17.943	Oct 2013	-		17.943	Continuing	Continuing	Continuing
Product Development	WR	NUWC DFA Support:Newport, RI	0.000	7.900	Jan 2012	8.000	Jan 2013	8.000	Jan 2014	-		8.000	Continuing	Continuing	Continuing
Product Development	SS/CPFF	Missile Comp Design Contractor-EB:Groton, CT	308.890	356.087	Oct 2011	101.377	Oct 2012	262.623	Dec 2013	-		262.623	Continuing	Continuing	Continuing
Product Development	SS/CPFF	JHU/APL:Laurel, MD	11.269	6.374	Dec 2011	5.954	Dec 2012	5.832	Dec 2013	-		5.832	Continuing	Continuing	Continuing
Product Development	SS/CPFF	Draper Labs:Cambridge, MA	3.000	2.775	Oct 2011	2.669	Dec 2012	3.365	Dec 2013	-		3.365	Continuing	Continuing	Continuing
Product Development	SS/CPFF	LMFS:Mitchel Field, NY	8.251	5.694	Oct 2011	9.535	Dec 2012	12.352	Dec 2013	-		12.352	Continuing	Continuing	Continuing
Product Development	Various	NAVSEA:Various	15.131	18.393	Oct 2011	16.160	Dec 2012	18.046	Oct 2013	-		18.046	Continuing	Continuing	Continuing
Product Development	WR	NOTU:Cape Canaveral, FL	4.400	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 3220: *SBSD Advanced Submarine System Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	SS/CPFF	LMMSC:Sunnyvale, CA	27.570	16.639	Oct 2011	31.154	Dec 2012	32.462	Dec 2013	-		32.462	Continuing	Continuing	Continuing
Product Development	C/CPFF	GDAIS:Pittsfield, MA	35.181	23.207	Jan 2012	33.911	Dec 2012	35.259	Dec 2013	-		35.259	Continuing	Continuing	Continuing
Product Development	SS/CPFF	IEC:Anaheim, CA	4.846	1.072	Oct 2011	1.612	Dec 2012	1.726	Dec 2013	-		1.726	Continuing	Continuing	Continuing
Product Development	WR	NSWC:Dahlgren, VA	2.590	3.593	Oct 2011	7.300	Nov 2012	6.575	Nov 2013	-		6.575	Continuing	Continuing	Continuing
Product Development	SS/CPFF	BAE:Rockville, MD	13.200	12.080	Oct 2011	10.680	Dec 2012	11.510	Dec 2013	-		11.510	Continuing	Continuing	Continuing
Product Development	SS/CPFF	BNA:Huntington Beach, CA	3.487	2.500	Oct 2011	2.102	Dec 2012	2.278	Dec 2013	-		2.278	Continuing	Continuing	Continuing
Product Development	WR	NSWC Crane:Crane, IN	7.724	7.525	Oct 2011	7.261	Nov 2012	10.449	Nov 2013	-		10.449	Continuing	Continuing	Continuing
Product Development	WR	NWC CL:China Lake, CA	5.863	11.840	Oct 2011	1.819	Nov 2012	1.837	Nov 2013	-		1.837	Continuing	Continuing	Continuing
Product Development	SS/CPFF	SPA:Alexandria, VA	2.953	3.585	Oct 2011	3.579	Dec 2012	3.573	Dec 2013	-		3.573	Continuing	Continuing	Continuing
Product Development	Various	SSP:Various	13.124	5.048	Oct 2011	7.391	Nov 2012	4.970	Nov 2013	-		4.970	Continuing	Continuing	Continuing
		Subtotal	759.605	737.974		459.109		763.762		0.000		763.762			

Remarks

Note: Various is used for multiple activities with different award dates

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Test and Evaluation Support	C/CPFF	T&E Support:Various	0.300	0.420	Oct 2011	0.435	Dec 2012	0.467	Oct 2013	-		0.467	Continuing	Continuing	Continuing
Government Test and Evaluation Support	WR	T&E Support:Various	2.391	2.095	Oct 2011	2.265	Dec 2012	2.328	Oct 2013	-		2.328	Continuing	Continuing	Continuing
		Subtotal	2.691	2.515		2.700		2.795		0.000		2.795			

Remarks

Note: Various is used for multiple activities with different award dates. Contractor Test & Evaluation Support cost category item funds will be sent to Shipbuilder and Support Contractors to be determined. Government Test and Evaluation Support cost category item funds will be sent to several Navy activities to be determined.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 3220: *SBSD Advanced Submarine System Development*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Management Support	C/CPFF	Various:Multiple Awards	15.450	9.799	Oct 2011	10.142	Apr 2013	9.391	Oct 2013	-		9.391	Continuing	Continuing	Continuing
Government Management Support	WR	Various:NSWC Carderock, MD	15.872	10.427	Oct 2011	10.792	Dec 2012	11.170	Oct 2013	-		11.170	Continuing	Continuing	Continuing
Travel	WR	NAVSEA HQ:Washington, D.C.	0.500	0.500	Oct 2011	0.352	Dec 2012	0.500	Oct 2013	-		0.500	Continuing	Continuing	Continuing
		Subtotal	31.822	20.726		21.286		21.061		0.000		21.061			

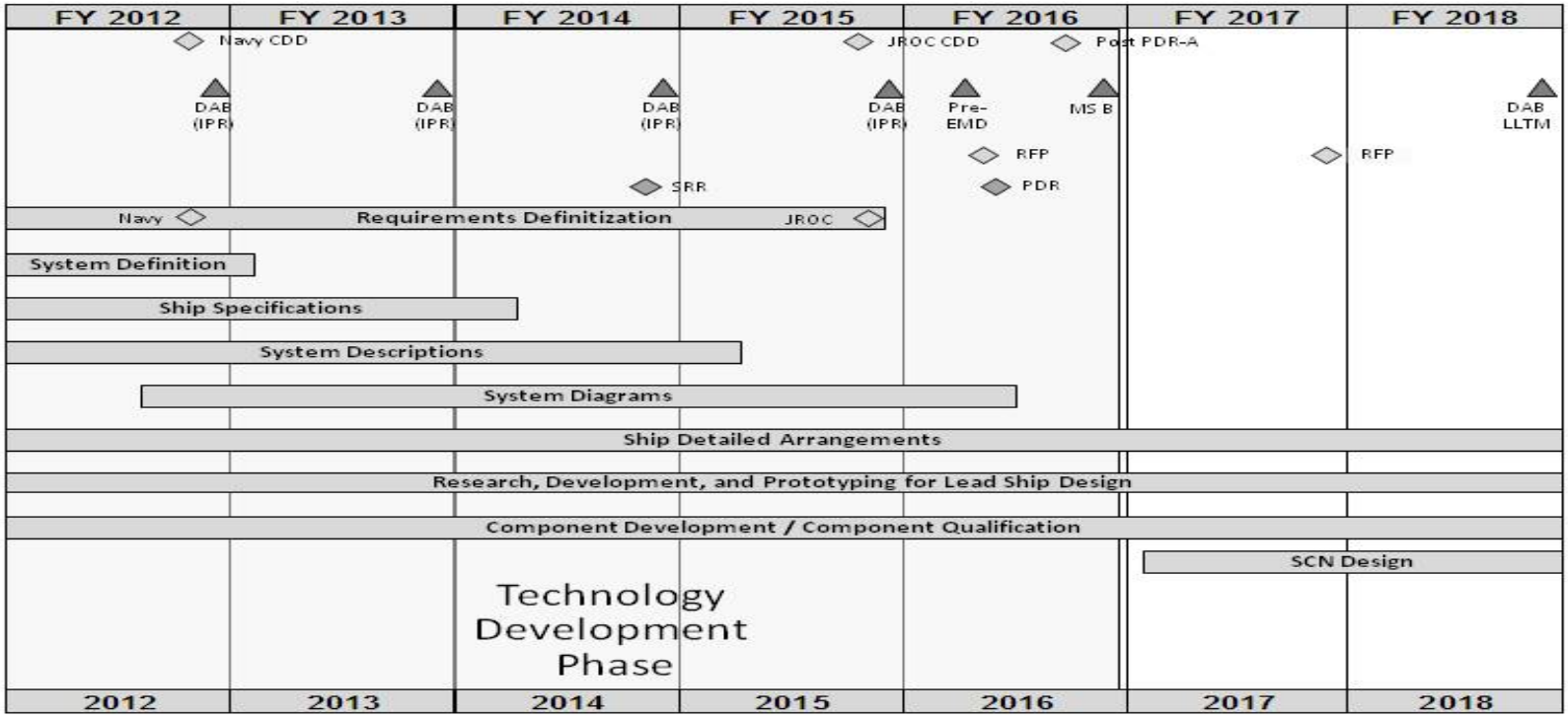
Remarks

Note: Various is used for multiple activities with different award dates

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	794.118	761.215		483.095		787.618		0.000		787.618			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 3220: *SBSD Advanced Submarine System Development*



CDD - Capabilities Development Document
DAB - Defense Acquisition Board
EMD - Engineering and Manufacturing Development
IPR - In Progress Review
JROC - Joint Requirements Oversight Council
LLTM - Long Lead Time Material
MS - Milestone
PDR - Preliminary Design Review
RFP - Request for Proposal
SCN - Shipbuilding and Conversion, Navy
SRR - System Requirements Review

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603561N: *Advanced Submarine System Development*	**PROJECT** 3220: *SBSD Advanced Submarine System Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Notes: * Effort began prior to 1st Quarter FY 2012. ** Effort continues past 4th Quarter FY 2018. (Reflects June 2012 Integrated Master Schedule)				
Requirements Definitization*	1	2012	4	2015
Research Development and Prototyping for Lead Ship Design* **	1	2012	4	2018
Component Development/Component Qualification* **	1	2012	4	2018
System Definition*	1	2012	1	2013
Ship Specifications*	1	2012	2	2014
System Diagrams	3	2012	2	2016
Ship Detailed Arrangements**	1	2012	4	2018
SCN Design	1	2017	4	2018
System Descriptions*	1	2012	2	2015

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	5.380	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.380
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Congressional Add Projects.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013
Congressional Add: Adv Sub Sys Dev (Cong)	5.380	-
FY 2012 Accomplishments: Developed a modified MFX alloy SVRLA prototype battery (redevelopment from previous design) and test at a government owned land based test facility. Continue the on-going Root Cause Analysis (RCA) efforts to identify and correct cause for capacity decline.		
Congressional Adds Subtotals	5.380	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add Projects.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603561N: *Advanced Submarine System Development*	PROJECT 9999: *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	NSWC:Crane, IN	0.000	4.982	Feb 2012	0.000		0.000		-		0.000	0.000	4.982	
Product Development	C/BA	PSNSY:Brementon, WA	0.000	0.398	May 2012	0.000		0.000		-		0.000	0.000	0.398	
		Subtotal	0.000	5.380		0.000		0.000		0.000		0.000	0.000	5.380	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	5.380		0.000		0.000		0.000		0.000	0.000	5.380	

Remarks

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	37.871	9.008	9.368	8.764	-	8.764	9.690	9.835	9.993	10.138	Continuing	Continuing
0770: *Adv Sub Supp Equip Prog*	7.046	3.798	3.989	3.855	-	3.855	4.141	4.194	4.234	4.296	Continuing	Continuing
1739: *Submarine Arctic W/F Development*	30.825	5.210	5.379	4.909	-	4.909	5.549	5.641	5.759	5.842	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Submarine Tactical Warfare Systems program element is comprised of the Advanced Submarine Support Equipment Program (ASSEP) and the Submarine Special Operations Support Program. The objective is to improve submarine operational effectiveness through the development and implementation of advanced Research and Development (R&D). In order to provide improved operational effectiveness, R&D efforts are focused on Advanced Imaging Developments and Advanced Electronic Warfare Support (ES) Developments. A continuing need exists to improve these capabilities in view of the advancements in potential imaging counter detection, the need to support specialized missions, and the increasingly dense and sophisticated electronic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Ongoing developments in 360 degree imaging systems and electro-optic infra-red vulnerability signature reduction technologies are supporting these needs.

The Submarine Arctic Warfare Development program responds to the increased threat of naval activity in the Arctic regions while continuously supporting the Navy's strategic objective of Assured Access and Combat Credibility. The U.S. Navy Submarine Force (SUBFOR) demonstrates existing Arctic Warfare capabilities, operational and tactical proficiency while developing advanced submarine research and development technology in unique cold water environments, under-ice conditions, and ice-covered shallow water regions during Ice Exercises (ICEX). ICEX provides the framework for various submarine research and development programs to conduct test and evaluation in Arctic regions or at periodic Ice Camps. Particular emphasis is placed on the areas of sonar operability, tactical surveillance, weapon utility, and other submarine support missions. Efforts include assessment of combat system effectiveness, development of Arctic specific improvements for existing sonar and weapons, development of class specific Arctic operational guidelines, and the testing of ice-capable submarine support structures. This program also provides SUBFOR a cadre of trained Arctic Operation Specialists (AOS) and an inventory of unique Arctic sensors to optimize submarine safety during under-ice operations.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	9.233	9.368	9.492	-	9.492
Current President's Budget	9.008	9.368	8.764	-	8.764
Total Adjustments	-0.225	0.000	-0.728	-	-0.728
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.225	0.000			
• Program Adjustments	0.000	0.000	-0.018	-	-0.018
• Rate/Misc Adjustments	0.000	0.000	-0.710	-	-0.710

Change Summary Explanation

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 0770: *Adv Sub Supp Equip Prog*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0770: *Adv Sub Supp Equip Prog*	7.046	3.798	3.989	3.855	-	3.855	4.141	4.194	4.234	4.296	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

A continuing need exists to improve Imaging and Electronic Warfare support (EW) capabilities in view of the advancements in potential imaging counter detection and the increasingly dense electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for submarine EW and Imaging to be operationally effective in the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare, Intelligence Collection, Maritime Protection, and Joint Strike. The program is divided into two project categories: Advanced Imaging Project Development and Advanced Electronic Warfare Support Project Development. Both of these categories will allow for the mitigation of submarine masts, periscopes, and sensors to visual, radar, and infrared detection. Evaluation of state of the art technology to implement periscope/mast improvements via EW electromagnetic and electro-optic sensors resulting in improved capability. Engineering Demonstration Models (EDMs) are developed, evaluated, and validated in the lab and through at-sea testing.

The Advanced Imaging Project Development projects include the development of: 360 Degree Imaging Affordable Modular Panoramic Photonics Mast (AMPPM); Submarine Panoramic Infra-Red (SPIR) Imaging System; Low Profile Photonics Mast (LPPM); Advanced Head Window Water Shedding; Electro-Optic/Infrared (EO/IR) Vulnerability Signature Reduction; and Mast Signature Reduction; Mast Test Vehicle (MTV) and Imaging Engineering Measurement Program. The Advanced EW Development projects include the development of: Distant ES Support and Remote Log-In; Rapid Reprogramming Threat Libraries; Specific Emitter Identification (SEI) Improvements; Radar Vulnerability Tool; Enhanced DeInterleavers; ES Correlator; Low Probability of Intercept (LPI) Direction Finding (DF); Embedded Built-in Test (BIT); EW on-Board Trainer (OBT); Multi-function Modular Mast (MMM) Payloads and Next Generation EW Systems Algorithms and Applications. OPNAV direction provided for Next Generation EW in reference dated 17 June 12, SER N97/12U144401.

All programs funded in this project are non Acquisition Category (ACAT) programs. The test articles identified consist of critical components that will be fully developed during Engineering Manufacturing and Development phase into EDMs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Advanced Imaging Project Development	2.536	2.366	1.944
Articles:	0	0	0
FY 2012 Accomplishments: Transitioned Head Window Water Shedding Selection UMC Software/Hardware testing			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 0770: *Adv Sub Supp Equip Prog*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
ONR AMPPM Critical Design Review EO/IR Vulnerability Studies ***FY 2013 Plans:*** 360 Degree Medium Wave Infrared (MWIR) Lab Demo and Pierside Testing 360 Degree Affordable Modular Panoramic Photonics Mast (AMPPM) Short Wave Infrared (SWIR) camera and Hyperspectral camera Critical Design Reviews (CDR) EO/IR Mast Signature Reduction: Continuation of EO/IR TDA GUI Development Electro-Optic/Infrared Vulnerability Signature Reduction At-Sea Test Universal Mast Controller S/W & H/W Development/Test, EDM# 1 & 2 Delivery LPPM Initial Design Reveiw (IDR), CDR, Lab Test/Sell Off Common electronic hull penetrator and dip-loop Head Window Water Shedding Pierside Testing ***FY 2014 Plans:*** 360 Degree Imaging (ONR) Dip Loop Development, AMPPM - Lab Testing SWIR and Hyperspectral Cameras LPPM At-Sea Testing			
Title: Advanced Electronic Warfare Support (EW) Project Development	1.262	1.623	1.911
Articles:	0	0	0
FY 2012 Accomplishments: Commenced development of the EW Vulnerability Tool / Tactical Decision Aid Distant Support and Remote Log-in Lab Testing Rapid Reprogramming of Threat Libraries Lab Testing ES Server (Correlator) Lab Testing ***FY 2013 Plans:*** Distant Support and Remote Log-in At-Sea Testing Rapid Reprogramming of Threat Libraries At-sea Testing ES Server (Correlator) At-Sea Testing ES Server (Valkyrie) Development ES Vulnerability Tool / Tactical Decision Aid Development CDR and Lab Demo Enhanced DeInterleavers Development LPI DF / Localization Development			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 0770: *Adv Sub Supp Equip Prog*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Embedded Built-in Test (BIT) Development			
FY 2014 Plans: ES Vulnerability Tool / Tactical Decision Aid At-Sea Test ES Server (Valkyrie) CDR Enhanced DeInterleavers Development/CDR LPI DF / Localization Development/CDR Embedded Built-in Test (BIT) Development/CDR			
Accomplishments/Planned Programs Subtotals	3.798	3.989	3.855

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This project optimizes technology insertion using a build-test-build approach to support EW and Imaging operational needs. Operational needs have been based on the tactical requirements identified in CNO letters, Serial N77/3U629212, dated 04 Sep 03, CNO ltr Ser N772/5U936037 dtd 13 JUN 2005, CNO ltr Ser N776/4U786103 dtd 1 APR 2004, COMSUBLANT/ COMSUBPAC, Virginia Class SSN Operational Requirements Documentation objectives, ORD for Photonics (ORD #365-87-94) [dtd JUL 1994], Operational Requirements Document (ORD) for ES (ORD # 570-77-00) [dtd 20 DEC 2000], ORD for ISIS (ORD #663-77-05) [dtd MAR 2005], Capability Development Document (CDD) for Submarine EW Systems (Ver-DRAFT), Common Submarine Imaging System (CSIS) (CDD# 849-87-11) dtd 22 Dec 2011 for Submarine Imaging Systems and JOINT COMMAND SUBMARINE FORCE/COMMANDER SUBMARINE FORCE ltr Ser# NOO/00621 dtd 24 Oct 2011. Project efforts develop submarine unique improvements to mast, periscope, and EW electromagnetic spectrum and electro-optic sensors based on emerging technologies that are available from DoD Exploratory Development Programs, industry Independent Research and Development, and other sources. Engineering Demonstration Models (EDMs) will be developed to provide a realistic method of evaluating the improvements, including deployment on submarines for testing.

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 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 0770: *Adv Sub Supp Equip Prog*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NUWC:RI	5.014	1.949	Nov 2011	3.074	Nov 2012	3.332	Nov 2013	-		3.332	Continuing	Continuing	Continuing
Primary Hardware Development	SS/CPIF	NSWCCD Det Bethesda:MD	0.000	0.083	Jan 2012	0.000		0.000		-		0.000	0.000	0.083	
Systems Engineering	SS/FFP	JHU/ARL:MD	0.318	0.300	Mar 2012	0.300	Jul 2013	0.300	Jul 2014	-		0.300	Continuing	Continuing	Continuing
Primary Hardware Development	WR	NSWC Philadelphia:PA	0.000	0.000	Jan 2012	0.367	Apr 2013	0.000		-		0.000	0.000	0.367	
Primary Hardware Development	C/CPFF	3 Phoenix:VA	0.451	1.190	Jan 2012	0.000	Mar 2013	0.000		-		0.000	0.000	1.641	
		Subtotal	5.783	3.522		3.741		3.632		0.000		3.632			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Technical Services	C/CPAF	AT&T GSI:Vienna, VA	1.115	0.240	Feb 2012	0.000		0.000		-		0.000	0.000	1.355	1.585
Engineering Technical Services	C/CPAF	Booz Allen & Hamilton:McLean, VA	0.000	0.000		0.216	Feb 2013	0.194	Feb 2014	-		0.194	Continuing	Continuing	Continuing
		Subtotal	1.115	0.240		0.216		0.194		0.000		0.194			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	WR	NAVSEA:WNY	0.148	0.036	Oct 2011	0.032	Oct 2012	0.029	Oct 2013	-		0.029	Continuing	Continuing	Continuing
		Subtotal	0.148	0.036		0.032		0.029		0.000		0.029			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 0770: *Adv Sub Supp Equip Prog*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.046	3.798		3.989		3.855		0.000		3.855			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 0770: *Adv Sub Supp Equip Prog*

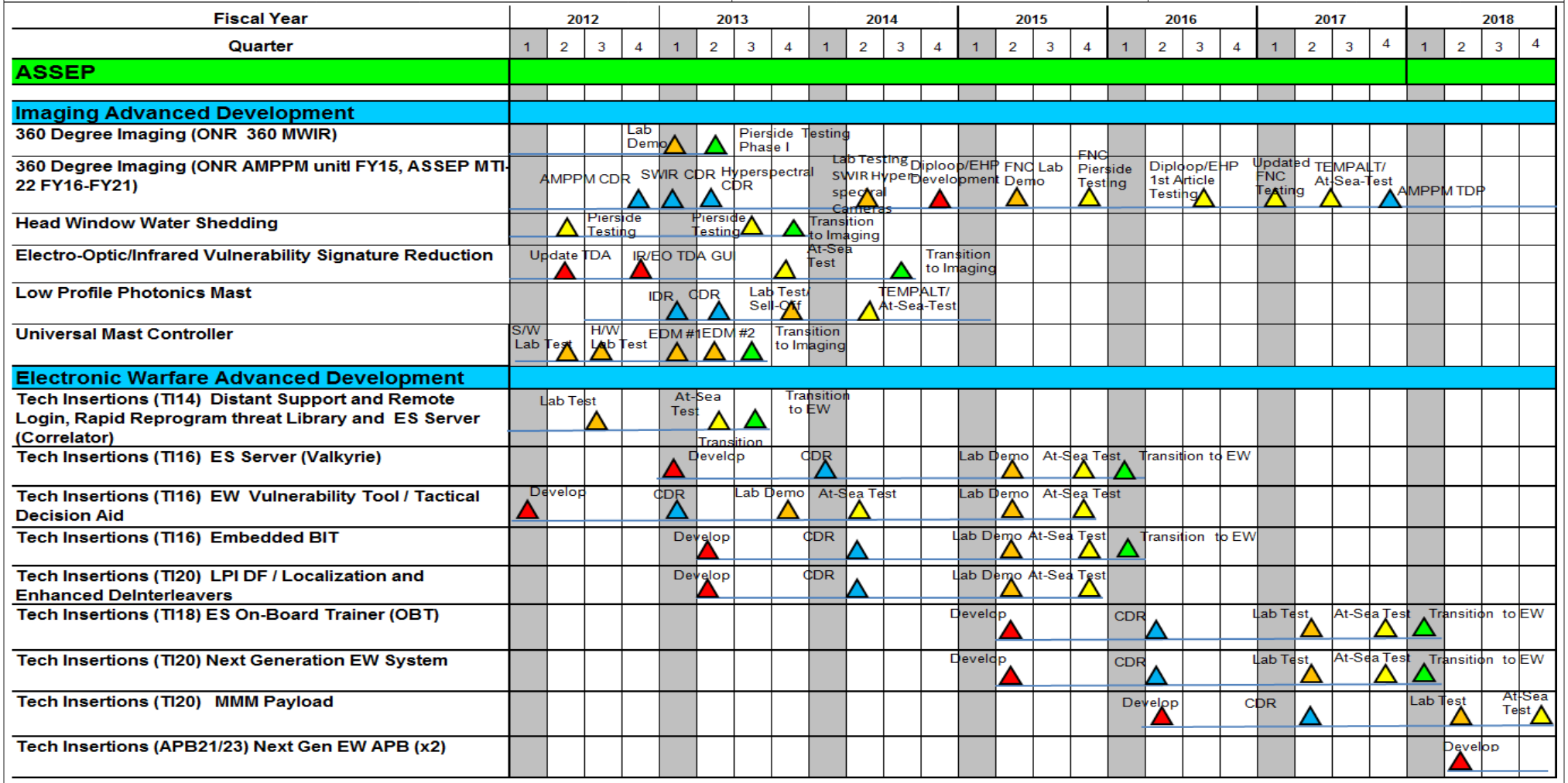


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 0770: *Adv Sub Supp Equip Prog*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0770				
Imaging Advanced Development: 360 Degree Imaging (ONR 360 MWIR) - Lab Testing	1	2013	1	2013
Imaging Advanced Development: 360 Degree Imaging (ONR 360 MWIR) - Pierside Testing	2	2013	2	2013
Imaging Advanced Development: 360 Degree Imaging (ONR) - AMPPM - System CDR	4	2012	4	2012
Imaging Advanced Development: 360 Degree Imaging (ONR) - AMPPM - SWIR CDR	1	2013	1	2013
Imaging Advanced Development: 360 Degree Imaging (ONR) - AMPPM - Hyperspectral CDR	2	2013	2	2013
Imaging Advanced Development: 360 Degree Imaging (ONR) - AMPPM - Lab Demo Components	2	2014	2	2014
Imaging Advanced Development: 360 Degree Imaging (ONR) - AMPPM - Diploop / EHP Development	4	2014	4	2014
Imaging Advanced Development: 360 Degree Imaging (ONR) - AMPPM - FNC Lab Demo	2	2015	2	2015
Imaging Advanced Development: 360 Degree Imaging (ONR) - AMPPM - FNCPierside Testing	4	2015	4	2015
Imaging Advanced Development: 360 Degree Imaging (ONR) - AMPPM - Diploop / EHP 1st Article Testing	3	2016	3	2016
Imaging Advanced Development: 360 Degree Imaging (ONR) - AMPPM - Updated FNC Testing	1	2017	1	2017
Imaging Advanced Development: 360 Degree Imaging (ONR) - AMPPM - TEMPALT/ At-Sea Testing	2	2017	2	2017
Imaging Advanced Development: 360 Degree Imaging (ONR) - AMPPM - AMPPM TDP	4	2017	4	2017
Imaging Advanced Development: Head Window Watershedding - Pierside Testing #1	2	2012	2	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 0770: *Adv Sub Supp Equip Prog*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Imaging Advanced Development: Head Window Watershedding - Pierside Testing #2	3	2013	3	2013
Imaging Advanced Development: Head Window Watershedding (Transistion to Imaging)	4	2013	4	2013
Imaging Advanced Development: Electro-Optic/Infrared (EO/IR) Vulnerability Signature Reduction - Update TDA	2	2012	2	2012
Imaging Advanced Development: EO/IR Vulnerability Signature Reduction - TDA GUI	4	2012	4	2012
Imaging Advanced Development: EO/IR Vulnerability Signature Reduction - At-Sea Test	4	2013	4	2013
Imaging Advanced Development: EO/IR Vulnerability Signature Reduction - Transistion to Imaging	3	2014	3	2014
Imaging Advanced Development: Universal Mast Controller (UMC) Software Lab Test	2	2012	2	2012
Imaging Advanced Development: Low Profile Photonics Mast - IDR	1	2013	1	2013
Imaging Advanced Development: Low Profile Photonics Mast - FDR	2	2013	2	2013
Imaging Advanced Development: Low Profile Photonics Mast - Lab Testing/Sell-off	4	2013	4	2013
Imaging Advanced Development: Low Profile Photonics Mast - TEMPALT/At-Sea Test	2	2014	2	2014
Imaging Advanced Development: UMC Hardware Lab Test	3	2012	3	2012
Imaging Advanced Development: UMC EDM #1 Delivery	1	2013	1	2013
Imaging Advanced Development: UMC EDM #2 Delivery	2	2013	2	2013
Imaging Advanced Development: UMC Transition to Imaging	3	2013	3	2013
Electronic Warfare Advance Development: TI-14 - Lab Test	3	2012	3	2012
Electronic Warfare Advance Development: TI-14 - At-Sea Test	2	2013	2	2013
Electronic Warfare Advance Development: TI-14 - Transition to EW	3	2013	3	2013
Electronic Warfare Advance Development: TI-16 ES Server (Valkyrie) - Develop	1	2013	1	2013
Electronic Warfare Advance Development: TI-16 ES Server (Valkyrie) - CDR	1	2014	1	2014
Electronic Warfare Advance Development: TI-16 ES Server (Valkyrie) - Lab Demo	2	2015	2	2015
Electronic Warfare Advance Development: TI-16 ES Server (Valkyrie) - At-Sea Test	4	2015	4	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 0770: *Adv Sub Supp Equip Prog*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Electronic Warfare Advance Development: TI-16 ES Server (Valkyrie) - Transition to EW	1	2016	1	2016
Electronic Warfare Advance Development: TI-16 Radar Vulnerability Tool/Tactical Decision Aid - Develop	1	2012	1	2012
Electronic Warfare Advance Development: TI-16 Radar Vulnerability Tool/Tactical Decision Aid - CDR	1	2013	1	2013
Electronic Warfare Advance Development: TI-16 Radar Vulnerability Tool/Tactical Decision Aid - Lab Demo #1	4	2013	4	2013
Electronic Warfare Advance Development: TI-16 Radar Vulnerability Tool/Tactical Decision Aid - At-Sea Test #1	2	2014	2	2014
Electronic Warfare Advance Development: TI-16 Radar Vulnerability Tool/Tactical Decision Aid - Lab Demo #2	2	2015	2	2015
Electronic Warfare Advance Development: TI-16 Radar Vulnerability Tool/Tactical Decision Aid - At-Sea Test #2	4	2015	4	2015
Electronic Warfare Advance Development: TI-16 Embedded BIT - Develop	2	2013	2	2013
Electronic Warfare Advance Development: TI-16 Embedded BIT - CDR	2	2014	2	2014
Electronic Warfare Advance Development: TI-16 Embedded BIT - Lab Demo	2	2015	2	2015
Electronic Warfare Advance Development: TI-16 Embedded BIT - At-Sea Test	4	2015	4	2015
Electronic Warfare Advance Development: TI-16 Embedded BIT - Transition to EW	1	2016	1	2016
Electronic Warfare Advance Development: TI-18 LPI DF/Localization; Enhanced DeInterleavers - Develop	2	2013	2	2013
Electronic Warfare Advance Development: TI-18 LPI DF/Localization; Enhanced DeInterleavers - CDR	2	2014	2	2014
Electronic Warfare Advance Development: TI-18 LPI DF/Localization; Enhanced DeInterleavers - Lab Demo	2	2015	2	2015
Electronic Warfare Advance Development: TI-18 LPI DF/Localization; Enhanced DeInterleavers - At-Sea Test	4	2015	4	2015
Electronic Warfare Advance Development: TI-18 ES On-Board Trainer - Develop	2	2015	2	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 0770: *Adv Sub Supp Equip Prog*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Electronic Warfare Advance Development: TI-18 ES On-Board Trainer - CDR	2	2016	2	2016
Electronic Warfare Advance Development: TI-18 ES On-Board Trainer - Lab Test	2	2017	2	2017
Electronic Warfare Advance Development: TI-18 ES On-Board Trainer - At-Sea Test	4	2017	4	2017
Electronic Warfare Advance Development: TI-18 ES On-Board Trainer - Transition to EW	1	2018	1	2018
Electronic Warfare Advance Development: TI 20 Next Generation EW System-Development	2	2015	2	2015
Electronic Warfare Advance Development: TI 20 Next Generation EW System - CDR	2	2016	2	2016
Electronic Warfare Advance Development: TI 20 Next Generation EW System - Lab Test	2	2017	2	2017
Electronic Warfare Advance Development: TI 20 Next Generation EW System - At-Sea Test	4	2017	4	2017
Electronic Warfare Advance Development: TI 20 MMM Payload - Development	2	2016	2	2016
Electronic Warfare Advance Development: TI 20 MMM Payload - CDR	2	2017	2	2017
Electronic Warfare Advance Development: TI 20 MMM Payload - Lap Test	2	2018	2	2018
Electronic Warfare Advance Development: TI 20 MMM Payload - At-Sea Test	4	2018	4	2018
Electronic Warfare Advance Development: APB 21/23 Algorithm - Develop	1	2018	1	2018
Electronic Warfare Advance Development: APB 21/23 New Application - Develop	2	2018	2	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 1739: *Submarine Arctic W/F Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1739: *Submarine Arctic W/F Development*	30.825	5.210	5.379	4.909	-	4.909	5.549	5.641	5.759	5.842	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Submarine Arctic Warfare Development project responds to the increased threat of submarine and surface ship activity in Arctic regions of the world through the development of advanced submarine concepts. It places particular emphasis on submarine operability and mission support in unique, cold, ice-covered, environments. Efforts include assessment of combat system effectiveness, weapons testing, use of high frequency sonars in Arctic regions, testing of ice-capable submarine structures, and development of class-specific Arctic operational guidelines. This project also provides the framework for various research and development programs to conduct test and evaluation in shallow water and Arctic regions.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Conduct ICEX and Arctic Transit Mission, ICEX Workup and Training, Ice Camp	5.210	5.379	4.909
Articles:	0	0	0

FY 2012 Accomplishments:

Provided planning and support for the upcoming ICEX mission 1-2013. Supported Arctic deployments, including inter-Fleet transfers, as required by the Submarine Force Commanders. Investigated, researched, developed and deployed new systems for Arctic submarine support. Supported testing and tactical development required to improve submarine Arctic operability and warfighting. Converted SSN 688I and SSN 21 Class Arctic TEMPALTs from study design to mission/tactical grade. Completed Fleet demonstration efforts on new Edgetech 2200 Side Scan system.

FY 2013 Plans:

Conduct ICEX mission 1-2013. Continue planning and support for a 2014 ICEX mission and Ice Camp 1-2014. Support Arctic deployments, including inter-Fleet transfers, as required by the Submarine Force Commanders. Investigate, research, develop and deploy new systems for Arctic submarine support. Support testing and tactical development required to improve submarine Arctic operability and warfighting. Install and test mission/tactical grade equipment on a SSN 688I and SSN 21 Class platform. Convert SSN 774 Class Submarine Arctic TEMPALTs from study design to mission/tactical grade. Develop a High Frequency Active (HFA) under-ice Sonar training product. Evaluate Under-Ice HFA training product during Arctic training sessions. Procure

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 1739: *Submarine Arctic W/F Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
two additional EdgeTech 220 Side Scan systems to support SSN 688I/774 Class Submarines. Develop and test new display software for the Commercial Off The Shelf (COTS) SEABIRD Conductivity, Temperature, and Depth (CTD) probes. ***FY 2014 Plans:*** Conduct Arctic work-up training and ICEX mission 1-2014. Evaluate new display software for the COTS SEABIRD CTD probes. Support Arctic deployments, including inter-Fleet transfers, as required by the Submarine Force Commanders. Investigate, research, develop and deploy new systems for Arctic submarine support. Support testing and tactical development required to improve submarine Arctic operability and warfighting. Evaluate SSN 774 Class Submarine Arctic Mission/Tactical grade TEMPALTs.			
Accomplishments/Planned Programs Subtotals	5.210	5.379	4.909

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Use sole source and competitively awarded contracts through the Fleet Logistics Center (FLC) regional contracting office for equipment and technical services. The NAVSEA University Affiliated Research Center (UARC) omnibus contract is used for procurement of logistics support for Ice Camps and Conductivity, Temperature, and Depth (CTD) probe display software development.

E. Performance Metrics

- Conduct work-up and ICEX 1-2013.
- Evaluate a PC-based High Frequency Active (HFA) sonar training tool.
- Demonstrate the new software interface for Conductivity, Temperature, and Depth (CTD) probe displays.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 1739: *Submarine Arctic W/F Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	COMSUBPAC:CA	22.627	5.106	Dec 2011	3.004	Nov 2012	4.044	Nov 2013	-		4.044	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NUWC/Newport:RI	0.235	0.000		0.000		0.000		-		0.000	0.000	0.235	0.235
Developmental Test & Evaluation	C/CPFF	UT/ARL:TX	0.000	0.000		0.300	Jan 2013	0.000		-		0.000	0.000	0.300	
Developmental Test & Evaluation	C/CPFF	UW/APL:WA	6.828	0.000		2.000	Dec 2012	0.800	Dec 2013	-		0.800	Continuing	Continuing	Continuing
		Subtotal	29.690	5.106		5.304		4.844		0.000		4.844			

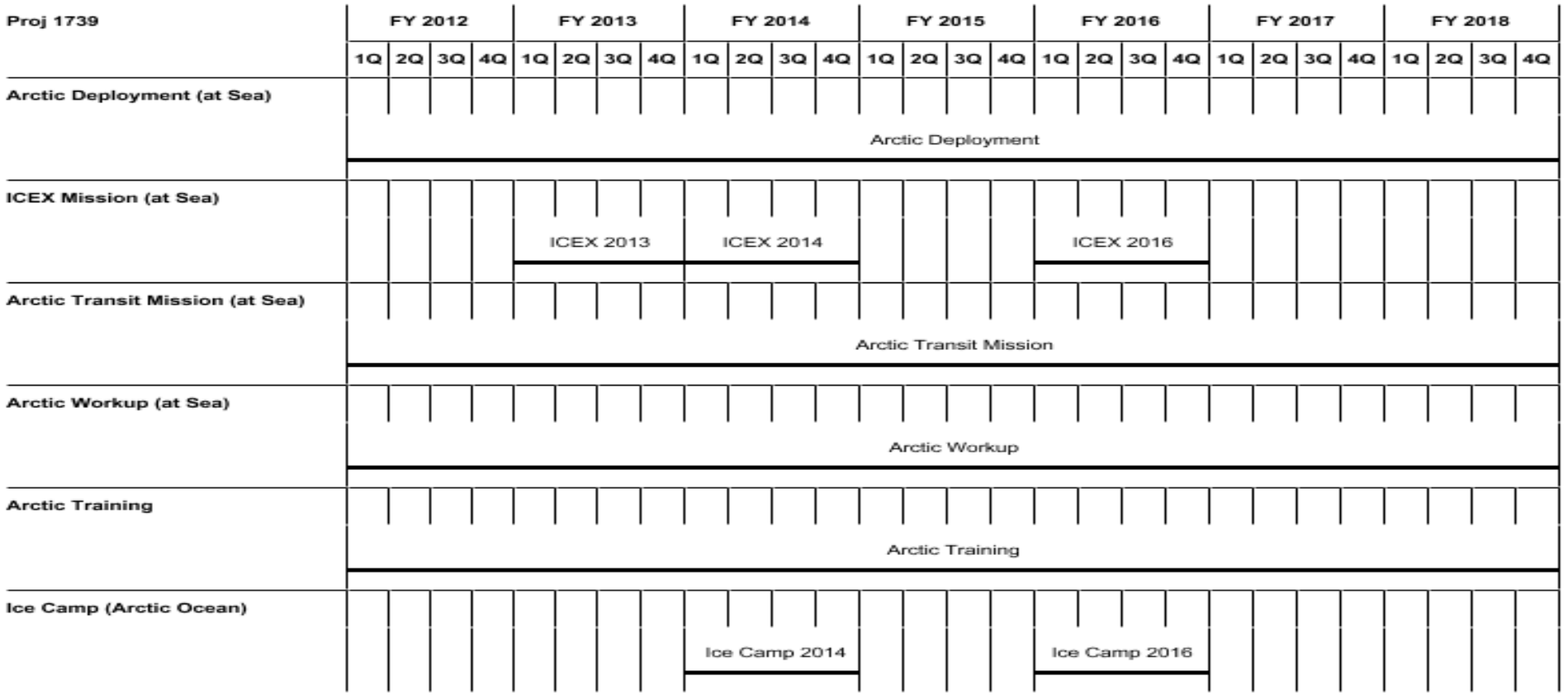
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	EG&G:VA	0.311	0.000		0.000		0.000		-		0.000	0.000	0.311	0.311
Program Management Support	C/CPAF	BAE SYSTEMS:MD	0.784	0.104	Feb 2012	0.075	Dec 2012	0.065	Dec 2013	-		0.065	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA PEO IWS 5:Washington, DC	0.040	0.000		0.000		0.000		-		0.000	0.000	0.040	Continuing
		Subtotal	1.135	0.104		0.075		0.065		0.000		0.065			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	30.825	5.210		5.379		4.909		0.000		4.909			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603562N: *Submarine Tactical Warfare Sys*	PROJECT 1739: *Submarine Arctic W/F Development*



2014OSD - 0603562N - 1739

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603562N: *Submarine Tactical Warfare Sys*	**PROJECT** 1739: *Submarine Arctic W/F Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1739				
Arctic Deployment (at Sea): Submarine Deployment as required by the Submarine Type Commander	1	2012	4	2018
ICEX Mission (at Sea): ICEX Mission (at Sea) 2013	1	2013	4	2013
ICEX Mission (at Sea): ICEX Mission (at Sea) 2014	1	2014	4	2014
ICEX Mission (at Sea): ICEX Mission (at Sea) 2016	1	2016	4	2016
Arctic Transit Mission (at Sea): Arctic Transit Mission (at Sea)	1	2012	4	2018
Arctic Workup (at Sea): Arctic Workup (at Sea)	1	2012	4	2018
Arctic Training: Arctic Training	1	2012	4	2018
Ice Camp (Arctic Ocean): Ice Camp (Arctic Ocean) 2014	1	2014	4	2014
Ice Camp (Arctic Ocean): Ice Camp (Arctic Ocean) 2016	1	2016	4	2016

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	105.690	16.837	24.609	20.501	-	20.501	16.049	15.848	8.008	8.100	Continuing	Continuing
2196: *Design, Tools, Plans and Concepts*	0.000	0.518	0.540	0.545	-	0.545	0.489	0.500	0.505	0.511	Continuing	Continuing
3161: *NAVSEA Tech Authority*	105.690	16.319	24.069	19.956	-	19.956	15.560	15.348	7.503	7.589	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Explore alternative surface ship force structures, advanced surface ship and unmanned surface vehicles concepts, and the potential technologies for these force structures and advanced concepts in support of pre-acquisition mission needs analysis, mission area analysis, and planning. The objective is a more affordable, mission capable surface ship force including increased ship production capability; ships with reduce manning, reduced operating and support costs, and greater utilization of the latest technology. The program directly supports the Navy Shipbuilding Plan with state-of-the-art design tools and methods for surface ship force structure alternative studies, ship & unmanned vehicle concept studies, and the actual conduct of surface ship force structure alternative studies and advanced design concept studies for the ships that may become part of the shipbuilding plan.

Project 2196 - This project funds concept development engineering, mission effectiveness analysis, and other analyses for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of
ship concept design and engineering tools, methods, and criteria.

Project 3161 - This project funds a prioritized portfolio of time-sensitive initiatives supporting NAVSEA Technical Authority through integrated efforts in Cross Platform Systems Development (CPSD), furthering Sea Enterprise through the development of support elements for Technical Warrant Holders and meeting relevant needs of the warfare community. The areas of exploration for CPSD include surface ship concept advanced development, submarine concepts, next generation unmanned surface vehicle, high speed ships/crafts, tool integration and technical data exchange, embedded interoperability engineering, and mission capability systems engineering. The research products developed by this project directly support and influence both immediate fleet requirements and future acquisition programs by providing a range of technically acceptable alternatives and evaluation of emerging technologies.

In particular, tasks within this project continue to directly support interoperability testing and certification for Littoral Combat Ship (LCS) and other platforms in deploying battle groups, development and certification of Safe Operating Envelope (SOE) tools for surface combatants (CG 47, DDG 51, DDG 1000), American Bureau of Shipping (ABS) pilot program to determine engineering-based combatant service life values based on fatigue and other structural analyses, implementation of Component Commonality in current Navy ship acquisition to reduce total ownership and maintenance costs, Total Ownership Cost (TOC) pilot programs, and development of specifications and processes to reduce production costs of platforms.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*

Tasks within this project continue to directly support the Test and Evaluation Master Plan (TEMP) execution for multiple ship classes including, LCS, JHSV, and DDG 1000 reducing Live Fire Test and Evaluation (LFT&E) costs, furthered validation of hydrodynamic simulation tool supporting DDG 1000 Hull Form Plan (HFP), have increased technology readiness level for aluminum combatants, developed tools to execute the CG 47 Cracking Task Force recommendations, increased situational awareness for deploying strike groups, and conducted feasibility studies of future Railgun capabilities. This project supports NAVSEA's core mission and enhances its ability to conduct independent technical authority which allows for improved performance and reduced cost of current and future naval platforms.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	14.308	24.609	20.833	-	20.833
Current President's Budget	16.837	24.609	20.501	-	20.501
Total Adjustments	2.529	0.000	-0.332	-	-0.332
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.806	0.000			
• SBIR/STTR Transfer	-0.277	0.000			
• Program Adjustments	0.000	0.000	-0.107	-	-0.107
• Rate/Misc Adjustments	0.000	0.000	-0.225	-	-0.225

Change Summary Explanation

Added funds in FY 12 for DDG 1000 hull form plan.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 2196: *Design, Tools, Plans and Concepts*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2196: *Design, Tools, Plans and Concepts*	0.000	0.518	0.540	0.545	-	0.545	0.489	0.500	0.505	0.511	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project provides the foundation for an affordable and mission capable surface ship force. It also supports the next step in the development of a transformed naval force by accomplishing the pre-milestone A (especially pre-concept decision) efforts for all potential surface ships and craft. These efforts are the required first step in the integration of total ship systems, including combat systems, weapons systems and Hull, Mechanical and Electrical (HM&E) systems. Inadequate early planning and ship concept formulation can result in down-stream design, construction and operational problems. A more subtle and severely negative impact of neglecting this early effort is that the "best" concepts and technologies may never even be considered and our greatest potential ship design advances never realized. Designs and technologies must meet the threat. This project supports this requirement.

This project funds concept development engineering, mission effectiveness analysis, and other analyses for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of ship concept design and engineering tools, methods, and criteria are also funded in this project.

This project accomplishes the following: (1) Develops alternative surface ship force structure concepts including the ships and unmanned vehicles; (2) Evaluates the mission capability effectiveness and costs for these alternative surface fleet architectures; (3) Performs fleet war fighting/mission effectiveness assessment studies; (4) Identifies future surface ship requirements and characteristics necessary to meet future threats and support mission needs; (5) Investigates new affordable ship concepts and evaluates technologies necessary to support these concepts; (6) Provides design methods and automated design tools to develop and evaluate ship concepts; and (7) Supports development of Initial Capabilities Documents (ICD) and analogous early requirements documents for future ships. These efforts are done to support mission analysis; mission needs development and technology assessment in support of future fleet concepts and potential ship acquisition programs. These efforts are fundamental to the Navy's formulation of the future fleet.

Supports concept exploration and mission needs assessment for potential future ship acquisition programs, however, these are not direct efforts for specific, authorized shipbuilding programs. This project supports and maintains this country's naval ship design and engineering capabilities in the area of very early stage (Concept Design) design tools, criteria, and methods.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Ship Concepts and Mission Need Analysis	0.447	0.465	0.471

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 2196: *Design, Tools, Plans and Concepts*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0	0	0
Description: Develop ship concepts and perform analysis for potential ships and Force Architecture 5-10 years out in shipbuilding plan. ***FY 2012 Accomplishments:*** Continuation of concept designs for small and medium surface combatants with a broad mix of gun, missile, and other emerging weapon topics (high energy, etc), also to include energy and cost reducing technologies and concepts as related to ship systems. ***FY 2013 Plans:*** Continuation of concept designs for small and medium surface combatants that develop agile, fuel efficient and flexible platforms capable of operating in required environments. These efforts will enable the design of future affordable surface combatants with increased reliable, efficient, long range, high speed and optimized payload capabilities. ***FY 2014 Plans:*** Continuation of concept designs for small and medium surface combatants that develop agile, fuel efficient and flexible platforms capable of operating in required environments. These efforts will enable the design of future affordable surface combatants with increased reliable, efficient, long range, high speed and optimized payload capabilities.			
Title: Total Ship Technology Assessment (TSTA)	0.071	0.075	0.074
Articles:	0	0	0
Description: Analyze the benefits and impacts of new ship, Hull, Mechanical & Electrical (HM&E) concepts, technologies and warfare systems. ***FY 2012 Accomplishments:*** Continuation of expanded TSTA methodology with ASW, ASUW products developed under FY11 Concepts and Mission Needs Analysis, also to include energy and cost-reducing technologies and concepts as related to ship systems. ***FY 2013 Plans:*** Continuation of FY12 TSTA tasks as well as integration of design of an advanced total platform energy monitoring system as well as reduced manning capabilities. ***FY 2014 Plans:*** Commence development on small scale tools to automate challenging and/or labor intensive naval arch activities (such as weight reports, liquid loading vs. trim scenarios) and to add capability to existing software tools. The products would be to aid in the in-house technical capability of the Navy in conducting pre-AoA studies for surface ships.			
Accomplishments/Planned Programs Subtotals	0.518	0.540	0.545

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 2196: *Design, Tools, Plans and Concepts*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTEN/0204202N: *DDG-1000*	249.780	124.655	187.910		187.910	185.793	117.850	66.506	38.255	Continuing	Continuing
• RDTEN/0603512N: *Carrier Systems Development*	61.909	106.876	82.926		82.926	49.195	50.881	47.344	46.022	Continuing	Continuing
• RDTEN/0603564N: *Ship Preliminary Design/Feasibility*	17.611	13.710	27.052		27.052	46.878	58.492	37.062	15.004	Continuing	Continuing
• RDTEN/0604567N: *Ship Contract Design/Live Fire T&E*	121.008	196.737	155.254		155.254	123.970	63.337	54.620	50.031	Continuing	Continuing
• RDTEN/0603582N: *Combat System Integration*	48.999	56.551	36.570		36.570	41.949	44.351	48.417	49.760	Continuing	Continuing

Remarks

D. Acquisition Strategy

This is a non acquisition program that develops, evaluates, and validates early stages of total ship concepts and technologies in support of SCN planning and potential future ship acquisition programs. This program also supports development, demonstration, evaluation, and validation of engineering tools, methods, and criteria for those concept designs and assessments.

E. Performance Metrics

None

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 2196: *Design, Tools, Plans and Concepts*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Various Contractors:Various	0.000	0.234	Apr 2012	0.166	Apr 2013	0.153	Apr 2014	-		0.153	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC:Various	0.000	0.168	Jan 2012	0.196	Jan 2013	0.189	Jan 2014	-		0.189	Continuing	Continuing	Continuing
Engineering Development	C/CPFF	Various Contractors:Various	0.000	0.000		0.178	Oct 2012	0.129	Apr 2014	-		0.129	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC:Various	0.000	0.062	Jan 2012	0.000		0.074	Jan 2014	-		0.074	Continuing	Continuing	Continuing
Demonstration & Evaluation	C/CPFF	Various Contractors:Various	0.000	0.029	Apr 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test & Evaluation	C/CPFF	Various Contractors:Various	0.000	0.020	Apr 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	0.513		0.540		0.545		0.000		0.545			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	NAVSEA HQ:Washington, DC	0.000	0.005	Oct 2012	0.000		0.000		-		0.000	0.000	0.005	
		Subtotal	0.000	0.005		0.000		0.000		0.000		0.000	0.000	0.005	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.518		0.540		0.545		0.000		0.545			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 3161: *NAVSEA Tech Authority*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3161: *NAVSEA Tech Authority*	105.690	16.319	24.069	19.956	-	19.956	15.560	15.348	7.503	7.589	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project has been established to support NAVSEA Technical Authority through coordinated, collaborative, cross-platform systems development resulting in advanced capabilities across business lines through development adaptation and extension of processes, procedures, and tools necessary to develop and explore alternative surface ship and submarine force structures; advanced submarine, surface ship and unmanned surface vehicle concepts; interoperability; and development of systems level engineering criteria and options to support these force structures and advanced concepts as part of pre-acquisition mission needs analysis, mission area analysis, SCN, and R&D planning. The objective is the coordination of ongoing early-stage concept design and development efforts for cross-platform applicability to result in a more affordable, mission-capable, and interoperable surface ship and submarine forces including ships and submarines with reduced manning, increased ability to produce, reduced operating and support costs, and greater utilization of the latest technology.

NAVSEA Tech Authority efforts under Project 3161, known as the Cross Platform Systems Development (CPSD) Program enhance ongoing efforts within Project 2196 and transition directly to early-stage ship design for Ship and Submarine Preliminary Design and Feasibility Studies and other Program Executive Office (PEO) ship and submarine design programs. While these efforts support concept exploration and mission needs assessment for potential future ship and submarine acquisition programs, they are not direct efforts for specific, authorized shipbuilding programs. This project is the only R&D effort (Government or commercial) that provides a coordinated, collaborative approach to the development of cross-platform naval ship, submarine, and weapon system design and engineering capabilities in the areas of design tools, criteria, and methods. This project also provides innovative solutions for current Fleet issues involving Technical Authority, such as current interoperability issues with new systems or platforms.

Naval Ship System Engineering Tech Authority recapitalization and product development consolidates platform advanced concept development and design tool development in CPSD 1.0 (Platform Concept Advanced Development) and CPSD 2.0 (Platform Design and Certification Tools/Engineering and Tech Data Exchange Development); and aligned standards and requirements development for modularity and system / component commonality within CPSD 3.0 (Ship Systems Engineering/Modular Ship Systems Development). Program product areas support: platform-centric force architecture and concept development and tools (CPSD 1.0, CPSD 2.0), engineering products and system development (CPSD 3.0, CPSD 5.0), and system interoperability and mission capability for delivering ships and submarines (CPSDs 6.0, 8.0, 9.0). CPSD develops and transitions products to Technical Warrant Holder (TWH) community and develop prioritized plans and activities for future products from emerging cross platform technical requirements and associated capabilities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Platform Concept Advanced Development (CPSD 1.0)	0.691	1.616	1.572

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 3161: *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0	0	0
Description: This effort directly supports the Navy's ability to understand risk and associated cost of surface and submarine warfare assets; Pre-Milestone A ship, craft, and unmanned surface vehicle (USV) design and analysis. ***FY 2012 Accomplishments:*** Continued to identify areas of improvement for the processes of identifying hull selection, general arrangement, machinery arrangement, structural density, access and other decisions and best practices in early stage design that decrease the overall total ownership costs associated with US Navy warships, supporting the Navy's goal of an affordable future fleet. ***FY 2013 Plans:*** Develop the NAVSEA ship concept development processes for supporting the Long Range Shipbuilding Strategy (LRSS), Capability Based Analyses (CBAs), Analyses of Alternatives (AoAs), and new technology impact assessment. It will develop design space exploration methods that leverage previous Navy design tool investments by employing behavior models of higher fidelity, but more time consuming techniques. This will allow much more comprehensive trade studies in support of Capabilities Based Assessments and Analyses of Alternatives. Continue next generation surface ship, submarine and unmanned vehicle concept exploration. ***FY 2014 Plans:*** Continue to develop the NAVSEA ship concept development processes for supporting the Long Range Shipbuilding Strategy (LRSS), Capability Based Analyses (CBAs), Analyses of Alternatives (AoAs), inform ship design policy and new technology impact assessment. It will develop design space exploration methods that leverage previous Navy design tool investments by employing behavior models of higher fidelity, but more time consuming techniques. This will allow much more comprehensive trade studies in support of Capabilities Based Assessments and Analyses of Alternatives. Continue next generation surface ship, submarine and unmanned vehicle concept exploration.			
Title: Platform Design and Certification Tools/Engineering and Tech Data Exchange (CPSD 2.0)	0.907	3.678	2.626
Articles:	0	0	0
Description: This effort supports the development of validation tools to certify the safety and mission capability of platform concepts and subsequently ships and submarines; establishes the integrated NAVSEA suite to support the execution of NAVSEA Tech Authority. This effort advances platform design methods, design validation tools, cost tools, manpower tools, and tools to aid in rapid total platform definition. ***FY 2012 Accomplishments:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 3161: *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continued the Advanced Ship Synthesis and Evaluation Tool (ASSET) synthesis program development to modularize its architecture to accommodate insertion of new modules and updating existing needed for advanced ship concepts and emerging ship technology. Continued concept design tool development - implementation and validation; begin certification process. ***FY 2013 Plans:*** Transition the tool development to aide in early stage concept design including Advanced Ship Synthesis and Evaluation Tool (ASSET) and Leading Edge Architecture for Prototyping Systems (LEAPS) to the CONFORM line (PE 0605152N) for funding and execution. Continue to develop tools that allow for reliable, efficient, long range, high speed platforms with optimized payload capabilities. Continue to develop early stage ship design tools supporting total ownership cost reductions through enhancements of performance based cost models and manpower assessments tools. ***FY 2014 Plans:*** Continue to develop tools that allow for reliable, efficient, long range, high speed platforms with optimized payload capabilities. Continue to develop early stage ship design tools supporting total ownership cost reductions through enhancements of performance based cost models and manpower assessments tools.			
Title: Ship Systems Engineering /Modular Ship Systems Development (CPSD 3.0)	1.554	2.782	2.199
Articles:	0	0	0
Description: This effort supports Ship system development with a focus on technology transition, modularity, ship system technology integration, and design standards for new ship classes for pre-Alternative of Analysis (AoA) studies and ongoing program of record (PoR) ship and submarine development. ***FY 2012 Accomplishments:*** Initiated data population interface for previously developed design tools including Systems Engineering Application for Quickly Evaluating Shipboard Technologies (SEAQUEST)/LEAPS interface enabling the combination of multiple cross-disciplinary models and applications together in a simulation process flow. Continued analysis of fracture mechanics assessment for failure of aluminum structure after a cracking incident to determine inspection periodicity and temporary repair techniques for in-service LCS and JHSV platforms. Initiated development of the Deck Simulating Shock Machine technology. ***FY 2013 Plans:*** Improve processes for technology upgrades during midlife overhauls that allow for affordable fleet/force modernization. Allow for long term strategic use of platform and system modularity to enable an affordable future fleet. ***FY 2014 Plans:*** Continue to improve processes for technology upgrades during midlife overhauls that allow for affordable fleet/force modernization. Allow for long term strategic use of platform and system modularity to enable an affordable future fleet. Continued			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 3161: *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
analysis of fracture mechanics assessment for failure of aluminum structure after a cracking incident to determine inspection periodicity and temporary repair techniques for in-service CG, DDG LCS, and JHSV platforms.			
Title: High Speed Ships and Craft Engineering (CPSD 5.0)	12.592	11.052	8.785
Articles:	0	0	0

Description: This effort supports the development of concepts for future high speed ships and craft that promise improved mission effectiveness in mobility, survivability, and warfare mission areas.

FY 2012 Accomplishments:
Continued the development of an advanced hydrodynamic simulation tool that has adequate fidelity for all environmental conditions required to define a Safe Operating Envelope (SOE). The effort addresses this need for an analytic approach, which will be verified and validated through correlation with data obtained from analytic tests, sub-scale trials, and ultimately full scale trails. The Hull Form Plan (HFP) Integrated Product Team (IPT) initiated the development of analytical tools, completed a prescribed set of model tests and extensive analyses to be developed over the next several years to support development of surface ship Safe Operating Envelope (SOE) and Heavy Weather (HW) Guidance products.

FY 2013 Plans:
Begin development of improved platform stealth and survivability. Develop a R&D engineering model to supporting the development, design, acquisition, R&D testing and acceptance of a future modular mission ice capable surface combatant. Continue development of analytical tools, complete a prescribed set of model tests and extensive analyses over the next several years to support development of surface ship Safe Operating Envelope (SOE) and Heavy Weather (HW) Guidance products. The analytical methods will include development of a simulation tool required to characterize ship motions in environments not within ability to test. The initial HW Guidance will develop from model scale testing and will not be certified. In addition to the development of the Heavy Weather Guidance and SOE, the Hull Form Plan will support the integration of the capability on the ship and associated training guidance for ships crew. This includes the development of the requirements for Human System Integration (HSI), Human Computer Interface (HCI), and training.

FY 2014 Plans:
Continue the development of improved platform stealth and survivability. Continue to develop a R&D engineering model to supporting the development, design, acquisition, R&D testing and acceptance of a future modular mission ice capable surface combatant. Continue development of analytical tools, complete a prescribed set of model tests and extensive analyses over the next several years to support development of surface ship Safe Operating Envelope (SOE) and Heavy Weather (HW) Guidance products. The analytical methods will include development of a simulation tool required to characterize ship motions in environments not within ability to test. The initial HW Guidance will develop from model scale testing and will not be certified. In addition to the development of the Heavy Weather Guidance and SOE, the Hull Form Plan will support the integration of the

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 3161: *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
capability on the ship and associated training guidance for ships crew. This includes the development of the requirements for Human System Integration (HSI), Human Computer Interface (HCI), and training.			
Title: Alternative Power Systems Engineering (CPSD 6.0)	0.196	1.312	1.214
Articles:	0	0	0
Description: This effort investigates concepts for ships and craft with alternative power/propulsion systems evaluating effectiveness in mobility, survivability, and warfare mission areas. ***FY 2012 Accomplishments:*** Continue investigation of alternative power/propulsion systems evaluating effectiveness in mobility, survivability and warfare mission areas. Begin targeted implementation of weapon systems roadmap. Support modeling of propulsor out of plane force and moment modeling needed for Safe Operating Envelope ship dynamics simulations. This work area supports hydrodynamic capabilities from design through certification. ***FY 2013 Plans:*** Begin volumetric vulnerability analysis as a part of the Alternate Propulsion Study. Algorithms will be used to refine the estimates of ship damage associated with specified weapons effects supporting early stage design decisions for ship vulnerability. ***FY 2014 Plans:*** Continue volumetric vulnerability analysis as a part of the Alternate Propulsion Study. Algorithms will be used to refine the estimates of ship damage associated with specified weapons effects supporting early stage design decisions for ship vulnerability. Evaluation of pod propulsor for future ship concept design. Develop and evaluate energy harvesting technology for mobility and primary mission systems.			
Title: Embedded Interoperability (I/O) Engineering (CPSD 8.0)	0.000	1.745	1.728
Articles:		0	0
Description: This effort establishes and executes a dedicated process for evaluating the interoperability performance of warfare systems early in the acquisition cycle, prior to certification. Embedded I/O ensures that fewer mission critical system failures degrade the ultimately fielded war fighting capability. Focus on emerging Open Architecture warfare systems, including LCS 1 and 2. ***FY 2013 Plans:*** Focus on development of high performance, low cost communication solutions for improved information dominance and interoperability. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 3161: *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue the focus on development of high performance, low cost communication solutions for improved information dominance and interoperability.			
Title: Mission Capability Systems Engineering (CPSD 9.0)	0.379	1.884	1.832
Articles:	0	0	0
Description: This effort supports the development of force-level systems engineering criteria and guidance at the Systems of Systems (SoS) and Family of Systems (FoS) level. This effort allows for the enhanced warfighter and system performance with reduced personnel costs. ***FY 2012 Accomplishments:*** Developed and established the standards and processes required to develop, test, and deploy Open Architecture as well as Automated Software Test and the Tactical Situation (TACSIT) systems to the Fleet. ***FY 2013 Plans:*** Create design engineering standards incorporating human capacities into system performance. Incorporate the human element into design and control of autonomous and robotic systems. Improve standard that allow for the advancement of materials and improved design for lightweight body armor and equipment. ***FY 2014 Plans:*** Continue the creation of design engineering standards incorporating human capacities into system performance. Incorporate the human element into design and control of autonomous and robotic systems. Continue to improve standards that allow for the advancement of materials and improved design for lightweight body armor and equipment. Development of guidance algorithms against high speed moving targets. Evaluate railgun technology for various applications.			
Accomplishments/Planned Programs Subtotals	16.319	24.069	19.956

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTEN/0204202N: *DDG-1000*	249.780	124.655	187.910		187.910	185.793	117.850	66.506	38.255	Continuing	Continuing
• RDTEN/0603512N: *Carrier Systems Development*	61.909	106.876	82.926		82.926	49.195	50.881	47.344	46.022	Continuing	Continuing
• RDTEN/0603564N: *Ship Preliminary Design/Feasibility Studies*	17.611	13.710	27.052		27.052	46.878	58.492	37.062	15.004	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 3161: *NAVSEA Tech Authority*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTEN/0604567N: *Ship Contract Design/Live Fire T&E*	121.008	196.737	155.254		155.254	123.970	63.337	54.620	50.031	Continuing	Continuing
• RDTEN/0603582N: *Combat System Integration*	48.999	56.551	36.570		36.570	41.949	44.351	48.417	49.760	Continuing	Continuing

Remarks

D. Acquisition Strategy

This is a non acquisition program that develops, evaluates, and validates early stages of total ship concepts and technologies in support of SCN planning and potential future ship and submarine acquisition programs. This program also supports development, demonstration, evaluation, and validation of engineering tools, methods, and criteria for those concept designs and assessments. This program supports the NAVSEA Technical Warrant Holders by providing validated engineering tools, methods, and criteria for ship, submarine and weapon system concept designs and assessments while fostering collaboration and coordination of efforts resulting in more effective use of funding.

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 3161: *NAVSEA Tech Authority*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Various Contractors:Various	13.701	0.360	Apr 2012	1.605	Apr 2013	1.330	Apr 2014	-		1.330	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC, NUWC, CDSA:Various	37.491	8.121	Jan 2012	7.178	May 2013	5.951	May 2014	-		5.951	Continuing	Continuing	Continuing
Engineering Development	C/CPFF	DRS:Stevensville, MD	0.000	0.742	Mar 2012	0.346	Dec 2012	0.287	Dec 2013	-		0.287	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC, NUWC:Various	36.753	2.105	Mar 2012	7.215	Mar 2013	5.982	Mar 2014	-		5.982	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	NSWC:Various	15.178	0.925	Feb 2012	2.018	Feb 2013	1.673	Feb 2014	-		1.673	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	SPAWAR:Various	1.922	0.000	Mar 2012	0.090	Mar 2013	0.075	Mar 2014	-		0.075	Continuing	Continuing	Continuing
Test and Evaluation	WR	NSWC:Various	0.000	3.966	Apr 2012	5.517	Dec 2012	4.558	Dec 2013	-		4.558	Continuing	Continuing	Continuing
		Subtotal	105.045	16.219		23.969		19.856		0.000		19.856			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PM/Travel	Allot	NAVSEA HQ:Washington, DC	0.500	0.100	Sep 2012	0.100	Sep 2013	0.100	Sep 2014	-		0.100	Continuing	Continuing	Continuing
DAWDF	Various	Not Specified:Not Specified	0.145	0.000		0.000		0.000		-		0.000	0.000	0.145	
		Subtotal	0.645	0.100		0.100		0.100		0.000		0.100			

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	105.690	16.319		24.069		19.956		0.000		19.956			

Remarks

Award Dates reflect estimated completion of incremental funding execution.

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603563N: *Ship Concept Advanced Design*	PROJECT 3161: *NAVSEA Tech Authority*

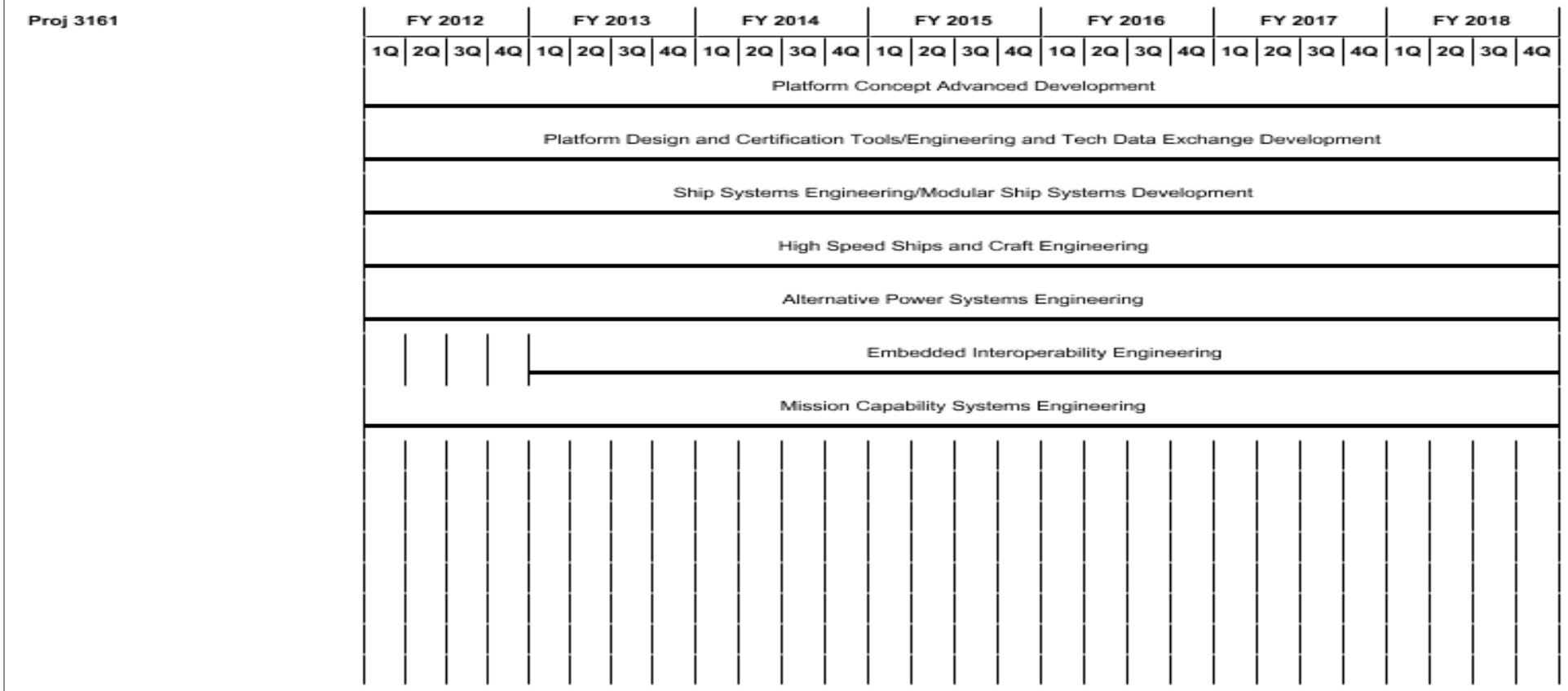


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603563N: *Ship Concept Advanced Design*	**PROJECT** 3161: *NAVSEA Tech Authority*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3161				
Platform Concept Advanced Development	1	2012	4	2018
Platform Design and Certification Tools/Engineering and Tech Data Exchange Development	1	2012	4	2018
Ship Systems Engineering/Modular Ship Systems Development	1	2012	4	2018
High Speed Ships and Craft Engineering	1	2012	4	2018
Alternative Power Systems Engineering	1	2012	4	2018
Embedded Interoperability Engineering	1	2013	4	2018
Mission Capability Systems Engineering	1	2012	4	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy												DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	15.225	17.611	13.710	27.052	-	27.052	46.878	58.492	37.062	15.004	Continuing	Continuing
0409: *DDG-51 Flt III Concept Development*	15.225	5.542	13.710	11.391	-	11.391	8.285	1.042	0.000	0.000	0.000	55.195
2474: *LSD Design & Total Ship Integration*	0.000	6.401	0.000	15.661	-	15.661	38.593	57.450	37.062	15.004	Continuing	Continuing
3261: *TAGOS Design & Total Ship Integration*	0.000	5.668	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.668
MDAP/MAIS Code(s): 180												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

0409 - DDG 51 FLT III Concept Development - Develop Preliminary Analysis, Testing, and Design for introduction of DDG 51 FLT III in FY16.

2474 - LX(R) (formerly LSD(X)) is expected to functionally replace LSD-41 Class ships and LSD-49 Class ships for embark, transport, control, insert, sustainment, and extract of Marine Air-Ground Task Force elements and supporting forces by helicopters, landing craft, and amphibious vehicles. Efforts are required to identify viable alternatives, including examining a reduced cost variant of LPD-17 Class. Efforts include ship concept studies, the Analysis of Alternatives (AoA), all Gate and Milestone (MS) documentation, Capabilities Development Documentation (CDD), and Indicative/Preliminary/Contract Design (PD/CD).

3261 - Preliminary Ship Design and Contract efforts to support procurement of a T-AGOS Class vessel.
T-AGOS ocean surveillance ships have a single mission to gather underwater acoustical data and operate to support the anti-submarine warfare mission.

Note: All FY 12 T-AGOS funding used as a source for LPD 25/CVN 71 Special Transfer Authority notification submitted to the Congressional Defense Committees on Feb 6, 2013.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	22.210	13.710	14.112	-	14.112
Current President's Budget	17.611	13.710	27.052	-	27.052
Total Adjustments	-4.599	0.000	12.940	-	12.940
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-4.250	0.000			
• SBIR/STTR Transfer	-0.349	0.000			
• Program Adjustments	0.000	0.000	13.900	-	13.900
• Rate/Misc Adjustments	0.000	0.000	-0.960	-	-0.960

Change Summary Explanation

Schedule/Funding: Added additional funding in FY 14 to support LSD(X) analysis of alternatives completion. Reduced FY 12 T-AGOS funding to support higher Navy priorities.

Note: All FY 12 T-AGOS funding used as a source for LPD 25/CVN 71 Special Transfer Authority notification submitted to the Congressional Defense Committees on Feb 6, 2013.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 0409: *DDG-51 Flt III Concept Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0409: *DDG-51 Flt III Concept Development*	15.225	5.542	13.710	11.391	-	11.391	8.285	1.042	0.000	0.000	0.000	55.195
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

DDG 51 FLT III Concept Development study - Funding is provided to evaluate design options associated with FLT III. Ship concepts were developed to determine cost and feasibility. The concepts were variants of the DDG 51 Flight IIA design, and included incorporation of the Air and Missile Defense Radar (AMDR).

DDG 51 FLT III Preliminary Design - Funding is for preliminary design efforts associated with introduction of Flight III in FY16. The current plan will support the Finite Element Analysis (FEA) of the Deckhouse Structure, EMX Analysis, which will include Electromagnetic Signatures, Electromagnetic Interference (EMI), Electromagnetic Pulse (EMP), and Radiation Hazard. It will also include Electrical Power capability increase and Distribution analysis, Cooling Systems analysis, Topside Signature testing, and Weight and Stability analysis and life cycle margin improvement.

DDG 51 FLT III Contract Design - Funding is provided beginning in FY 2013 to develop the results from Preliminary Design to produce a technical package. This phase will develop contract drawings and specifications for the Detail Design and Construction contract.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Proj:0409 DDG-51 Flt III Concept Development	5.542	13.710	11.391
Articles:	0	0	0
FY 2012 Accomplishments: Initiated Preliminary Design efforts to reflect Flight III impacts on DDG 51 Class ships, to include superstructure structural modifications, air conditioning plant upgrades, and additional Ship Service Electrical Power increase.			
FY 2013 Plans: Continue Preliminary Design efforts. Define a complete engineering description of an integrated DDG 51 Flight III ship system and provide budget-quality cost estimates. Complete trade studies to select subsystems. Perform analysis to mitigate topside interference and radiation hazards. Develop ship arrangements to accommodate Flight III changes to DDG 51. Perform calculations to ensure adequate power and cooling capacity and hull strength. Identify Government Furnished Equipment, Government Furnished Information, and Class Standard Equipment. Perform advanced engineering for Flight III machinery and control system modifications required for the Land Based Engineering Site (LBES) in Philadelphia, PA.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 0409: *DDG-51 Flt III Concept Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Begin Contract Design efforts. Further develop the results from Preliminary Design to produce a biddable technical package. Develop contract drawings and specifications for the Detail Design and Construction contract. Establish Government Furnished Equipment, Government Furnished Information, and Class Standard Equipment lists. Support budget quality procurement and Total Ownership Cost estimates. ***FY 2014 Plans:*** Complete Preliminary Design as described in FY 2013 Plans. Continue Contract Design efforts to support release of RFP package for shipbuilders to bid. Develop functional design Government Furnished Information for combat systems. Finalize all Engineering Change Proposal packages. Support cost estimating. Continue development of Land Based Engineering Site modifications, equipment installation and preliminary testing.			
Accomplishments/Planned Programs Subtotals	5.542	13.710	11.391

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• SCN/2122: *DDG 51 Class*	2,081.432	3,514.941	2,004.115		2,004.115	2,877.046	3,443.611	3,732.564	3,693.696	Continuing	Continuing

Remarks

D. Acquisition Strategy

DDG 51 FLT III concept development provides technical assistance to develop a design package that supports the competitive award of a Flight III ECP. The DDG 51 Acquisition Strategy supports the competitive award of the FY13-17 Multi-Year Procurement in a Flight IIA configuration, with Flight III upgrades on one ship in FY16 and two ships in FY17.

E. Performance Metrics

None

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 0409: *DDG-51 Flt III Concept Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DDG 51 FLT III Concept Study	WR	NSWC:Dahlgren, VA	2.920	0.000		0.000		0.000		-		0.000	0.000	2.920	
DDG 51 FLT III Concept Study	WR	NSWC:Carderock, MD	3.076	0.000		0.000		0.000		-		0.000	0.000	3.076	
DDG 51 FLT III Concept Study	WR	SPAWAR:Charleston, SC	0.285	0.000		0.000		0.000		-		0.000	0.000	0.285	
DDG 51 FLT III Concept Study	FFRDC	JHU:Baltimore, MD	1.447	0.000		0.000		0.000		-		0.000	0.000	1.447	
DDG 51 FLT III Concept Study	MIPR	CPSD:Columbia, SC	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	
DDG 51 FLT III Concept Study	C/CPAF	BIW:Bath, ME	0.376	0.000		0.000		0.000		-		0.000	0.000	0.376	
DDG 51 FLT III Concept Study	WR	NRL:Washington, DC	0.164	0.000		0.000		0.000		-		0.000	0.000	0.164	
DDG 51 FLT III Concept Study	C/CPAF	Ingalls:Pascagoula, MS	0.214	0.000		0.000		0.000		-		0.000	0.000	0.214	
DDG 51 FLT III Concept Study	C/CPAF	Seaport:Washington, DC	4.819	0.000		0.000		0.000		-		0.000	0.000	4.819	
DDG 51 FLT III Concept Study	MIPR	DTIC:Ft. Belvoir, VA	0.002	0.000		0.000		0.000		-		0.000	0.000	0.002	
DDG 51 FLT III Concept Study	Various	Various:Washington, DC	1.653	0.000		0.000		0.000		-		0.000	0.000	1.653	
DDG 51 FLT III Concept Study	WR	SPAWAR:San Diego, CA	0.244	0.000		0.000		0.000		-		0.000	0.000	0.244	
DDG 51 FLT III Concept Study	WR	NAWC:Pax River, MD	0.025	0.000		0.000		0.000		-		0.000	0.000	0.025	
DDG 51 FLT III Preliminary Design	WR	NSWC:Carderock, MD	0.000	1.771	May 2012	4.132	Dec 2012	0.448	Feb 2014	-		0.448	0.000	6.351	
DDG 51 FLT III Preliminary Design	C/CPAF	Seaport:Washington, DC	0.000	2.115	Jun 2012	4.778	May 2013	0.518	Feb 2014	-		0.518	0.000	7.411	
DDG 51 FLT III Preliminary Design	WR	NSWC:Dahlgren, VA	0.000	1.086	Jun 2012	2.064	Apr 2013	0.224	Feb 2014	-		0.224	0.000	3.374	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 0409: *DDG-51 Flt III Concept Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DDG 51 FLT III Preliminary Design	C/CPAF	BIW:Bath, ME	0.000	0.285	Sep 2012	0.968	Apr 2013	0.095	Feb 2014	-		0.095	0.000	1.348	
DDG 51 FLT III Preliminary Design	C/CPAF	Ingalls:Pascagoula, MS	0.000	0.285	Jun 2012	0.968	Apr 2013	0.095	Feb 2014	-		0.095	0.000	1.348	
DDG 51 FLT III Contract Design	WR	NSWC:Dahlgren, VA	0.000	0.000		0.111	Apr 2013	1.846	Feb 2014	-		1.846	1.171	3.128	
DDG 51 FLT III Contract Design	WR	NSWC:Carderock, MD	0.000	0.000		0.232	Apr 2013	3.390	Feb 2014	-		3.390	2.669	6.291	
DDG 51 FLT III Contract Design	C/CPAF	Ingalls:Pascagoula, MS	0.000	0.000		0.066	Apr 2013	1.000	Feb 2014	-		1.000	0.472	1.538	
DDG 51 FLT III Contract Design	C/CPAF	Seaport:Washington, DC	0.000	0.000		0.325	May 2013	2.775	Feb 2014	-		2.775	4.481	7.581	
DDG 51 FLT III Contract Design	C/CPAF	BIW:Bath, ME	0.000	0.000		0.066	Apr 2013	1.000	Feb 2014	-		1.000	0.534	1.600	
		Subtotal	15.225	5.542		13.710		11.391		0.000		11.391	9.327	55.195	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.225	5.542		13.710		11.391		0.000		11.391	9.327	55.195	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 0409: *DDG-51 Flt III Concept Development*

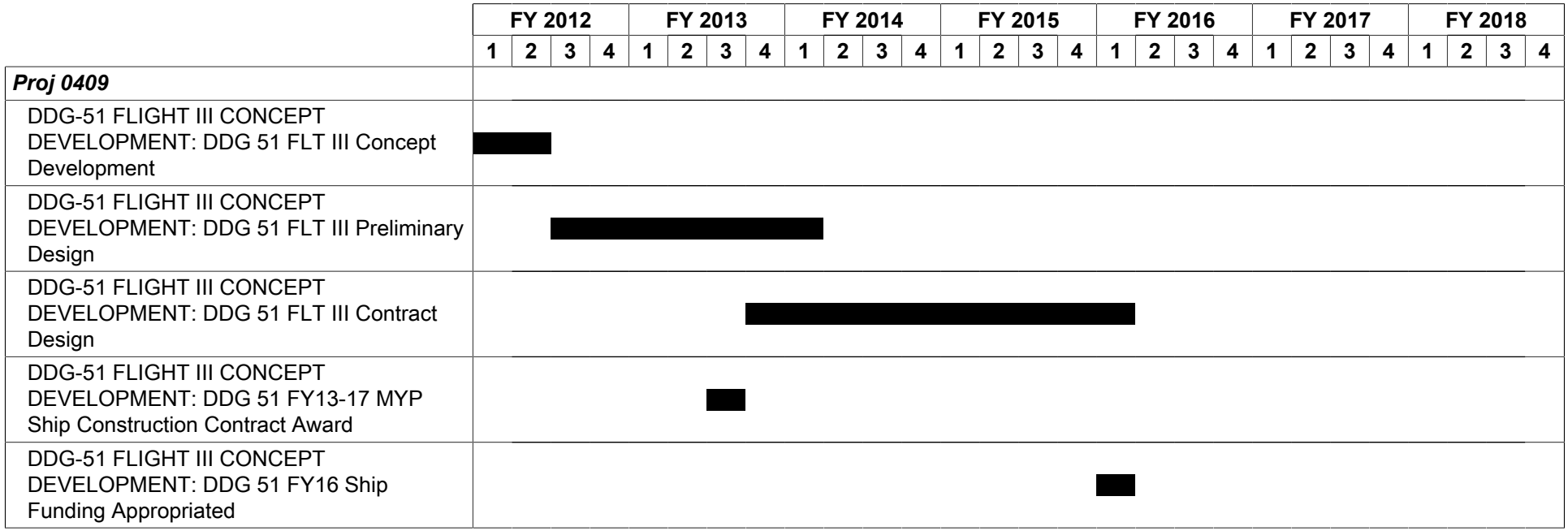


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603564N: *Ship Prel Design & Feasibility Studies*	**PROJECT** 0409: *DDG-51 Flt III Concept Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0409				
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FLT III Concept Development	1	2012	2	2012
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FLT III Preliminary Design	3	2012	1	2014
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FLT III Contract Design	4	2013	1	2016
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FY13-17 MYP Ship Construction Contract Award	3	2013	3	2013
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FY16 Ship Funding Appropriated	1	2016	1	2016

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 2474: *LSD Design & Total Ship Integration*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2474: *LSD Design & Total Ship Integration*	0.000	6.401	0.000	15.661	-	15.661	38.593	57.450	37.062	15.004	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

LX(R) (formerly LSD(X)) is expected to functionally replace LSD-41 Class ships and LSD-49 Class ships for embark, transport, control, insert, sustainment, and extract of Marine Air-Ground Task Force elements and supporting forces by helicopters, landing craft, and amphibious vehicles. Efforts are required to identify viable alternatives, including examining a reduced cost variant of LPD-17 Class. Efforts include ship concept studies, the Analysis of Alternatives (AoA), all Gate and Milestone (MS) documentation, Capabilities Development Documentation (CDD), and Indicative/Preliminary/Contract Design (PD/CD).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: LX(R) DESIGN/TOTAL SHIP INTEGRATION	6.401	0.000	15.661
Articles:	0		0
FY 2012 Accomplishments: Completed Initial Capabilities Document (ICD). Conducted ship concept studies and begin the preliminary work to support the Analysis of Alternatives (AoA) examining new design alternatives as well as LPD-17 reduced cost, mod-repeat options; prepare required documentation for Materiel Development Decision (MDD). Some FY 12 funds will carry over to finance completion of the FY 12 efforts.			
FY 2014 Plans: Complete Navy staffing of Capabilities Development Document (CDD). Develop all documentation to complete Gates 2 and 3 and Milestone A, including Service Cost Position (SCP), Cost Analysis Requirements Description (CARD), Program Protection Plan (PPP), Systems Engineering Plan (SEP), Reliability, Availability, Maintainability-Cost (RAM-C) Report, Test & Evaluation Strategy (TES), Life Cycle Sustainment Plan (LCSP), Acquisition Strategy/Technology Development Strategy (AS/TDS), etc. Complete Indicative Design and begin Preliminary Design (PD).			
Accomplishments/Planned Programs Subtotals	6.401	0.000	15.661

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 2474: *LSD Design & Total Ship Integration*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• SCN/3010: *LX(R) Procurement*	0.000	0.000	0.000		0.000	0.000	0.000	0.000	174.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Predecisional, expect competition will be part of the acquisition strategy after MS A.

E. Performance Metrics

Predecisional, performance metrics will be developed in parallel with the CDD.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 2474: *LSD Design & Total Ship Integration*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Design/Systems Integration	C/CPFF	CSC, Alion Science:Washington, DC	0.000	3.898	Dec 2011	0.000		7.305	Dec 2013	-		7.305	Continuing	Continuing	Continuing
Design/Systems Integration	WR	NSWC Carderock:NSWC Beth, MD	0.000	1.114	Dec 2011	0.000		4.753	Dec 2013	-		4.753	Continuing	Continuing	Continuing
Design/Systems Integration	WR	NSWC Dahlgren:Dahlgren, VA	0.000	0.304	Dec 2011	0.000		2.014	Dec 2013	-		2.014	Continuing	Continuing	Continuing
Design/Systems Integration	WR	PEO C4I, PEO IWS:Washington, DC	0.000	1.085	Dec 2011	0.000		1.289	Dec 2013	-		1.289	Continuing	Continuing	Continuing
Design/Systems Integration	WR	NAWC Lakehurst:Lakehurst, NJ	0.000	0.000		0.000		0.300	Dec 2013	-		0.300	Continuing	Continuing	Continuing
		Subtotal	0.000	6.401		0.000		15.661		0.000		15.661			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	6.401		0.000		15.661		0.000		15.661			

Remarks

Prior year funding (FY 10-FY 11) was funded under PE 0604311N, LPD-17 Class systems integration.

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 2474: *LSD Design & Total Ship Integration*

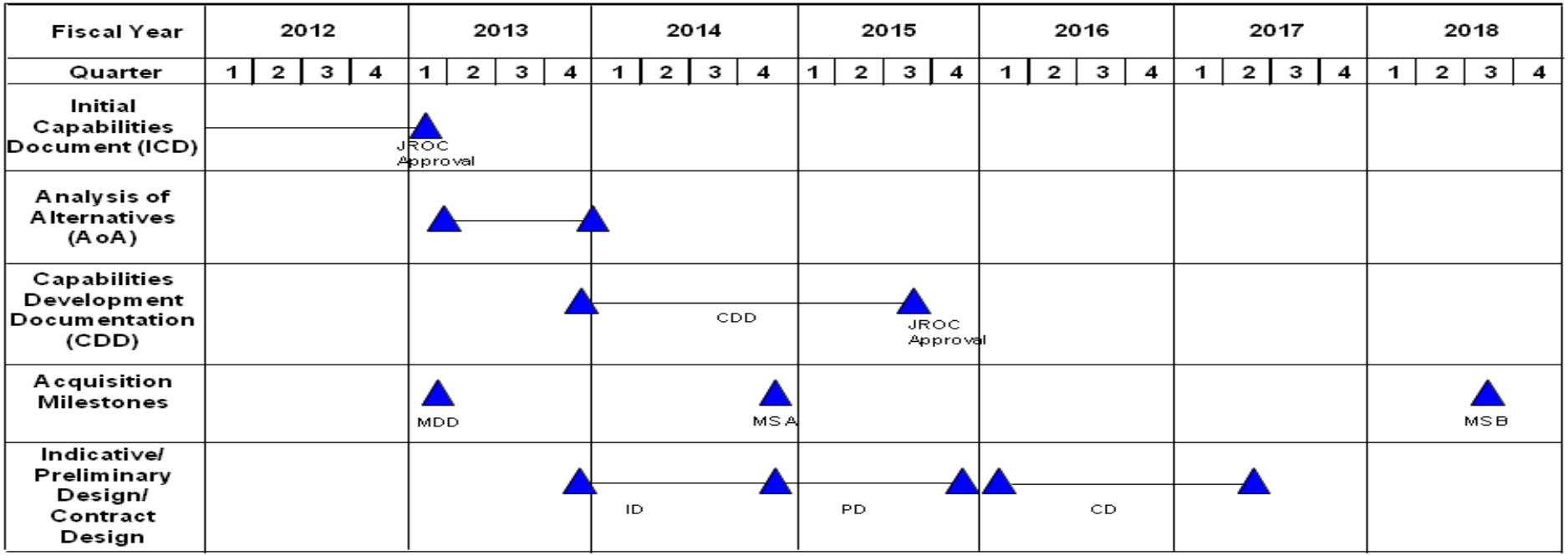


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603564N: *Ship Prel Design & Feasibility Studies*	**PROJECT** 2474: *LSD Design & Total Ship Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2474				
Initial Capabilities Document (ICD)	1	2012	1	2013
Materiel Development Decision (MDD)	1	2013	1	2013
Analysis of Alternatives (AoA)	1	2013	4	2013
Capabilities Development Documentation (CDD)	4	2013	3	2015
Milestone A	4	2014	4	2014
Indicative/Preliminary Design/Contract Design	4	2013	2	2017
Joint Requirements Oversight Council (JROC) Approval	3	2015	3	2015
Milestone B	3	2018	3	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 3261: *TAGOS Design & Total Ship Integration*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3261: *TAGOS Design & Total Ship Integration*	0.000	5.668	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.668
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

T-AGOS surveillance ship will provide an operational platform to support the mission of the Integrated Undersea Surveillance Systems (IUSS). An undersea surveillance capability is critical to the maritime strategy by supporting the anti-submarine warfare mission area. Loss of these capabilities would limit the Navy's ability to meet strategic and tactical naval imperatives. This capability will support the Fleet, Joint, and Multi-National forces across the full Range of Military Operations (ROMO) from stability operations and engagement to crisis response and major combat operations.

Note: All FY 12 T-AGOS funding used as a source for LPD 25/CVN 71 Special Transfer Authority notification submitted to the Congressional Defense Committees on Feb 6, 2013

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: T-AGOS Design and Acquisition	5.668	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: N/A			
Accomplishments/Planned Programs Subtotals	5.668	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

None, all FY 12 T-AGOS funding used as a source for LPD 25/CVN 71 Special Transfer Authority notification submitted to the Congressional Defense Committees on Feb 6, 2013

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 3261: *TAGOS Design & Total Ship Integration*

E. Performance Metrics

None

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 3261: *TAGOS Design & Total Ship Integration*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support (T-AGOS)	C/CPFF	CSC:Washington DC	0.000	4.000	Jun 2013	0.000		0.000		-		0.000	0.000	4.000	
Government Engineering Support (T-AGOS)	WR	NSWC:Caderock MD	0.000	0.750	Jun 2013	0.000		0.000		-		0.000	0.000	0.750	
Government Engineering Support (T-AGOS)	WR	SPAWAR:Charleston SC	0.000	0.648	Jun 2013	0.000		0.000		-		0.000	0.000	0.648	
Contractor Engineering Support (T-AGOS)	C/CPFF	ALION:Washington DC	0.000	0.250	Jun 2013	0.000		0.000		-		0.000	0.000	0.250	
Travel	Various	NAVSEA:WNY Washington DC	0.000	0.020	Jun 2013	0.000		0.000		-		0.000	0.000	0.020	
		Subtotal	0.000	5.668		0.000		0.000		0.000		0.000	0.000	5.668	

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	5.668		0.000		0.000		0.000		0.000	0.000	5.668	

Remarks

All FY 12 T-AGOS funding used as a source for LPD 25/CVN 71 Special Transfer Authority notification submitted to the Congressional Defense Committees on Feb 6, 2013

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603564N: *Ship Prel Design & Feasibility Studies*	PROJECT 3261: *TAGOS Design & Total Ship Integration*

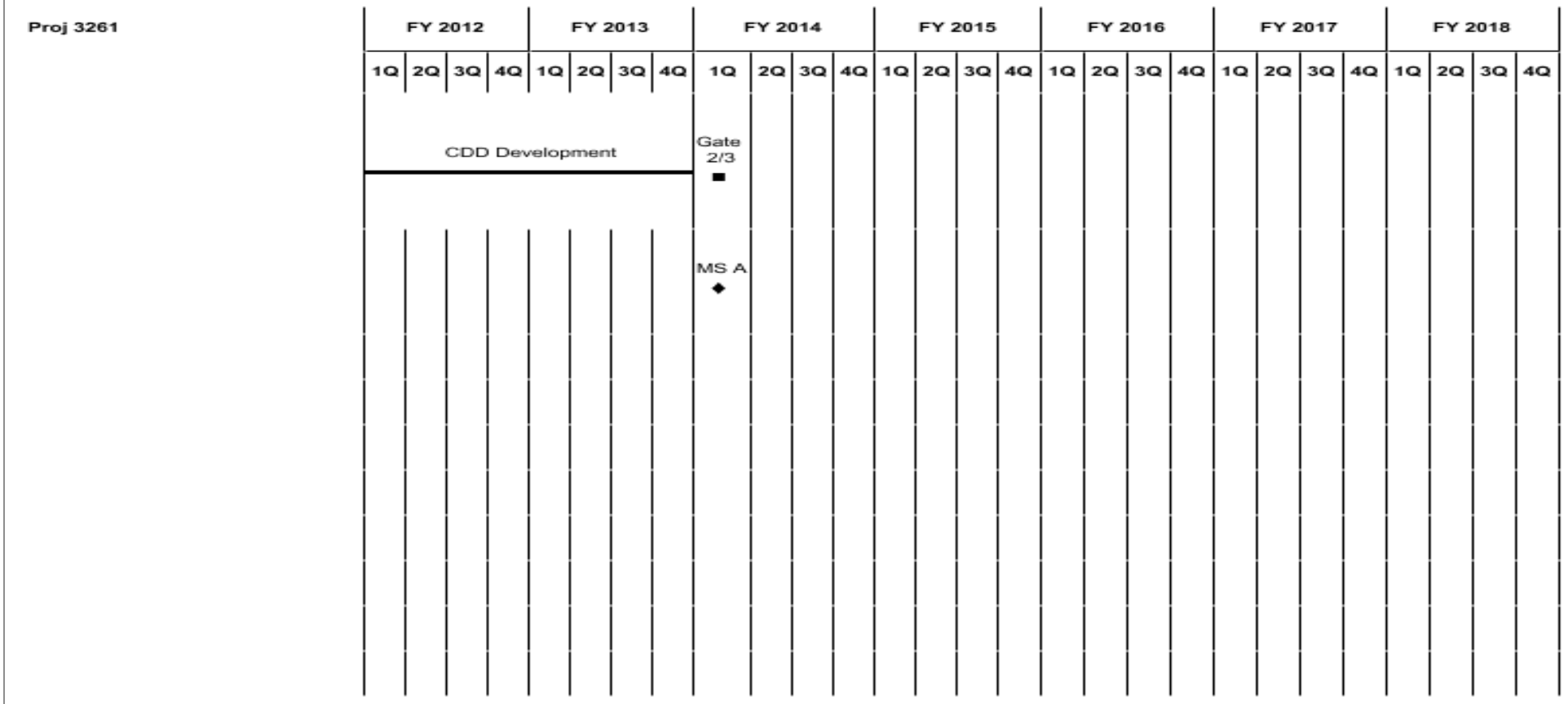


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603564N: *Ship Prel Design & Feasibility Studies*	**PROJECT** 3261: *TAGOS Design & Total Ship Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3261				
T-AGOS Service Level CDD Development	1	2012	4	2013
GATE 2/3	1	2014	1	2014
Milestone A	1	2014	1	2014

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603570N: *Advanced Nuclear Power Systems*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	463.683	249.748	428.933	-	428.933	481.232	485.992	476.290	467.710	Continuing	Continuing
1258: *Nuclear Technology Development*	0.000	59.170	59.945	60.727	-	60.727	62.212	63.500	64.862	66.185	Continuing	Continuing
2692: *CVN 21 Propulsion Plant Development*	0.000	65.808	62.020	57.499	-	57.499	56.693	0.000	0.000	0.000	0.000	242.020
3219: *SBSD Nuclear Technology Development*	0.000	285.367	81.817	296.050	-	296.050	361.827	422.492	411.428	401.525	Continuing	Continuing
3221: *Training Platform Replacement*	0.000	51.340	43.875	14.657	-	14.657	0.500	0.000	0.000	0.000	0.000	110.372
4000: *Tactical Energy Investment*	0.000	1.998	2.091	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.089
MDAP/MAIS Code(s): 223,P444												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603570N: *Advanced Nuclear Power Systems*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	463.683	249.748	430.986	-	430.986
Current President's Budget	463.683	249.748	428.933	-	428.933
Total Adjustments	0.000	0.000	-2.053	-	-2.053
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-0.824	-	-0.824
• Rate/Misc Adjustments	0.000	0.000	-1.229	-	-1.229

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603570N: *Advanced Nuclear Power Systems*	PROJECT 1258: *Nuclear Technology Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1258: *Nuclear Technology Development*	0.000	59.170	59.945	60.727	-	60.727	62.212	63.500	64.862	66.185	Continuing	Continuing
Quantity of RDT&E Articles												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603570N: *Advanced Nuclear Power Systems*	PROJECT 2692: *CVN 21 Propulsion Plant Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2692: *CVN 21 Propulsion Plant Development*	0.000	65.808	62.020	57.499	-	57.499	56.693	0.000	0.000	0.000	0.000	242.020
Quantity of RDT&E Articles												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603570N: *Advanced Nuclear Power Systems*	PROJECT 3219: *SBSD Nuclear Technology Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3219: *SBSD Nuclear Technology Development*	0.000	285.367	81.817	296.050	-	296.050	361.827	422.492	411.428	401.525	Continuing	Continuing
Quantity of RDT&E Articles												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603570N: *Advanced Nuclear Power Systems*	PROJECT 3221: *Training Platform Replacement*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3221: *Training Platform Replacement*	0.000	51.340	43.875	14.657	-	14.657	0.500	0.000	0.000	0.000	0.000	110.372
Quantity of RDT&E Articles												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603570N: *Advanced Nuclear Power Systems*	PROJECT 4000: *Tactical Energy Investment*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
4000: *Tactical Energy Investment*	0.000	1.998	2.091	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.089
Quantity of RDT&E Articles												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603573N: *Advanced Surface Machinery Sys*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	72.343	17.721	29.897	27.154	-	27.154	29.167	23.955	22.064	20.407	Continuing	Continuing
2471: *Integrated Power Systems (IPS)*	72.343	17.721	29.897	27.154	-	27.154	29.167	23.955	22.064	20.407	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This PE includes the development of advanced surface ship hull, mechanical, and electrical (HM&E) components and systems for all future ships and back-fit ships where appropriate. This PE is managed by PMS-320, the Electric Ships Office, located organizationally within PEO SHIPS, with responsibility for developing Naval Power Systems that focus on energy efficiency, providing power to mission systems, and platform integration of those components and systems. The mission of PMS 320 is to develop and provide smaller, simpler, more affordable and more capable electric power systems for all Navy platforms and focus Navy and industry investments.

This PE is the bridge between Science and Technology (S&T) and ship platform and mission systems acquisition programs by identifying prospective applications for S&T research, advanced development, and performing additional product development and qualification when necessary to meet platform or mission system requirements.

In October 2009, SECNAV outlined a set of specific objectives supporting U.S. Navy energy reform including several aimed at significantly reducing Fleet fuel consumption and improving our energy security posture. PMS-320 supports the DON Energy Goals by employing an integrated approach to develop and transition more affordable technologies that satisfy increasing shipboard power demands and high operational tempo while improving energy efficiency, reducing fuel consumption, and reducing Total Ownership Cost.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603573N: *Advanced Surface Machinery Sys*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	18.239	29.897	35.568	-	35.568
Current President's Budget	17.721	29.897	27.154	-	27.154
Total Adjustments	-0.518	0.000	-8.414	-	-8.414
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.518	0.000			
• Program Adjustments	0.000	0.000	-7.000	-	-7.000
• Rate/Misc Adjustments	0.000	0.000	-1.414	-	-1.414

Change Summary Explanation

FY14 Change of (-$8.414M) was due primarily to issue 18017 which rephased DDG-51 FLT III upgraded power interface Power Conversion Module (PCM) development. Other issues included: Issue 64103 - Underexecution, Procurement and RDT&E Programs; Issue 62246 - Standard Procurement System Replacement Strategy; Issue 62283 Naval Innovative Science and Engineering (Section 219) Program Funding Mechanism; Issue 63389 DON NWCF RATE ADJUSTMENTS; and, Issue 64195 - EA-011 Working Capital Fund Rates and Prices.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603573N: *Advanced Surface Machinery Sys*	PROJECT 2471: *Integrated Power Systems (IPS)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2471: *Integrated Power Systems (IPS)*	72.343	17.721	29.897	27.154	-	27.154	29.167	23.955	22.064	20.407	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project supports the development and transition strategy of Navy Power and Propulsion Systems including power generation, power conversion, power distribution, energy storage, power utilization and automation and control functions for fully integrated electric propulsion (such as T-AKE -1 class or DDG 1000 class), hybrid electric propulsion (such as LHD 8 and LHA(R) class), as well as legacy mechanical propulsion ships (such as DDG 51 class). This project supports optimized integration of mission systems, appropriate component and system controls, integration of components and systems into future and current ships, and providing power system solution alternatives to new and existing platforms.

Project developments are aligned with the Navy's 30 year shipbuilding plan via the Naval Power Systems Technology Development Roadmap, which outlines the way ahead for future developments and provides a basis for coordinated planning and investment by the Navy and private industry.

This project develops and transitions products that increase energy efficiency (and thereby create fewer greenhouse gas emissions and reduce dependence upon foreign petroleum sources), provide additional power to mission systems, and integrates those components and systems into ship platforms.

DON Energy Initiatives - Energy Storage Module (ESM) Increment 1, Advanced Power Generation Module (APGM), and Gas Turbine (GT) Efficiency Upgrades: This project supports the DON Energy Initiative designed to reduce ship energy consumption and increase mission effectiveness through longer time on station. The ESM will achieve fuel savings by de-risking single generator operations. APGM will provide increased power to meet power requirements for advanced sensors and future weapons with reduction in life cycle costs through increased fuel efficiency over legacy gas turbine generator sets. GT Efficiency Upgrades will provide fuel efficiency improvements to existing gas turbine engines for both backfit and new construction ships.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Energy Efficiency	12.500	19.600	17.340
Articles:	0	0	0
FY 2012 Accomplishments: Accepted transition of the ONR Swampworks Energy Storage Module (ESM) Proof of Concept (POC). Initiated testing of the ESM POC which validated interface requirements, employed an open architecture, and utilized components from multiple sources.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603573N: *Advanced Surface Machinery Sys*	PROJECT 2471: *Integrated Power Systems (IPS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continued to develop technical and operational concepts for improving shipboard energy management utilizing energy storage modules. Completed Industry studies, specifications, initial requirements documents, and interface control documents in support of Advanced Power Generation Module (APGM) and ESM Increment 1. Released draft Request For Proposals (RFPs) for ESM Increment 1. Released RFP to the Original Equipment Manufacturer (OEM) for improvement validation studies and preliminary design concepts for Gas Turbine (GT) Specific Fuel Consumption (SFC) improvement initiatives. The projects included: High Pressure Turbine Cooling Air Modulation (Reduced Bleed Air at part power) and Variable Stator Vane (VSV) Optimization (Vane Schedule revision at part power). These initial efforts focused on defining the test profiles for the design concepts and included initial testing. Continued to improve baseline power system energy efficiency performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, and ship integration studies and planning. Continued to determine alternatives for energy management and fuel efficiency improvement options. ***FY 2013 Plans:*** Complete testing of the ESM POC. Award contracts for APGM, GT Efficiency Upgrades, and ESM increment 1 and commence design. Order Long Lead Time Material (LLTM) and initiate ESM Increment 1 test planning. Continue design concepts for Gas Turbine (GT) specific Fuel Consumption (SFC) improvement initiatives. Develop software design specification and code for VSV angle optimization. Manufacture prototype hardware and conduct testing including SFC validation testing at OEM facility and at the DDG 51 Land Based Engineering Site (LBES) in Philadelphia. Assess performance improvements, evaluate prototype hardware under test conditions and determine whether component redesign is required to optimize efficiency gains. Define fielding plan for DDG 51 and CG 47 Class ships for LM2500 engines with digital fuel control configuration. Continue to improve baseline power system energy efficiency performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, and ship integration studies and planning. Continue to determine alternatives for energy management and fuel efficiency improvement options. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603573N: *Advanced Surface Machinery Sys*	PROJECT 2471: *Integrated Power Systems (IPS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Complete design and commence production of APGM and ESM Increment 1. Continue ESM test planning and commence test site modifications. Award contract and complete Gas Turbine efficiency upgrade OEM factory testing and issue test report including SFC validation data. Initiate LBES testing for GT efficiency upgrades. Define hardware kit contents for system configuration upgrade. Begin transition to hardware procurement and ship installation via OPN PE Continue to improve baseline power system energy efficiency performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, and ship integration studies and planning. Continue to determine alternatives for energy management and fuel efficiency improvement options.			
Title: Mission Power	3.100	4.990	6.800
Articles:	0	0	0
FY 2012 Accomplishments: Conducted trade study and commenced design of a 450 VAC to 1000 VDC Power Converter Module (PCM) for multiple applications. Completed draft requirements of a PCM similar to the DDG 51 Flight III Air & Missile Defense Radar (AMDR) PCM. ***FY 2013 Plans:*** Develop DDG 51 Flight III AMDR power interface requirements for ship / radar electrical interface. Complete specification and release the AMDR PCM RFP. Develop and build Functional Equivalent Modules (FEMs) power converter modules in support of DDG 51 Flight III AMDR PCM. Accept transition of ONR developed Solid State Power Station (SSPS) 4160 VAC to 1000 VDC power converter. ***FY 2014 Plans:*** Award contract and commence design of DDG 51 Flight III AMDR PCM. Order LLTM. Accept transition of ONR developed compact power components, (Bi-direction Power Converter, Multi-Functional Power Converter, and Power Management Controller) per the signed Technology Transition Agreements (TTAs) between ONR and PMS 320. Continue testing efforts associated with ONR developed compact power components and SSPS. Continue testing of power converter module FEMs in support of DDG 51 Flight III AMDR PCM.			
Title: Naval Power Technology Development / Platform Integration & Transition	2.121	5.307	3.014

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603573N: *Advanced Surface Machinery Sys*	PROJECT 2471: *Integrated Power Systems (IPS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0	0	0

FY 2012 Accomplishments:
Signed International Agreement for the Advanced Electric Power and Propulsion Systems Development Project (AEP3)Arrangement (PA) with the United Kingdom (UK). Commenced execution of the PA.

Continued to develop power and propulsion system configurations in support of future surface ship acquisition programs. Developed alternative power and propulsion solutions for future flights of the DDG 51 Class and LX(R). Continued to improve baseline power system performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, and ship integration studies and planning. Continued to conduct land based testing in order to increase energy efficiency and fuel savings, improve survivability and enable advanced sensors and weapons (i.e., AMDR, Lasers). Continued to analyze alternatives for supplying power to advanced radars, combat systems, and electric weapons power demands and potential interfaces to develop optimum alternative solutions. Continued assessments of Naval Power System alternate architectures to best meet emerging ship requirements. Assessed future capability needs and developed derived electrical requirements, surveyed existing technologies and trends, and began writing the Naval Power Systems Technology Development Roadmap.

FY 2013 Plans:
Continue to execute the AEP3 US/UK PA.

Continue to develop power and propulsion system configurations in support of future surface ship acquisition programs. Develope alternative power and propulsion solutions for future surface combatants and amphibious ships. Continue to improve baseline power system performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, and ship integration studies and planning. Continue to conduct land based testing in order to increase energy efficiency and fuel savings, improve survivability and enable advanced sensors and weapons (i.e., AMDR, Lasers). Continue to analyze alternatives for supplying power to advanced radars, combat systems, and electric weapons power demands and potential interfaces to develop optimum alternative solutions. Continue assessments of Naval Power System alternate architectures to best meet emerging ship requirements. Complete writing and issue the Naval Power Systems Technology Development Roadmap.

FY 2014 Plans:
Continue to execute the AEP3 US/UK PA.

Continue to develop power and propulsion system configurations in support of future surface ship acquisition programs. Develop alternative power and propulsion solutions for future surface combatants and amphibious ships. Continue to improve baseline

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603573N: *Advanced Surface Machinery Sys*	PROJECT 2471: *Integrated Power Systems (IPS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
power system performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, and ship integration studies and planning. Continue to conduct land based testing in order to increase energy efficiency and fuel savings, improve survivability and enable advanced sensors and weapons (i.e., AMDR, Lasers). Continue to analyze alternatives for supplying power to advanced radars, combat systems, and electric weapons power demands and potential interfaces to develop optimum alternative solutions. Continue assessments of Naval Power System alternate architectures to best meet emerging ship requirements. Commence bi-annual update of the Naval Power Systems Technology Development Roadmap.			
Accomplishments/Planned Programs Subtotals	17.721	29.897	27.154

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This program develops and transitions higher performance and more affordable electric power and propulsion systems to both new construction and back fit ship applications using an evolutionary acquisition approach. Full and open competition is utilized to the maximum extent possible to provide maximum benefit to the Navy at the lowest possible cost to the taxpayer.

E. Performance Metrics

This project will execute 100% of the signed Technology Transition Agreements with ONR; complete 100% of the advanced developments currently planned for the Energy Storage Module and Power Generation Module; achieve 10% Specific Fuel Consumption (SFC) improvement for Advanced Power Generation Module; mature technology to Technology Readiness Level (TRL) 6 by milestone decisions for ship acquisition programs; and, realize a 3-5% improvement in existing gas turbine engine SFC over engine operating profile.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603573N: *Advanced Surface Machinery Sys*	PROJECT 2471: *Integrated Power Systems (IPS)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Energy Efficiency	Various	Adv. PGM:Various	0.000	0.337	Nov 2011	12.500	Dec 2012	4.000	Jan 2014	-		4.000	Continuing	Continuing	Continuing
Energy Efficiency	Various	ESM:Various	0.000	0.000		4.000	Mar 2013	6.000	Oct 2013	-		6.000	Continuing	Continuing	Continuing
Missioin Power	C/CPFF	GE:Syracuse, NY	0.000	2.547	Aug 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Mission Power	Various	AMDR PCM:Various	0.000	0.000		0.000		3.612	Dec 2013	-		3.612	Continuing	Continuing	Continuing
Power & Propuslion Systems	C/CPFF	Various:Various	18.575	5.441	Oct 2011	3.600	Oct 2012	3.600	Oct 2013	-		3.600	Continuing	Continuing	Continuing
Power & Propulsion Systems	C/CPFF	Syntek:Arlington, VA	0.900	3.998	Oct 2011	2.637	Oct 2012	2.500	Oct 2013	-		2.500	Continuing	Continuing	Continuing
Various	WR	NSWCCD-SSES:Phila, PA	28.828	5.198	Oct 2011	5.100	Oct 2012	4.842	Oct 2013	-		4.842	Continuing	Continuing	Continuing
		Subtotal	48.303	17.521		27.837		24.554		0.000		24.554			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Power & Propuslion Systems	WR	NSWCCD-SSES:Phila, PA	24.040	0.200	Oct 2011	1.560	Oct 2012	1.600	Oct 2013	-		1.600	Continuing	Continuing	Continuing
		Subtotal	24.040	0.200		1.560		1.600		0.000		1.600			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Power & Propulsion Systems	C/CPFF	Various:Various	0.000	0.000		0.500	Jan 2013	1.000	Oct 2013	-		1.000	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.500		1.000		0.000		1.000			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603573N: *Advanced Surface Machinery Sys*	PROJECT 2471: *Integrated Power Systems (IPS)*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	72.343	17.721		29.897		27.154		0.000		27.154			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603573N: *Advanced Surface Machinery Sys*	PROJECT 2471: *Integrated Power Systems (IPS)*

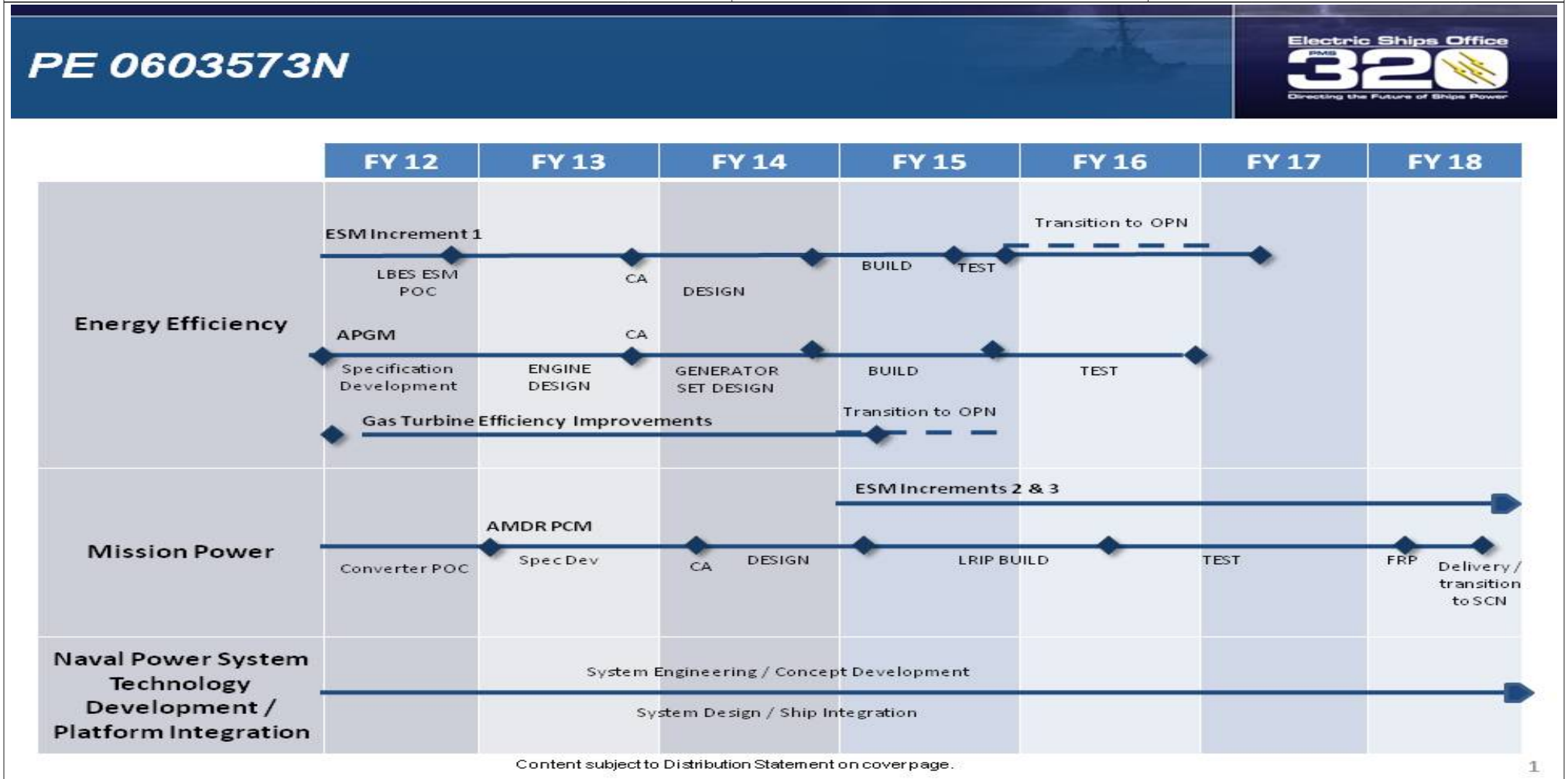


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603573N: *Advanced Surface Machinery Sys*	**PROJECT** 2471: *Integrated Power Systems (IPS)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2471				
System Engineering & Concept Development	1	2012	4	2018
System Design & Ship Integration	1	2012	4	2018
Advanced Power Generation	1	2012	4	2017
Energy Storage	1	2012	4	2018
Turbine Efficiency Upgrades	1	2012	4	2014
DDG51 Flight III Ship AMDR Electrical Interface	1	2013	4	2018

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603576N: *(U)CHALK EAGLE*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	573.676	509.988	519.140	-	519.140	495.196	405.430	217.758	75.169	Continuing	Continuing
1578: *Chalk Eagle*	0.000	573.676	509.988	519.140	-	519.140	495.196	405.430	217.758	75.169	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	582.025	509.988	522.242	-	522.242
Current President's Budget	573.676	509.988	519.140	-	519.140
Total Adjustments	-8.349	0.000	-3.102	-	-3.102
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.195	0.000			
• SBIR/STTR Transfer	-8.543	0.000			
• Program Adjustments	0.000	0.000	-3.016	-	-3.016
• Rate/Misc Adjustments	-0.001	0.000	-0.086	-	-0.086

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy												DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	2,862.241	297.125	429.420	406.389	-	406.389	337.220	158.840	145.502	143.644	Continuing	Continuing
3096: *Littoral Combat Ship*	731.391	84.033	223.681	197.738	-	197.738	170.764	41.962	40.622	41.058	Continuing	Continuing
3129: *LCS Mission Package Development*	691.878	139.714	195.824	203.771	-	203.771	166.456	116.878	104.880	102.586	Continuing	Continuing
4018: *Littoral Combat Ship Construction*	1,438.972	63.378	9.915	4.880	-	4.880	0.000	0.000	0.000	0.000	0.000	1,517.145
9999: *Congressional Adds*	0.000	10.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.000
MDAP/MAIS Code(s): 374,443												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This Program Element (PE) provides funds for detailed design, development, construction, integration, and testing of the Littoral Combat Ship (LCS). LCS is a fast, agile, and networked surface combatant with capabilities optimized to defeat asymmetric threats, and assure naval and joint force access into contested littoral regions. It uses open-systems architecture design, modular weapons, sensor systems, and a variety of manned and unmanned vehicles to expand the battle space and project offensive power into the littoral.

LCS operates with focused-mission packages that deploy manned and unmanned vehicles to execute a variety of missions, including littoral anti-submarine warfare (ASW), surface warfare (SUW) and mine countermeasures (MCM). LCS also possesses inherent capabilities, regardless of the mission package installed, including Intelligence, Surveillance, Reconnaissance (ISR), Homeland Defense, Maritime Interdiction/Interception Operations (MIO), Anti-Terrorism/Force Protection (AT/FP), air self-defense, joint littoral mobility, Special Operating Forces (SOF), and logistic support for movement of personnel and supplies. This relatively small, high-speed surface combatant complements the U.S. Navy's Surface Fleet by operating in environments where it is less desirable to employ larger, multi-mission ships. LCS can deploy independently to overseas littoral regions, remain on station for extended periods of time either with a battle group or through a forward-basing arrangement, and is capable of underway replenishment. LCS will operate with Carrier Strike Groups, Surface Action Groups, in groups of other similar ships, or independently for diplomatic and presence missions. Additionally, LCS can operate cooperatively with the U.S. Coast Guard and Allies.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	292.665	429.420	434.955	-	434.955
Current President's Budget	297.125	429.420	406.389	-	406.389
Total Adjustments	4.460	0.000	-28.566	-	-28.566
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	8.766	0.000			
• SBIR/STTR Transfer	-4.306	0.000			
• Program Adjustments	0.000	0.000	-23.222	-	-23.222
• Rate/Misc Adjustments	0.000	0.000	-5.344	-	-5.344

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2012	FY 2013
Project: 9999: *Congressional Adds*		
Congressional Add: *LCS MM SBIR (Cong)*	10.000	-
Congressional Add Subtotals for Project: 9999	10.000	0.000
Congressional Add Totals for all Projects	10.000	0.000

Change Summary Explanation

FY 2014 changes for seaframe and mission package (MP) include the following: rephasing of FY 2014 funds to FY 2015 due to delay of Full Ship Shock Trial (FSST) Test and Evaluation and rephasing of Surface Warfare (SUW) efforts from FY 2014 to FY 2015 for environmental testing (shock, vibration, Electromagnetic Environmental Effects (E3), temperature, salt spray) and developmental flight testing. Other FY 2014 changes include the addition of: support for the dual acquisition strategy and increased COMOPTEVFOR requirements to perform Developmental Testing and Operational Testing (DT/OT) on both LCS variants; Technical Evaluation (TECHEVAL) and Operational Evaluation (OPEVAL) as required for Navy final acceptance; MCM Mission Planning Architecture Software (MPAS) migration to a Service-Oriented Architecture (SOA); and MCM efforts for the completion of integration of RMMV v4.2.1 with MCM MP Increment I.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3096: *Littoral Combat Ship*	731.391	84.033	223.681	197.738	-	197.738	170.764	41.962	40.622	41.058	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The RDT&E portion of the LCS Program is comprised of design and development efforts required to deliver the Flight 0 Class Ships, including integration with modular MCM, ASW, and SUW mission packages, and construction of the first two Flight 0 Class Ships, the USS Freedom (LCS 1) delivered September 2008 and the USS Independence (LCS 2) delivered December 2009. It includes the design and development effort required to support the introduction and deployment of a Flight 0+ baseline for the ships awarded in FY09 with the incorporation of lessons learned from the design and construction of USS Freedom (LCS 1) and USS Independence (LCS 2), including improved waterjets and a waterjet tunnel extension on the Lockheed Martin (LM) LCS Design. Additionally, it includes design and development efforts required to support the design baseline for the six year block buy in FY10-15. This baseline will include lessons learned from the LCS 1 through LCS 4.

The LCS design and development phases include platform design and development, experimentation and ship system design and integration, hull platform testing, development of a Technical Data Package (TDP), total ship system engineering and integration, and planning and conduct of system testing, including procurement of ordnance in support of testing.

The RDT&E portion of LCS funding is also comprised of formal Developmental and Operational Assessment testing of the LCS Ships and Mission Packages. Test and Evaluation (T&E) will concentrate on verifying integration and interoperability of employed technologies and systems in the LCS seaframe designs and modular mission packages to achieve the mission capabilities and performance requirements as defined in the LCS Program's Flight 0 and Flight 0+ Capabilities Development Documents (CDD). T&E functions will include the evaluation of Critical Technical Parameters (CTP), Measures of Effectiveness (MOE), Measures of Suitability (MOS), and Key Performance Parameters (KPP) for the core seaframe and the focused missions.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: LCS Program Management	0.687	0.000	0.000
Articles:	0		
Description: Provides for overall LCS Program operations including technical, production, and logistics oversight, and acquisition, contract, Earned Value (EV), risk, science and technology, and financial management.			
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Completed contract administration for all Flight 0+ ships. Provided LCS program oversight for financial, logistics, technical and production efforts. Continued efforts for Milestone C and to maintain Milestone documentation.			
Title: LCS System-of-Systems Development, Engineering & Experimentation	15.519	35.954	37.507
Articles:	0	0	0

Description: Provides for LCS Program systems engineering in support of Flight 0, Flight 0+, and the new FY10 Block Buy baseline design, development, certification, and production (including ship system design and integration); combat system and C4I design, integration, and test; aviation (manned and unmanned) integration; modular mine countermeasure (MCM), anti-submarine warfare (ASW), and surface warfare (SUW) mission package (MP) integration; logistics product development; and various systems engineering activities required to perform risk analyses of new design and production technology concepts.

FY 2012 Accomplishments:

Flight 0 baseline:

Continued Seaframe systems engineering support for USS Freedom Post Shakedown Availability (PSA) 1 and 2 and USS Independence PSA 1 planning and execution. Continued Seaframe and MP integration engineering support during USS Independence MCM Developmental Testing (DT), USS Independence pre-VTUAV DT engineering analysis, and USS Freedom SUW DT, and conducted engineering analyses efforts for emergent integration issues. Supported preparation for USS Freedom Special Trials (ST). Investigated and developed systems engineering solutions for emergent issues during USS Freedom and USS Independence Post Delivery tests and trials. Continued completion testing and certification of Seaframe systems on USS Independence. Investigated, designed, and developed engineering solutions for design and production issues identified during USS Freedom and USS Independence operations (including testing). Engineering analysis included combat system integration, off-board vehicle communications, and watercraft launch, recovery, and handling.

Flight 0+ and FY10 Block Buy baselines:

Continued engineering Integrated Product Teams (IPTs) to resolve LCS technical issues and develop FY10 baseline changes. Continued developing engineering solutions for emergent issues identified on USS Freedom and USS Independence and ensuring the solutions are incorporated into the LCS 3 and LCS 4 design. Continued providing support reviewing and approving Technical Data Package (TDP) products for FY10 Block Buy Baselines. Developed plan for transition from American Bureau of Shipping (ABS) to Navy Classification. Initial stand up of Navy Design Site for Classification and Systems Engineering support.

FY 2013 Plans:

Flight 0 baseline:

Continue engineering support for USS Independence PSA 1 and 2. Resolve emergent design issues identified during Seaframe DT and Special Trials. Provide engineering support for USS Independence Post Delivery Trials. Continue Seaframe and MP integration engineering support for USS Freedom and USS Independence. Conduct MCM DT, air warfare and surface warfare

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
firing events, sea-keeping trials, and signature trials for USS Independence. Continue deployment preparations of USS Freedom by supporting engineering solutions discovered and corrected via system engineering process are implemented and tested prior to deployment. Develop solutions for emergent design and production issues highlighted in USS Freedom and USS Independence testing, certification and trials. Engineering analysis includes combat system integration, off-board vehicle communications, and watercraft launch, recovery, and handling. Lead the transition of multiple Science and Technology (S&T) projects into the LCS Baseline. Provide engineering support for design incorporation and issue resolution as projects shift from research and development to complete systems onboard both variants. Flight 0+ and FY10 Block Buy baselines: Provide Seaframe systems engineering support for DT for LCS 3. Continue Seaframe and MP integration engineering support for LCS 3 and LCS 4. Conduct DT for the MCM MP on LCS 3, testing the solutions highlighted on USS Freedom and USS Independence, and supporting the integration of these capabilities into their respective Seaframes. Begin planning for DT that will be conducted on the LCS 4. Begin planning for the Total Ship Survivability Trial (TSST) for the LCS 3. Continue planning for Aluminum Compartmentalization on the Independence Variant to support Live Fire Test and Evaluation (LFT&E) requirements. Continue support for Navy Classification design site including facility, Integrated Digital Environment (IDE) support, and engineering support for drawing review. Lead the transition of multiple Science and Technology projects into the LCS Baseline. Provide engineering support for design incorporation and issue resolution as projects shift from research and development to complete systems onboard both variants. ***FY 2014 Plans:*** Flight 0 Baseline: Conduct Technical Evaluation (TECHEVAL) and Initial Operational Test and Evaluation (IOT&E) on USS Independence with the MCM MP, and provide engineering support for the SUW MP DT. Provide in-service engineering support for USS Independence. Flight 0+ and FY10 Block Buy Baselines: Conduct Seaframe and SUW MP OT, TECHEVAL, and IOT&E on LCS 3. Conduct Seaframe DT for LCS 4. Conduct TSST on LCS 3 and begin planning of TSST on LCS 4. Begin planning for the FSST on LCS 5 and 6. Conduct the Aluminum Compartmentalization on the Independence Variant to support LFT&E requirements. Continue support for Navy Classification design site including facility, IDE support, and engineering support for drawing review. Develop technical and performance baseline for FY16 ship procurements based on systems design and testing execution.			
Title: LCS Total System Training Architecture	25.641	129.143	89.125
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014

Description: LCS is minimally manned, and the small crew size, combined with LCS's complex mission, does not allow adequate time for shipboard "on-the-job" training to achieve LCS operational availability. Consequently, LCS uses a Train-to-Qualify (T2Q)/ Train- to-Certify (T2C) training process in an off-ship/shore-based virtual ship trainer environment, focused on tactical operations and equipment operations and maintenance training. When completed, the LCS shore based training capability will satisfy individual, unit, team, and force training and will meet Capability Development Document (CDD) T2Q Key Performance Parameter (KPP) requirements.

FY 2012 Accomplishments:
Continued to transition and implement Training Front End Assessment output in association with the Naval Education and Training Command (NETC) Job Duty Task Analysis (JDTA) Instruction, including Mission Bay analysis and courseware and training device development. Initiated development of the Immersive Virtual Shipboard Environment (IVSE) software/courseware to support the development of the LCS 1 and LCS 2 variant Readiness Control Officer simulators and the Engineering Plant Technician Watchstander training, which will also be used with future LCS Trainers. Began development of courseware in support of Hull, Maintenance, and Electrical (HM&E) system operations and maintenance courses after completion of JDTA.

Through the Training System Executive Agent (TSEA), conducted curriculum design and media analysis, pursued instructor-led and interactive courseware development, coordinated LCS Training Facility Electronic Infrastructure and Infrastructure Integrated Product Team (LTF EII IPT) efforts, executed Learning Management System (LMS) installation and configuration, developed Virtual Reality Lab (VRL) Test Environment Prototype, continued LCS Training Facility (LTF) San Diego Department of Defense Information Assurance (IA)/Certification and Accreditation (C&A) Package (DIACAP), continued development of the Tactical Action Officer Trainer taking advantage of PC Based, Open Architecture, and Re-Configurable Training Systems (PORTS). Also began development of the C2 Part Task Trainers for use on LCS 2 and LCS 1 variants and executed contract to begin development of the Mission Bay Trainer that will be installed in the LCS Training Facility in San Diego upon its completion in 2015.

FY 2013 Plans:
Transition and implement Training Front End Assessment output in association with the Naval Education and Training Command (NETC) Job Duty Task Analysis (JDTA) Instruction including LCS 2 task validation, Mission Bay analysis, and courseware and training device development.

Through the Training System Executive Agent (TSEA), conduct curriculum design and media analysis, pursue instructor-led and interactive courseware development, coordinate LCS Training Facility Electronic Infrastructure and Infrastructure Integrated Product Team (LTF EII IPT) efforts, execute Learning Management System (LMS) installation and configuration, continue LCS Training Facility (LTF) San Diego Department of Defense Information Assurance (IA)/Certification and Accreditation (C&A)

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Package (DIACAP). Begin development of courseware in support of Hull, Maintenance, and Electrical (HM&E) system operations and maintenance courses after completion of JDTA. ***FY 2014 Plans:*** Through the Training System Executive Agent (TSEA), conduct curriculum design and media analysis, pursue instructor-led and interactive courseware development, coordinate LCS Training Facility Electronic Infrastructure and Infrastructure Integrated Product Team (LTF EII IPT) efforts, execute Learning Management System (LMS) installation and configuration, , continue LCS Training Facility (LTF) San Diego Department of Defense Information Assurance (IA)/Certification and Accreditation (C&A) Package (DIACAP). Begin development of courseware in support of Combat Systems and C2 operations and maintenance courses after completion of JDTA. Assess efficiencies gained by bringing existing systems into VR-centric LCS courseware, where applicable.			
Title: LCS Test & Evaluation	42.186	58.584	71.106
Articles:	0	0	0
Description: Execute formal LCS Developmental Testing and Operational Testing (DT/OT), including Live Fire Test and Evaluation (LFT&E), and procurement of T&E Ordnance. Execute DT and C4I integration, and test; aviation (manned and unmanned) integration; modular mine countermeasure (MCM), anti-submarine warfare (ASW), and surface warfare (SUW) mission package (MP) integration. ***FY 2012 Accomplishments:*** Flight 0 baseline: Continued Seaframe testing on USS Freedom and USS Independence, air warfare and surface warfare firing events, aviation integration, signature trials and selected sea-keeping trials. Conducted detailed Seaframe DT and SUW Mission Package (MP) integration on USS Freedom and MCM MP on USS Independence, and conducted analysis efforts for emergent integration issues. Developed solutions for emergent issues during USS Freedom and USS Independence Post Delivery tests and trials including Seaframe DT and Post Shakedown Availability (PSA). Planned and conducted a Quick Reaction Assessment (QRA) to support the fleet request to deploy USS Freedom in early Q2 FY13. Updated the LCS Test and Evaluation Master Plan (TEMP) to reflect revised Acquisition Strategy and program schedule. Flight 0+ and FY10 Block Buy baselines: Begin advance DT/OT planning for the SUW MP on the LCS 3. Conduct testing to validate that solutions for emergent issues identified on USS Freedom and USS Independence are integrated into the LCS 3 and LCS 4. Begin planning of aluminum			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
surrogate testing in the areas of multi-hull blast and fire testing to support LFT&E requirements. Began planning for the Total Ship Survivability Trial (TSST) to be conducted on LCS 3 and LCS 4. ***FY 2013 Plans:*** Flight 0 baseline: Conduct MCM DT, air warfare and surface warfare firing events, seakeeping trials, and signature trials USS Independence. Continue to support deployment preparations of USS Freedom by ensuring engineering solutions discovered and corrected during the system engineering process are implemented and tested prior to deployment. Analysis includes combat system integration, off-board vehicle communications, and watercraft launch, recovery, and handling. Flight 0+ baseline: Conduct Seaframe DT for LCS 3 and LCS 4. Conduct DT/OT for the SUW MP on LCS 3, testing the solutions highlighted on USS Freedom and USS Independence, and supporting the integration of these capabilities into their respective Seaframes. Begin planning for DT to be conducted on the LCS 4. Continue planning for TSST for the LCS 3. Continue planning for aluminum surrogate article testing to support LFT&E requirements. Conduct small component surrogate testing to address knowledge gaps. ***FY 2014 Plans:*** FY14 Plans Flight 0 Baseline: Conduct Technical Evaluation (TECHEVAL) and Initial Operability Test and Evaluation (IOT&E) on USS Independence with the MCM MP. Flight 0+ Baseline: Conduct SUW MP DT, TECHEVAL, and IOT&E on LCS 3 with the SUW MP. Continue planning for TSST for the LCS 3 and LCS 4 and conduct TSST on LCS 3. Begin planning for FSST on LCS 5 and 6. Conduct the aluminum surrogate testing to support LFT&E requirements. Begin planning for the DT testing on LCS 5 and 6. Conduct blast and fire testing on multi-compartment surrogate test article in support of LFT&E requirements.			
Accomplishments/Planned Programs Subtotals	84.033	223.681	197.738

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 2127: *Littoral Combat Ship*	1,755.093	1,784.959	1,793.014		1,793.014	1,824.944	997.051	1,032.475	1,056.018	13,085.300	27,004.652
• 1600: *LCS Modules*	65.848	31.319	45.966		45.966	30.951	14.696	18.570	18.897	Continuing	Continuing
• 0443: *Aircraft Procurement, Navy*	191.986	124.573	60.980		60.980	81.336	0.000	0.000	0.000	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 5110: *Outfitting/Post Delivery .*	25.986	60.053	79.823		79.823	134.113	134.722	208.913	211.197	2,151.400	3,013.642
• 1320: *LCS Training*	29.885	29.772	36.145		36.145	27.748	28.832	31.032	31.538	Continuing	Continuing
• 0944: *LCS Class Support Equipment*	0.000	19.865	47.078		47.078	42.769	43.040	64.300	63.394	Continuing	Continuing
• 1601: *MCM Mission Modules*	0.000	38.392	59.885		59.885	185.017	219.795	219.818	223.744	Continuing	Continuing
• 1602: *ASW Mission Modules*	0.000	0.000	0.000		0.000	3.436	23.612	44.754	45.560	0.000	117.362
• 1603: *SUW Mission Modules*	0.000	32.897	37.168		37.168	40.042	46.282	67.581	68.791	Continuing	Continuing

Remarks

D. Acquisition Strategy

The LCS program takes an evolutionary approach to acquisition that emphasizes competition as a key to achieving affordability. Initially, two industry teams competed against each other with two distinctly different LCS designs. The decision produced two flights with a vessel from each design: Flight 0 (LCS 1 and LCS 2); and Flight 0+ (LCS 3 and out). The Flight 0+ baseline incorporates lessons learned from the design, construction, and testing of the Flight 0 ships. The Navy conducted a limited competition amongst the existing LCS industry teams or team participants for the award of a contract for the construction of a block buy of up to ten (10) LCS Flight 0+ Class ships, with an objective of competitively awarding a single contract to a single industry team.

By Acquisition Decision Memorandum of December 23, 2010, the USD (AT&L) authorized execution of an alternative acquisition strategy for the FY 2010 through FY 2015 procurement of 20 seaframes through two ten-ship block buy contracts. On December 29, 2010, the Navy awarded two contracts for block buys of up to ten ships, beginning with the award to each contractor of one FY 2010 ship and associated non-recurring engineering, the development of the Technical Data Package (TDP), core class services, and associated data. This was followed by the contractual funding of one ship to each contractor in FY 2011 and two ships each funded in FY 2012 through FY 2015.

E. Performance Metrics

The LCS Program achieved Milestone A and Program Initiation in May 2004, and underwent a Milestone A update in FY09. Milestone B was achieved in February 2011.

In an October 2012 LCS Program Acquisition Decision Memorandum (ADM), USD (AT&L) formally rescinded the requirement for the Seaframe to conduct a Milestone C. The decision directs the integrated LCS program to conduct annual Defense Acquisition Board In-Process Reviews (DAB IPRs). The first Seaframe and Mission Module integrated program DAB IPR was conducted in January 2013. DAB IPRs will be held each September hereafter.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LCS 1 & 2 Shore Trainers	C/CPAF	LM, BIW:Various	47.595	8.941	Feb 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Training Development - Industry	C/FP	TBD:Various	0.000	8.800	Feb 2012	21.300	Oct 2012	14.340	Oct 2013	-		14.340	Continuing	Continuing	Continuing
Training Development	WR	NAWC TSD:Orlando, FL	0.000	3.000	Feb 2012	96.200	Oct 2012	65.585	Oct 2013	-		65.585	Continuing	Continuing	Continuing
Training Development Support	Various	Various:Various	0.000	0.000		11.643	Oct 2012	9.200	Oct 2013	-		9.200	0.000	20.843	
Class Design Services	SS/CPAF	LM, GD:Various	48.340	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Final Design (Flight 0)	C/CPAF	LM, BIW:Various	175.263	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Flight 0 C4I	WR	PEO C4I:Various	5.506	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
SH-60B Datalink	C/CPAF	LM, BIW:Various	2.435	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Distance Support	WR	NAWC TSD:Orlando, FL	0.000	4.900	Feb 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	279.139	25.641		129.143		89.125		0.000		89.125			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NSWC/DD:Dahlgren, VA	41.906	4.500	Oct 2011	8.623	Nov 2012	7.489	Nov 2013	-		7.489	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/PC:Panama City, FL	22.892	0.250	Feb 2012	2.540	Nov 2012	1.854	Nov 2013	-		1.854	Continuing	Continuing	Continuing
Government Engineering Support	WR	NUWC:Newport, RI	8.961	0.100	Oct 2011	0.250	Nov 2012	0.265	Nov 2013	-		0.265	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWC AD:Pax River, VA	18.015	1.369	Feb 2012	3.149	Nov 2012	4.455	Nov 2013	-		4.455	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/CR:Crane, IN	15.951	0.100	Feb 2012	0.725	Nov 2012	0.625	Nov 2013	-		0.625	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NSWC/ SSES:Philadelphia, PA	45.996	4.000	Oct 2011	8.749	Nov 2012	9.043	Nov 2013	-		9.043	Continuing	Continuing	Continuing
Government Engineering Support	Various	Government Activities:Various	28.228	2.600	Oct 2011	6.070	Dec 2012	8.716	Oct 2013	-		8.716	Continuing	Continuing	Continuing
Contractor Engineering Support	C/CPAF	Alion/CSC:Arlington, VA	39.490	2.500	Feb 2012	5.623	Jan 2013	5.060	Jan 2014	-		5.060	Continuing	Continuing	Continuing
Contractor Engineering Support	C/CPAF	Various:Various	18.148	0.100	Feb 2012	0.225	Jan 2013	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	239.587	15.519		35.954		37.507		0.000		37.507			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	C/CPAF	Alion/CSC:Arlington, VA	11.490	6.000	Feb 2012	6.800	Dec 2012	7.931	Dec 2013	-		7.931	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/PHD:Port Hueneme, CA	26.271	5.400	Oct 2011	8.770	Oct 2012	9.652	Oct 2013	-		9.652	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/ SSES:Philadelphia, PA	31.467	6.500	Oct 2011	12.323	Oct 2012	16.229	Oct 2013	-		16.229	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/PC:Panama City, FL	5.731	4.700	Oct 2011	2.467	Oct 2012	2.955	Oct 2013	-		2.955	Continuing	Continuing	Continuing
Test & Evaluation	WR	COMOPTEVFOR:Norfolk, VA	7.714	0.425	Nov 2011	1.872	Nov 2012	2.845	Nov 2013	-		2.845	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/COR:Corona, CA	5.986	2.301	Oct 2011	2.550	Nov 2012	2.950	Nov 2013	-		2.950	Continuing	Continuing	Continuing
Test & Evaluation	WR	Various:Various	44.133	7.036	Nov 2011	12.948	Dec 2012	12.785	Oct 2013	-		12.785	Continuing	Continuing	Continuing
Test & Evaluation/CSS	C/CPAF	LM/GD/ Various:Various	32.936	9.624	Nov 2011	8.752	Dec 2012	12.745	Dec 2013	-		12.745	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	PEO C4I:Charleston, SC	5.856	0.100	Feb 2012	1.852	Oct 2012	2.754	Oct 2013	-		2.754	Continuing	Continuing	Continuing
T&E Ordnance	WR	PEO IWS:Various	6.927	0.100	Dec 2011	0.250	Dec 2012	0.260	Oct 2013	-		0.260	Continuing	Continuing	Continuing
		Subtotal	178.511	42.186		58.584		71.106		0.000		71.106			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support- SEAPORT	C/CPAF	Alion/CSC:Arlington, VA	20.393	0.200	Feb 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Management Support	Various	Various:Various	11.812	0.400	Nov 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Management Support - Design	C/CPAF	Various:Arlington, VA	1.949	0.087	Feb 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	34.154	0.687		0.000		0.000		0.000		0.000			

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	731.391	84.033		223.681		197.738		0.000		197.738			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*

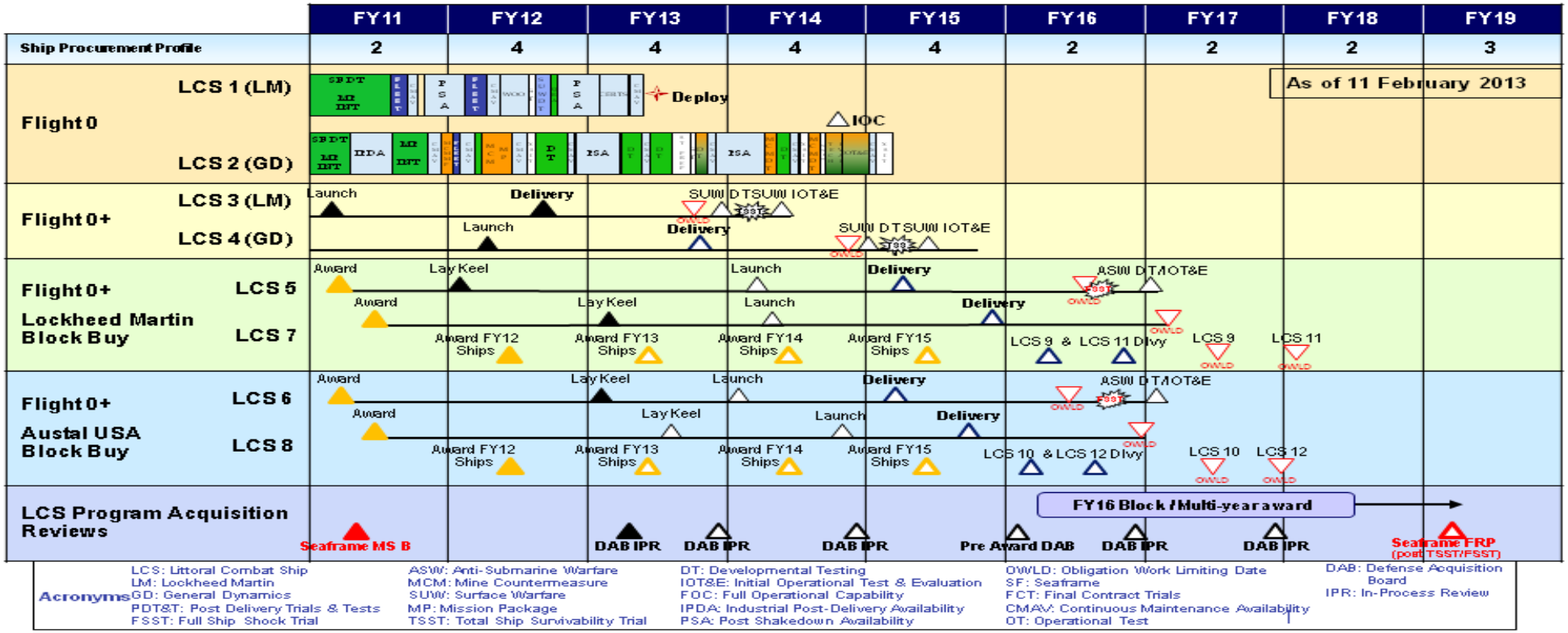


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3096: *Littoral Combat Ship*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3096				
Planning: Post Delivery DT/OT - Flight 0: Planning; Post Delivery Developmental Testing (DT)/Operational Testing (OT) - Flight 0	1	2012	4	2014
DT/OT - Flight 0: Flight 0 DT / OT	1	2012	4	2014
LFT&E - Flight 0+: Live Fire Test & Evaluation (LFT&E) - Flight 0+	1	2012	4	2017
Planning: Post Delivery DT/OT - Flight 0+: Planning: Post Delivery Developmental Testing (DT)/Operational Testing (OT) - Flight 0+	1	2012	4	2017
DT/OT - Flight 0+: Flight 0+ DT / OT	1	2012	4	2017
TSST - LCS 3: Total Ship Survivability Trial (TSST) LCS 3	1	2014	1	2014
TSST - LCS 4: Total Ship Survivability Trial (TSST) LCS 4	1	2015	1	2015
DAB IPRS: Defense Acquisition Board/In-Process Reviews	2	2013	4	2017
FSST - LCS 5: LCS 5 FSST	4	2016	4	2016
FSST - LCS 6: LCS 6 FSST	4	2016	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3129: *LCS Mission Package Development*	691.878	139.714	195.824	203.771	-	203.771	166.456	116.878	104.880	102.586	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Program provides focused war fighting capabilities in littoral mine countermeasures, countering small boat threats and littoral anti-submarine warfare to provide assured access to enable the US Joint Force operations in the littorals. A mission package is a combination of warfare mission modules with specialized crew, support equipment, and vehicles including manned helicopters and unmanned maritime systems. They are packaged in a modular fashion so that they can be quickly swapped out pier side. Mission module development includes architectures, interfaces and integration of mission systems. Mission systems integration also includes the procurement of the first mission packages to be used on the Flight 0 Littoral Combat Ships (LCS). The program has an inventory objective of 24 MCM mission packages, 24 SUW mission packages, and 16 ASW mission packages. Mission package procurement and delivery are aligned with the ship delivery schedule, mission area demand signal from the combatant commanders, and the retirement of legacy platforms. This means that 64 interchangeable mission packages will be available for use among the seaframe variants of the LCS class to support global warfighting and peacetime presence requirements.

An incremental development approach to delivering capability allows the continued insertion of mature capabilities throughout the life of the program without the need for modifications to the sea frames. Future mission package increments will be considered when joint warfighting objectives or changing threats create new operational capability requirements that cannot be met by current mission package designs, or when new technological opportunities allow significant progress toward delivering cost effective, enhanced capabilities. Future mission module increments can be tested, constructed, and incorporated into existing mission packages, one of the most important benefits of LCS modular design.

The LCS MCM mission package will counter deep, shallow, and tethered mines in the littoral without putting Sailors in the minefield. When the MCM mission package is embarked, LCS is capable of conducting detect-to-engage operations (hunting, sweeping, and neutralization) against very shallow and deep-water sea mine threats. The MCM mission package provides these capabilities through the use of sensors and weapons deployed from an MH-60S multi-mission helicopter and unmanned off-board vehicles. The MCM package consists of the following systems: Coastal Battlefield Reconnaissance & Analysis (COBRA), Airborne Laser Mine Detection System (ALMDS), Organic Airborne & Surface Influence Sweep (OASIS) System, Remote Multi-Mission Vehicle (RMMV), AQS-20A Mine hunting Sonar, Airborne Mine Neutralization System (AMNS), Unmanned Integrated Sweep System (UISS)(which is comprised of the Unmanned Surface Vehicle (USV) and the Unmanned Surface Sweep System (US3)), Surface Mine Countermeasures (SMCM) Unmanned Undersea Vehicle (UUV) with Low Frequency Broad Band (LFBB), support equipment and support containers. The individual systems are combined into five modules: Organic Airborne Mine Countermeasures (OAMCM) Module, Remote Mine Hunting Module, Unmanned Influence Sweep Module, Coastal Mine Reconnaissance Module and the Buried Mine Module. The Organic Airborne Mine Countermeasures Module provides rapid mine hunting and clearing using the embarked MH-60 helicopter and Mine Countermeasure systems. The Remote Mine Hunting Module uses

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

a Remote Multi-Mission Vehicle (RMMV) and AQS-20A to provide sustained mine hunting and clearing from the surface. The Influence Sweep Module provides endurance bottom sweep capability, the Coastal Mine Reconnaissance Module (CMRM) will allow detection of minefield patterns and obstacles from an embarked Fire Scout VTUAV, and the Buried Mine Module will allow detection of buried mines. When complete, the MCM mission package will provide full capability against floating, tethered, bottom, and buried mines.

The ASW mission package enables LCS to conduct detect-to-engage operations against modern submarines that pose a threat. Specific ASW capabilities include protecting forces in transit, protecting joint operating areas, and establishing ASW barriers.

ASW modules developed to provide the warfighter capabilities that can be employed for ASW area search as well as high value unit escort missions. Module components include a torpedo countermeasures system, a Variable Depth Sonar, and a Multi-Function Towed Array. The Aviation Module offers airborne threat localization and engagement capability through a Fire Scout VTUAV and an MH-60R with MK54 torpedoes. The individual systems are combined into three modules: Torpedo Defense Countermeasure; ASW Escort/Large area Clearance; and Localization & Engagement.

The SUW mission package increases firepower and offensive/defensive capabilities against large numbers of highly maneuverable, fast, small craft threats, giving LCS the ability to protect the sea lanes and move a force quickly through a choke point or other strategic waterway. With the SUW mission package embarked, LCS has enhanced detection and engagement capability against enemy small craft and similar littoral surface threats.

The SUW mission package is comprised of several modules including the Gun Mission Module (GMM). The GMM is comprised of two high velocity 30mm cannons and is augmented with the ship's 57mm gun to counter close in to mid-range threats. The Aviation Module uses the embarked the MH-60R helicopter with Hellfire missile and the MQ-8B Fire Scout Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle (VTUAV) - for the detection, identification, and classification of surface contacts and to engage long range threats. The Maritime Security Module supports the embarkation of a Visit, Board, Search, and Seizure (VBSS) team. The Irregular Warfare (IW) Module provides an expanded medical and training capability to the LCS Surface Warfare (SUW) Mission Package. It includes the following IW medical and training enhancements: an Afloat Trauma Care (ATC) Medical Module; a Humanitarian Assistance/Health Services Support Medical Module; and a Training Module. The Surface to Surface Missile Module (SSMM) will provide missile coverage for mid-range threats and small boats.

The LCS Mission Modules Common Equipment consists of enabling products required by all mission packages to provide common hardware interfaces, computer operating environment, communications systems, aviation interface systems and portable development & integration test-sets. Common hardware interfaces include definition, installation and control of mechanical, electrical and cooling requirements common to all mission packages. The Mission Package Computing Environment (MPCE) provides common services and Operating Environment to support all Mission Package Application Software and Open Architecture Products. The Multi-Vehicle Communications System (MVCS) enables the control and data exchange of simultaneous unmanned mission vehicles and the Seaframes. Aviation interface systems include integration and management of data communications, data processing and physical hardware interfaces such as common equipment and containers used by all mission packages. Development and integration test-sets provide a mobile operating environment installed in the Mission Package Portable Control Stations (MP-PCS) to serve as a surrogate Seaframe during mission package development and integration test events at test ranges.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: System Engineering	16.245	13.816	10.239
Articles:	0	0	0

FY 2012 Accomplishments:
Completed the Mission Package Operating Environment (MPOE) 5.0.2 Government Factory Acceptance Test (GFAT) at AAC. Obtained/renegotiated connection agreements with Littoral Combat Ship (LCS) Class Squadron (LCSRON) IA Manager (IAM) allowing system(s) to operate on LCS until PIT Risk Approval (PRA) received. Renegotiated connection agreement for the Surface Warfare (SUW) Mission Package (MP) to LCS-1. Negotiated connection agreements for Multiple Vehicle Communication System (MVCS) to LCS-3 and LCS-4. Mine Countermeasures (MCM) Certification Test and Evaluation (CT&E) event conducted which included MPAS v1.5 and results used to develop revised PRA package/risk deficiency database. Developed the LCS Mission Modules Program Protection Plan and the Information Assurance Strategy. Obtained PRAs for the SUW MP and MVCS, which authorizes operation of the systems in an afloat environment. Supported the SSSTRP and WSESRB Review of SUW MP with LCS 1 and prepared the closure of findings. Developed MAR package for risk acceptance. Developed the Safety Level 2 Specification including ESOH requirements. Developed a PMS 420 System Safety Management Plan (SSMP) Plan. Completed a SUW MP Integration System Hazard Analysis (SHA). Completed the development of the PESHE. Conducted Environmental Assessment for HAZMAT Identification and Environmental Compliance. Developed a PMS 420 Hazardous Material Management Program (HMMP) Plan. Identified and managed ESOH mishap risk maintained within the Hazard Tracking Database. Identified and coordinated HSI activities across MPs and integrated MPs with seaframe HSI activities. Provided updated PMS 420 MM HSI Plan. Developed MPCC HSI requirements for ICD and SSDD. Developed M&S requirements for FireScout, RMV, and SUW assets. Received accreditation approval for the Naval Mine Warfare Simulation. Completed the following SE related MS B documents: MM PDR Equivalency Report; LCS MM SEP; Corrosion Prevention Control Plan (CPCP). Developed the S&T Noteboook; Developed Weight Management Plan; Provided SE guidance to the TSRs, CCBs, RMB, and RAM-C Working group. Coordinated and provided guidance for all LCS MP SETR events. Established Configuration Control Board (CCB) Directives for every approved ECP; Developed Class I and Class II Standard Operating Procedures (SOP)s. Automated ACSN Process and ECP Forms in PMS 420 Integrated Data Environment (IDE). Updated all ASW System Engineering documentation to reflect ASW MP Increment II requirements. Documented all interface requirements between ASW MP and other common components mission package application software (MPAS), mission package operating environment (MPOE), and support containers). Defined and documented how the ASW MP Increment II will achieve all specified requirements related to the key performance parameters, concept of operations, how design considerations will be addressed and balanced with other program requirements and established a technical baseline.

FY 2013 Plans:
Support CPD Development for the MCM Increment 1 and SUW MP Increment 1/2: Incremental KPP development; Net-centric operations; End-to-end (E2E) System of Systems (SoS) Architecture and Net Ready Key Performance Parameter (NR-

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
KPP) update; identify capabilities and limitations for SUW Increment 2 and MCM MP Increment 1; Support engineering and programmatic analysis for future capabilities. LCS MM Baselines Development: align baseline nomenclatures toward common schema that is aligned with the MM Increments; establish functional and allocated baselines for SUW Increment 3, MCM Increment 2, ASW Capability; improve the level of detail contained in the product baselines to define a production-level product baseline; establish product baselines for SUW Increment 2 and MCM Increment 1 Capability; support efforts to authorize/certify MP product baselines. Develop a strategic plan for M&S to include M&S tools, which primarily support performance prediction; validating T&E plans; and/or training and stim/sim efforts. Develop FY13 LCS MM SETR Plans through SUW Increment 3, MCM Increment 4, and ASW Capability. Close PDR equivalency report look-ups, incorporate and align SW SETR events with HW SETR planning. Improve and standardize SE inputs to PARM system System Project Directives (SPDs). Track lead/lag SE Metrics including requirements volatility; engineering Change volatility; LCS MM Systems Readiness Level (SRL) assessments and improve issue tracking through resolution. Update mission threads to the CONEMP, NMWS, SOSAT, and other models; coordinate the development of integrated Reliability Block Diagrams (RBDs) to support RAM analyses; verify data, architecture, and mission thread assumptions in RAM model; allocate required reliability improvement to targeted mission systems through the Common Logistic Requirements Document (CLRD); standardize and improve RAM data collection; implement FRACAS and FRBs Develop SEP v2.0 iaw 2011 policy and latest streamlined template; close PDR report/PSR/or other MS B look-ups. Develop and maintain an integrated Future S&T roadmap to comprehensively align with overall LCS MM Program Plans; synergize with LCS S&T and DoD-wide initiatives, and ultimately guide PMS 420 and PEO LCS investments from a strategic perspective. Perform ESOH risk/hazard analysis and mitigation tracking; align hazards and MARs to product baseline; complete ESOH risk/hazard analysis and mitigation tracking; develop and implement Hazardous Material Management Program (HMMP). Implement Corrosion Prevention and Control Plan (CPCP): assess and address corrosion issues associated with SUW Increment 1/2 integration, test, and deployment activities; assess and address corrosion issues associated with MCM Increment 1 integration and test events. Develop a Quality Assurance Plan (QAP) tailored for LCS MM needs and implement QAP for production systems/sub-systems. Implement an updated problem process (TOR process); develop a PMS 420 Hardware/Software Problem Resolution Process; complete update to the CM Plan with new processes. ***FY 2014 Plans:*** Support Capability Production Document (CPD) for SUW Increment III, MCM Increment II/III development. Provide SE guidance to the TSRs, CCBs, RMB, PPP and RAM-C Working group and others as identified in the LCS MM SEP. Coordinate and provide guidance for all LCS MP SETR events including but not limited to the following: PDR, CDR, SRR, TRR. Provide management oversight for the Configuration Control Board including reviewing and approving ECPs. Negotiate connection agreements			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
with Littoral Combat Ship (LCS) Squadron One (LCSRON) Class IA Manager (IAM) allowing mission packages to operate on LCS. Support all Certification Test and Evaluation (CT&E) events conducted which include MPAS, results will be used to develop revised PRA package/risk deficiency database. Update the LCS Mission Modules Program Protection Plan and the Information Assurance Strategy to support MPCE 2.0 development. Support the SSSTRP and WSESRB Review of mission packages and prepare the closure of findings. Develop MAR package for risk acceptance. Update the PMS 420 System Safety Management Plan (SSMP) Plan. Complete mission package Integration System Hazard Analysis (SHA). Update the PMS 420 Hazardous Material Management Program (HMMP) Plan. Identify and manage ESOH mishap risk maintained within the Program Hazard Tracking Database. Coordinate HSI activities across MPs and integrate MPs with seaframe HSI activities. Monitor the implementation of the PMS 420 MM HSI Plan. Update the following SE documents including: LCS MM SEP; Corrosion Prevention Control Plan (CPCP), PESHE, Life Cycle Signature Support Plan. Continue supporting opportunities for technology transition identified in the S&T Notebook to include at-sea refueling, data mission payload, and lightweight container. Support and track weight against the Weight Management Plan. Leverage modeling and simulation to support CPD development for mission packages. Continue tracking SE Metrics including requirements and engineering change volatility and LCS MM Systems Readiness Level (SRL) assessment. Continue implementation of M&S Plan to certify the following: NMWS M&S in support of MCM IOT&E; ATRT to support SUW MPAS regression testing; SUW MM Increment I/II modeling; ASW modeling for developmental testing.			
Title: Program Management	6.301	6.108	4.727
Articles:	0	0	0
FY 2012 Accomplishments: Supported all efforts associated with Milestone B. Continued PM efforts: business and administrative planning, organizing, directing, coordinating, controlling, and approval actions designated to accomplish overall program objectives that are not associated with specific hardware elements or included in systems engineering. Provided management oversight for the scheduled test events and for new LCS MM capabilities.			
FY 2013 Plans: Support all efforts associated with Milestone B. Continue PM efforts: business and administrative planning, organizing, directing, coordinating, controlling, and approval actions designated to accomplish overall program objectives that are not associated with specific hardware elements or included in systems engineering.			
FY 2014 Plans: Support all efforts associated with Milestone C. Continue PM efforts: business and administrative planning, organizing, directing, coordinating, controlling, and approval actions designated to accomplish overall program objectives that are not associated with specific hardware elements or included in systems engineering.			
Title: System Test and Evaluation	31.975	26.360	36.416

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0	0	0

FY 2012 Accomplishments:

Completed test execution, data analysis and test reporting of the MCM MP Developmental Test (DT) aboard LCS 2. Conducted additional Launch, Handling, and Recovery and RMMV developmental testing aboard LCS 2 prior to scheduled Post-Shake Down Availability. Conducted test planning, DT and complete data analysis, and test reporting for SUW MP DT aboard LCS 1. As a result of the deployment of LCS-1, the remainder of SUW DT, TECHEVAL, and IOT&E will be conducted aboard LCS 3. Prepared 30mm GMM LFT&E plan. Maintained the Mission Package Integration Lab in support of Mission Package software development, testing, and certification for both testing and deployment on both seaframe variants. Conducted National Environmental Policy Act (NEPA) and environmental planning and coordination to support DT events. Supported incremental testing and evaluation of modules under integration and certification phases, including managing and supporting test assets needed for all mission package testing. Performed verification and validation of mission module and mission package requirements. Performed and documented analysis, and evaluated and reported test results. Conducted Mission Package certification test events. Prepared for final certification that will be conducted in conjunction with IOT&E for each MP prior to fleet introduction. Conducted Test planning and documentation for SUW MP DT aboard LCS 1.

FY 2013 Plans:

Plan and conduct SUW MP DT aboard LCS 1 variant. Plan, Execute, Conduct Data Analysis and Report SUW MP DT with increasingly stressing scenarios to characterize performance of SUW MP against requirements. SUW Test events will include Integrated Tracking Exercise (TRACKEX), 30mm Towed Sled Firing events, & Layered Defense firing events against small boats and targets utilizing MH-60R, 57mm Gun, & 30mm GMMs. Prepare analysis and reporting for SUW MP DT aboard LCS 1 variant in preparation and readiness for TECHEVAL and IOT&E. Conduct test planning for TECHEVAL and IOT&E and Operational Test Readiness Review (OTRR) preparation for SUW MP IOT&E. Begin conduct of test planning for SUW MP Gun Mission Module (GMM) DT on LCS 2 variant. Conduct 30mm live fire test program to include data analysis and report preparation. Prepare SSMM LFT&E plan. MCM MP DT/TECHEVAL/IOT&E will be conducted aboard LCS 2 variant. MCM DT events will include RMS and OAMCM systems, RMMV LH&R, mission scenario events. Conduct test planning, test execution, data analysis, and test reporting for MCM MP DT-B2 Phase 4 aboard LCS 2 variant. Conduct test planning, preparation, and documentation for MCM MP TECHEVAL and IOT&E. Plan for OTRR for MCM MP, to include collection of OQE across systems areas. Conduct initial test planning of the ASW MP on the LCS platform. Conduct National Environmental Policy Act (NEPA) and environmental planning and coordination to support DT/TECHEVAL/OT/FOTE. Conduct and Support Certification Test and Evaluation to include software certification/assessment testing, reporting, and events such as MPRAs, MRAs, Test Readiness Reviews, WSESRB, etc and in order to support fleet deployment upon completion of the IOT&E and FOTE events. Conduct planning, preparation, and execution of an MDEMO.

FY 2014 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Conduct SUW MP TECHEVAL/IOT&E aboard LCS 1 variant. Complete Planning, and conduct Execution, Data Analysis and Reporting for SUW MP TECHEVAL with increasing stress scenarios to characterize performance of SUW MP against requirements and in preparation and readiness for IOT&E. Complete test planning and OTRR preparation and execute both events for SUW MP IOT&E on LCS 1 variant. Conduct data analysis and reporting for SUW MP TECHEVAL and IOT&E. Conduct SUW MP DT on LCS 2 variant. Begin SUW MP SSMM planning. Commence conduct of SSMM live fire test program and complete GMM live fire test program to include data analysis and report. Conduct MCM MP OAMCM Phase B Operational Assessment. Conduct MCM MP Unmanned Systems Operational Assessment. Complete test planning and OTRR preparation and execute both events for MCM MP TECHEVAL and IOT&E. Conduct data analysis and reporting for MCM MP TECHEVAL and IOT&E. Continue test planning, conduct initial integration test, transition from engineering to DT testing of the ASW MP on the LCS platform; Perform data analysis of initial ASW MP testing. Conduct National Environmental Policy Act (NEPA) and environmental planning and coordination to support DT/TECHEVAL/OT/FOTE. Conduct and Support Certification Test and Evaluation to include software certification/assessment testing, reporting, and events such as MPRAs, MRAs, Test Readiness Reviews, WSESRB, etc and in order to support fleet deployment upon completion of the IOT&E and FOTE events.			
Title: Integration, Assemble, Test and Checkout	8.228	5.588	5.131
Articles:	0	0	0
FY 2012 Accomplishments: Continued program-level Integration, Assembly, Test & Checkout efforts: Technical and functional activities associated with the development and production mission systems, parts, materials, and software required to assemble mission modules hardware/ software elements into mission equipment and integrate with sea-frames. This effort includes integration management, common processing systems, off board communications systems, aviation systems, and common and mission package software products and mission modules-to-seaframe integration. Effort includes integration engineering at the waterfront in support of ships under construction and conducting initial testing. Led and managed execution of engineering change proposals (ECPs) required to integrate mission package systems and subsystems into LCS 1 and LCS 2.			
FY 2013 Plans: Perform Mission Package - Seaframe Integration and Aviation Integration. Seaframe Integration provides services that support the successful integration of the MCM, SUW, and ASW Mission Packages into both variants of LCS seaframes. Mission Package (MP) - Seaframe integration engineering includes: Hardware integration engineering, Software integration engineering, Launch handling & recovery integration engineering, Waterfront integration, Mission Systems and Ship Integration Team (MSSIT), Communications integration, Seaframe studies and ship modification technical data package development. Aviation Integration: Complete VTUAV Baseline Integration, INCO, AVCERT & Dynamic Interface LCS 2 & LCS 3. Transition VTUAV Baseline from MP R&D to Sea Frame production. Enable TCDL Data Link Capability (first event will be SUW DT/			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
TECHEVAL on LCS 3). Implement Tactical Common Data Link radio monitor & control for LCS 2 & LCS 3. Mitigate OAMCM shipboard operating environment and tempo issues and risks. Enable AMNS, AQS-20, OASIS loading onto the helo in operational sea states and ship motion. Mitigate OAMCM tow system failure (free streaming) risk. Optimize AVDET PUK & Sup Container/ RO-ROs for MP deployment & sustainment. Continue program level Integration, Assembly, Test & Checkout efforts of ECPs required to correct findings from Developmental and Operational test events. ***FY 2014 Plans:*** Perform Mission Package - Seaframe Integration and Aviation Integration. Seaframe Integration provides services that support the successful integration of the MCM, SUW, and ASW Mission Packages into both variants of LCS seaframes. Mission Package (MP) - Seaframe integration engineering includes: Hardware integration engineering, Software integration engineering, Launch handling & recovery integration engineering, Waterfront integration, Mission Systems and Ship Integration Team (MSSIT), Communications integration, Seaframe studies and ship modification technical data package development. Aviation Integration: Integrating new capabilities of VTUAV onto LCS, such as weapons and radar. Integrate the larger and higher endurance MQ-8C with LCS. Integrate new Mission Package driven payloads onto the VTUAV. Provide HSF or CV-TSC/PLA functionality as MP solution. Integrate MH-60S SUW enhancements into SUW MP (20mm gun, rockets, radar, data link). Conduct systems engineering for VTUAV and MH-60S ASW enhancements into ASW MP. Conduct systems engineering analysis of alternatives for integrating new Unmanned Aerial Systems into MPs. Continue program level Integration, Assembly, Test & Checkout efforts of ECPs required to correct findings from Developmental and Operational test events.			
Title: Training Systems Development	15.886	14.649	10.689
Articles:	0	0	0
FY 2012 Accomplishments: Began transition from vendor training to NETC training facilities with anticipated FY14 partial RFT using Common Mission Package Trainer (CMPT) and Networked Tactical Training System (NTTS) capable of meeting Train to Certify (T2C) KPP for team training certification requirements. Train to Certify (T2C) capability will be achieved in FY17 after all systems have been delivered, trainers are in place and formal training has been developed and accepted. Obtained Information Assurance Platform IT (PIT) designation for CMPT to permit integration with Seaframe tactical team trainers. Successfully integrated CMPT and LCS-2 Seaframe trainers to permit integration into Navy Cooperative Training Environment (NCTE) to support participation in Joint Synthetic Training and numbered fleet commander deployment unit certification events. Conducted Mine Warfare Evaluator (MIWE), Remote Vehicle Operator (RVO) and Remote Sensor Operator (RSO) course pilots and began formal classes to initiate transition from vendor to formal training using CMPT and NTTS. Delivered initial NTTS part			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
task trainer MCM capability (Remote Vehicle Operator - RVO and Remote Sensor Operator - RSO) software and hardware tech refresh to replace ONR partial capability demonstration system. Performed instructor training on NTTS. Interim software drop used as part of RVO/RSO course pilot. Commenced development of CMPT and NTTS SUW integrated team trainer capability. Developed requirements for CMPT (full SUW watch team capability) and NTTS (Gun Console Operator Part Task Trainer) with anticipated delivery in FY13. Early delivery of limited GCO functionality planned early FY13 to support anticipated LCS 1 training requirements for planned FY13 deployment. Began transition from vendor training to formal SUW Gun Mission Module (GMM) system course with standup of Interim Training at NSWC Dahlgren and procurement of GMM Part Task Trainer for installation at CSCS Dam Neck. Commenced development of curriculum to support standup of interim GMM differences course at CSCS Dam Neck in FY13. Continued MCM formal training curriculum and began SUW formal training curriculum instruction development for MM Fundamentals, Capstone and Planning Courses necessary to achieve partial MCM RFT in FY14 and SUW RFT in FY15. Updated formal curriculum incorporated findings from program and formal test events. Commenced curriculum development for Mission Package Computing Environment (MPCE) and Multi-Vehicle Communications System (MVCS) for delivery to and incorporation into Seaframe IT Total Ships Computing Environment (TSCE) training. Funded training related detachment travel in support of training and testing events. Performed vendor and interim training for formal MCM, and SUW test events. Funded 9 contract instructors (7 MCM and 2 SUW) for LTF prior to transition to N1 funding coincident with RFT in FY14. Provided MM crews additional training for formal MCM and SUW test events. Provided vendor and interim formal training to mission module replacement Sailors, two new MCM and two new SUW detachments in accordance with CSPPs.			
FY 2013 Plans: Continue transition from training on MCM MP #1 and SUW MP #1 hardware to NETC training facilities with anticipated FY14 partial Ready For Training (RFT) using Common Mission Package Trainer (CMPT) team trainer and Networked Tactical Trainer System (NTTS) part task trainers. Train to Certify (T2C) capability will be achieved in FY17 after all systems have been delivered, trainers in place and formal training has been developed and accepted. Continue Mine Warfare Evaluator (MIWE), Remote Vehicle Operator (RVO) and Remote Sensor Operator (RSO) training precursors to LCS MCM MM Fundamentals and Capstone courses. MCM MP #1 and SUW MP #1 hardware will continue to be utilized until T2C capability is achieved. Update formal curriculum to incorporate findings from program test events, operations and classroom experience. Deliver CMPT MCM and SUW integrated team trainer software to support MM Fundamentals, MM Operations and MM Planning curriculum in preparation for FY14 partial RFT for MCM MM integrated team training. Deliver NTTS Gun Control Operator and Mission Package Coordinator software and hardware add on for GCO part task trainer capability to LTF. Perform instructor training on NTTS MCM and SUW watchstation capabilities.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Complete Information Assurance requirements to connect to Navy Cooperative Training Environment (NCTE) and complete integration of CMPT and Seaframe tactical team trainers. Complete MCM formal training curriculum instruction development for MM Fundamentals, Capstone and Planning Courses. Formal RFT for this course will follow in FY14. Continue transition from vendor training to formal SUW Gun Mission Module (GMM) system course. Interim GMM training will transition from NSWC Dahlgren to CSCS Dam Neck. GMM Differences course is a follow on to PEO IWS-3C MK-46 Mod 2 Gun Operations and Maintenance course. Formal RFT for this course will follow in FY14. Complete curriculum development for Mission Package Computing Environment (MPCE) and Multi-Vehicle Communications System (MVCS) for delivery to and incorporation into Seaframe IT Total Ships Computing Environment (TSCE) training. Continue SUW formal training curriculum instruction development for MM Fundamentals, Capstone and Planning Courses necessary to achieve partial RFT in FY15. Fund 16 contract instructors (7 MCM and 9 SUW) for LTF prior to transition to N1 funding coincident with RFT in FY14. Perform vendor and interim training for formal MCM, and SUW test events. Fund training related detachment travel and provide Vendor and interim formal training to MCM, ASW, and SUW MM replacement Sailors and new MCM and SUW detachments in accordance with CSPPs.			
FY 2014 Plans: Achieve partial Ready for Training (RFT) at NETC facility for MCM MM training using Common Mission Package Trainer (CMPT) team trainer and Networked Tactical Trainer System (NTTS) part task trainers. Achieve RFT for GMM Difference course. Full Train to Certify (T2C) capability will be achieved in FY17 after all systems have been delivered, trainers in place and formal training has been developed and accepted. Continue Mine Warfare Evaluator (MIWE), Remote Vehicle Operator (RVO) and Remote Sensor Operator (RSO) training precursors to LCS MCM MM Fundamentals and Capstone courses. Update formal curriculum to incorporate findings from program test events, operations and classroom experience. Update CMPT MCM and SUW integrated team trainer software for delivery of incremental capability to support MM Fundamentals, MM Operations and MM Planning curriculum. Update NTTS watchstation trainer software for delivery of incremental capability and as a result of formal test events lessons learned. Update Information Assurance posture as required to support integrated and Fleet Synthetic Training using Navy Cooperative Training Environment (NCTE). Complete SUW formal training curriculum instruction development for MM Fundamentals, Capstone and Planning Courses necessary to achieve partial RFT in FY15. Fund 16 contract instructors (7 MCM and 9 SUW) for LTF prior to transition to N1 funding coincident with RFT in FY14. Perform vendor and interim training for formal MCM, and SUW test events. Fund training related detachment travel and provide Vendor and interim formal training to MCM, ASW, and SUW MM replacement Sailors and new MCM and SUW detachments in accordance with CSPPs.			
Title: Program Technical Data	1.065	1.279	0.805
Articles:	0	0	0
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Provided Integrated Logistics Support for the scheduled test events and for new capabilities of the LCS MMs. Provided validation and verification for technical data. Provided for development of LCS MM specific transportation requirements to Naval support organizations. Updated Program Technical Data packages to incorporate findings from the MCM MP and SUW MP DT test events and MCM MP TECHEVAL and OT events. ***FY 2013 Plans:*** Update Program Technical Data packages in preparation for SUW MP TECHEVAL test events. Continue Integrated Logistics Support efforts for the scheduled test events. Implement Technical Manual Management Activity to review, produce and distribute technical documentation. Continue development of Maintenance Figure of Merit (MFOM) to maintenance management that incorporates engineering, failure, technical and provisioning into single model that uses criticality factors to assist prioritization of maintenance management. Implement MPSF inventory management system (IMS) based on pRFID solution. Provide overarching provision for Program. ***FY 2014 Plans:*** Update Program Technical Data packages to incorporate findings from SUW MP and MCM MP OT events. Finalize initial Integrated Logistics Support products in support of SUW MP FY14 IOC. Prepare for the MCM MP IOC late FY 14 / early FY 15. Continue Technical Manual Management Activity to review, produce and distribute technical documentation for the program. Continue development of MPSF automated inventory management system (IMS) based on pRFID solution. Start integrated logistics overarching support for the ASW MP and the new increments. Provide overarching provision for Program.			
Title: Common Equipment	12.688	12.230	10.784
Articles:	0	0	0
FY 2012 Accomplishments: Mission Data Processing: Finalized development, test and validation of updated MPCE hardware and associated Mission Package Services (MPS) and MPOE. Began comprehensive system-level analyses and evaluation of next generation MPCE technology requirements. Performed detailed OA evaluations and initiate implementation. Begin implementation of common mission package software program baseline. Provided MPCE technical and test support for the MCM Technical Evaluation on LCS 2. Off-board Communications: Continued development towards full capability of the MVCS Build 1.0, used for the concurrent management of multiple off-board unmanned vehicles. Conducted dock-side testing of RT-1944/U radio terminal set with two Remote Multi-Mission Vehicles (RMMV) and conducted in-port and at-sea seaframes integrations and testing. Conducted Study of MVCS hardware and continued developing and performing MVCS ECPs on Unmanned Integrated Sweep System (UISS) and LCS 2. Continued performing engineering design, testing and evaluation of aerial communication systems for over-the-horizon range. Continued integration testing and installation of cryptographic systems for unmanned vehicles. Initiated Over-the-Horizon			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
(OTH) radio replacement study for the RMMV legacy PRC-117F VHF radio. Provided Offboard Communications technical and test support for the MCM Developmental Test (DT) on LCS 2. ***FY 2013 Plans:*** Mission Package Computing: MPCE v1.9 hardware validation, production and tech refresh activities will occur in FY13. MPAS validation will be conducted for MCM and SUW mission packages. INCO will be conducted on LCS 4 and 5. Tech Refresh will be conducted for the shore sites (CMPT#1 and the labs). Maintenance deliveries will be provided for MPS/MPOE. MUS 1.0 will be backfit on LCS 1-4. Mission Package Console mods will be retrofit on LCS 3 and 4. Documentation to be completed includes final versions of the ACSN and SSDD, as well as an ECP, Technical Data Package and INCO procedure updates. Design reviews and test events to be conducted for MPCE v1.9 include System Design Review (SDR), MUS Test Readiness Review (TRR) and First Article Testing. FY13 will include development activities to evolve MPCE software architecture to a Service Oriented Architecture (SOA), in support of the PMS 420 Mission Package Common Software Architecture (CSA) Baseline. Mission Package Communications: Finalize MVCS v1.0.0 baseline and activities to support MCM MP Operational Test on LCS 2. Conduct a launch & recovery (L&R) communications characterization on LCS 3. Develop a Data Mission Payload (DMP) prototype and integrate on the Fire Scout air vehicle. Identify anti-jamming requirements for MVCS. Continue integration of MVCS v1.0.0 on RMMV and begin integration on SMCM UUV and SMCM UUV. Support High Frequency Ground Wave (HFGW) radio Rapid Technology Transition (RTT) effort. ***FY 2014 Plans:*** Mission Package Computing: Continue MPCE v1.9 hardware production and tech refresh activities. INCO of CMPT #3 on LCS 6. Conduct tech refresh for the shore sites (MPPCS #1 and #2) and for LCS 1and LCS 2. Provide maintenance deliveries for MPS/MPOE. PMS 420 CM delivery of MUS v1.1 will occur. Conduct quarterly IPRs. Continue development activities to evolve MPCE software architecture to a Service Oriented Architecture (SOA), MPCE v2.0, in support of the CSA Baseline. Mission Package Communications: Support MCM MPT TechEval with MVCS v1.0.0. Deliver MVCS HW and SW builds v2.6. Support testing of MVCS v1.0.0 on SMCM UUV and UISS. Conduct DMP demonstration on Fire Scout air vehicle.			
Title: Mine Countermeasures (MCM) Mission Package	21.942	23.602	28.794
Articles:	0	0	0
FY 2012 Accomplishments: Continued development, integration and testing of Unmanned Influence Sweep System (UISS). Groomed and conducted End-to-End testing during MCM MP DT to ensure MCM mission package readiness to enter TECHEVAL. Conducted KPP modeling analysis. Integrated COBRA/VTUAV into MCM mission package.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
MPAS: In support of MCM MP, incorporated the following items into MPAS: RMMV RGP V4.1 improvements and correction of software Program Trouble Reports (PTRs) identified during DT events. Delivered next MPAS build in support of TECHEVAL. Resolved hardware PTRs identified during DT through development of Advanced Change Study Notices (ACSNs). Performed Systems Engineering (risk management, information assurance, human systems integration, and safety), Configuration management and Integrated Logistics Support. ***FY 2013 Plans:*** Initial design for Surface Mine Countermeasures (SMCM) UUV container. Design and integration of SMCM UUV into MCM MPs. Groom and conduct MVCS dual control/RGP 4.2 RMMV End-to-End testing to ensure MCM mission package readiness to enter OPEVAL. Conduct KPP modeling analysis. Resolve hardware PTRs identified during MCM Developmental Testing through development of ACSNs. In support of MCM mission package TECHEVAL and OPEVAL, incorporate the following items into MPAS: RMMV RGP V4.2 improvements, correction of software PTRs identified during end-to-end testing. Deliver next MPAS build in support of FY 14 TECHEVAL and OPEVAL. Perform systems engineering (risk management, information assurance, human systems integration, safety), configuration management and Integrated Logistics Support. Prepare for and conduct Systems Engineering Technical Reviews (SETR) (SRR/PDR) for MCM MP Increment II. ***FY 2014 Plans:*** Procure USV EDMs. Finalize design for Surface Mine Countermeasures (SMCM) UUV container and procure EDM support container. Design and integration of SMCM UUV into MCM MPs. Conduct MCM mission package TECHEVAL and OPEVAL. Conduct KPP modeling analysis. Resolve hardware PTRs identified during testing through development of ACSNs. Complete the integration of RMMV v4.2.1 with MCM MP Increment I. Prepare for and conduct Systems Engineering Technical Reviews (SETR) (SRR/PDR) for MCM MP Increment III. In support of MCM mission package, incorporate the following items into MPAS: RMMV RGP V4.3 improvements, correction of software PTRs identified during MCM MP testing, and MEDAL EA integration. Perform systems engineering (risk management, information assurance, human systems integration, safety), configuration management and Integrated Logistics Support.			
Title: Anti-Submarine Warfare (ASW) Mission Package	0.000	34.367	41.890
Articles:		0	1
FY 2013 Plans: Continue development of the ASW Mission Modules (MM) that were transitioned from IWS 5 and NUWC Newport, including ASW Escort capability and Torpedo Defense. Initiate development of the Common Mission Management/Decision Support system required for the integration of the ASW MMs, including manned and unmanned aircraft integration. Initiate detailed LCS ASW			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Mission Module systems engineering and integration plans. Develop Ship integration plan and required shipboard integration mods. Conduct component and system level testing and related predictive performance modeling and simulation. Conduct a Preliminary Design Review (PDR) leading to a Critical Design Review/Production Readiness Review (CDR/PRR) in FY14. Manage and administer required Systems Engineering Technical Reviews (SETR), and required systems Certification Reviews. Conduct risk mitigation efforts necessary to cost effectively minimize residual risk to mission module and overall program performance. Conduct technology demonstrations to benchmark technology system performance and related potential to mitigate current risks and acknowledged capability gaps. Provide a common ship-to-air integration and test of Helo Support Function (HSF) Mission Package Application Software (MPAS) to ensure availability of capability for planned ASW Mission Package activities. Establish helicopter interface requirements, integrate, and demonstrate end-to-end capability. Conduct ASW MP Increment 2 ILS planning to include development of ASW MP Reliability Growth Plan. Review environmental impacts and assess testing requirements to ensure NEPA compliance. Conduct studies and analyses on emerging technologies for incorporation into future ASW MP increments.			
FY 2014 Plans: Conduct a Critical Design Review (CDR) that focuses on the transition of the final system design, development and integration of ASW MP Increment II ASW Escort and Torpedo Defense mission modules. Conduct required systems engineering technical reviews to ensure system design meets the total CDD requirement. Conduct component and system level testing and related predictive performance modeling and simulation to establish system and module performance and reliability baselines. Provide developmental engineering support for logistical engineering data and technical documentation. Continue Mission Module development and LCS integration to include Mission Module level at-sea testing. ASW Increment 2 final development, integration and test. Award competitive contract(s) for EDM/Production Representative Article (PRA) set of ASW Escort/Torpedo Defense systems to support IOT&E in FY16. Maintain configuration control of ASW MP data, hardware, and software. Collect data and perform analysis associated with the ASW MP Reliability, Maintainability, and Availability (RMA) program. Provide Find/Fix/Repair for technical issues associated with Mission Package Application Software (MPAS) identified during integration and developmental testing and conduct necessary regression testing on proposed fixes. Initiate environmental testing on Mission Package (MP) Increment 2 and incorporate required Engineering Change Proposals (ECP) into the Technical Data Package (TDP). Provide developmental engineering support, equipment, and documentation for logistical engineering data and technical publications to include training (ship's crew and Mission Package Support Facility (MPSF) personnel), maintenance and provisioning. Conduct mission package certification, obtain Information Assurance (IA) approvals, and conduct land based test events with each seaframe manufacturer prior to			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
conducting formal shipboard test events. Support the planning and preparations for FY15 Developmental Test (DT) of ASW MP Increment 2. Conduct studies and analyses on emerging technologies for incorporation into future ASW MP Increments.			
Title: Surface Warfare (SUW) Mission Package	23.908	51.864	51.094
Articles:	0	0	0

FY 2012 Accomplishments:

In support of the SSMM redesign, conducted System Requirement Review (SRR) including missile, launcher, SSMM and software specifications. Modified the SSMM Increment 1 to address surface missile system requirements and Navy environmental standards. Conducted preliminary Weapon Systems Explosive Safety Review Board (WSESRB) on SSMM Increment 1 and Griffin missile program. Conducted one baseline restrained fire test and two engineering restrained fire test.

Procured two Griffin Block IIB missiles in support of sea based barge testing. Procured one full suite of Battle Management System (BMS) hardware that includes three KARNACs and one Command and Control (C2) system. Procured two GMS prototypes to support restrained fire mitigation engineering tests. Modified BMS software based on results from Dynamic Transfer Alignment testing.

Provided Find/Fix/Repair for technical issues associated with GMM and Mission Package Application Software (MPAS) identified during integration and developmental testing and conduct necessary regression testing on proposed fixes. Completed environmental testing on Mission Package (MP) #2 and incorporate required Engineering Change Proposals (ECP) into the GMM Technical Data Package (TDP). Provided developmental engineering support, equipment, and documentation for logistical engineering data and technical publications to include training (ship's crew and Mission Package Support Facility (MPSF) personnel), maintenance and provisioning. Conducted combat system certification, mission package certification, obtain WSESRB / Software System Safety Technical Review Panel (SSSTRP) and Information Assurance (IA) approvals, and conducted land based test events with each seaframe manufacturer prior to conducting formal shipboard test events. Groomed and updated the SUW MP to support Developmental Test (DT) events. Supported the planning and preparations for FY13 Operational Test (OT) of SUW MP Increment 1 and Structural Test Firing.

FY 2013 Plans:

Continue design and development of SSMM Increment 1. Conduct a Preliminary Design Review (PDR) that focuses on the SSMM Increment 1. Finalize design modification to the SSMM Increment 1 and procure necessary hardware to support barge shots.

Conduct one restrained fire engineering test at the GMS level. Conduct one restrained fire test that includes the GMS mechanical support structure and the BMS electronics. Conduct SSMM Increment 1 end-to-end test event that includes SSMM Increment 1 hardware / software, BMS, and MEP. Begin SSMM Increment 1 and missile environmental confidence testing focusing on shock, vibe, Electromagnetic Environmental Effects (E3), temperature and salt spray. Procure Griffin B-Block II missiles to support

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
developmental testing, procure seven GMS prototypes to support flight testing, procure three SSMM Increment 1 launch systems to support flight testing and procure four suites of BMS hardware and software to support flight testing. Award the competitive contract for the SSMM Increment 2 missile system. Initiate SSMM Increment 2 missile system design. Conduct appropriate systems engineering technical reviews to ensure missile system design meets the total CDD requirement. Begin planning the SSMM Increment 2 environmental confidence level testing, start development of the detailed launcher design that supports the GMS concept. Generate SSMM Increment 2 MEP requirements and architecture. Find/Fix/Repair technical issues associated with GMM and MPAS identified during STF and DT/OT events. Maintain configuration control of SUW MP data, hardware, and software. Collect data and perform analysis associated with the SUW MP Reliability, Maintainability, and Availability (RMA) program. Conduct combat system certification, MP certification, obtain WSESRB/SSSTRP approval, IA approvals, and conduct land based test events with each seaframe manufacturer prior to conducting shipboard events. Support formal testing of the SUW MP for LCS 1 variant OT events, STF from LCS 2 variant, DT from LCS 2 variant, and OT from LCS 2 variant. ***FY 2014 Plans:*** SSMM Inc 1 formal technical data package will be finalized. Continue SSMM Increment II development. Initiate developmental testing to categorize modifications to the current MPAS baseline. Initiate modifications to MPAS to support continued SSMM Increment II development. Conduct appropriate systems engineering technical reviews to ensure missile system design meets the total CDD requirement. Continue planning the SSMM Increment II environmental confidence level testing. Continue development of the detailed launcher design that supports the SSMM Increment II concept. Complete DT/OT/IOT&E for the Gun Mission Module onboard LCS 1 & 2 variants. Find/Fix/Repair technical issues associated with GMM and MPAS identified during STF and DT/OT events. Maintain configuration control of SUW MP data, hardware, and software. Collect data and perform analysis associated with the SUW MP Reliability, Maintainability, and Availability (RMA) program. Conduct combat system certification, MP certification, obtain WSESRB/SSSTRP approval, IA approvals, and conduct shipboard test events with each seaframe manufacturer. Support formal testing of the SUW MP for LCS 1 variant OT events, STF from LCS 2 variant, DT from LCS 2 variant, and OT from LCS 2 variant.			
Title: Irregular Warfare Module ***Articles:*** ***FY 2013 Plans:*** Conduct the System Requirements Review, Preliminary Design Review, Critical Design Review and develop an Engineering Development Module. The Irregular Warfare Module consists of the following enhancements to the Surface Warfare Mission	0.000	4.000 0	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Package: an Afloat Trauma Care (ATC) Medical unit, a Humanitarian Assistance/Health Services Support Medical unit and a Training unit.			
Title: Reliability, Availability and Maintainability	1.476	1.961	3.202
Articles:	0	0	0
FY 2012 Accomplishments: Updated Reliability, Availability, Maintainability-Cost (RAM-C) plan in support of MS C. Refined MCM and SUW RAM model assumptions based on actual data. Implemented a reliability growth program that provides assessment to determine changes to the mission module baselines. The reliability growth program metrics and assessments will provide data to qualify and quantify suitability requirements changes and improvements to lower Total Ownership Costs at the mission module level. Ran additional RAM model scenarios incorporating actual performance/reliability/maintainability data from test events and updated mission profiles to include peacetime and wartime analysis. Also established RAM model scenarios involving multiple sea-frames employing multiple mission systems simultaneously.			
FY 2013 Plans: Monitor Reliability Growth and update plans as necessary. Continue with RAM efforts to provide multiple excursions that consider multiple MPs and multiple ships within a single area of responsibility (AOR) to identify major contributors to MP RAM model; continue to refine RAM model assumptions based on actual data and conduct multiple sensitivity analysis to quantify the effect of alternate sparing philosophies (i.e. more onboard spares, complete spare system, etc.) based on mission module availability. Determine the maintenance throughput capability for the mission systems at the Mission Package Support Facility/Mission Module Readiness Center (MPSF/MMRC) depot. Commence the introduction of the ASW MP into the program RAM model. Develop a Failure Reporting Analysis, Corrective Action System (FRACAS) tailored to the mission module system of systems to include MPCE/MVCS hardware and software failures and modes.			
FY 2014 Plans: Continue to monitor Reliability Growth and update plans as necessary. Continue to refine RAM model assumptions based on actual data and conduct multiple sensitivity analysis to quantify the effect of alternate sparing philosophies (i.e. more onboard spares, complete spare system, etc.) based on mission module availability. Determine the maintenance throughput capability for the mission systems at the Mission Package Support Facility/Mission Module Readiness Center (MPSF/MMRC) depot. Refine modeling of ASW MP. Continue utilizing FRACAS to feed back product and process improvements to the Systems Engineering and ILS organizations.			
Accomplishments/Planned Programs Subtotals	139.714	195.824	203.771

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 2127 : *Littoral Combat Ship*	1,755.093	1,784.959	1,793.014		1,793.014	1,824.944	997.051	1,032.475	1,056.018	13,085.300	27,004.652
• 1600 : *LCS Common Mission Modules Equipment*	65.848	31.319	45.966		45.966	30.951	14.696	18.570	18.897	Continuing	Continuing
• 0443 : *Aircraft Procurement, Navy*	191.986	124.573	60.980		60.980	81.336	0.000	0.000	0.000	Continuing	Continuing
• 5110: *Outfitting/Post Delivery*	25.986	60.053	79.823		79.823	134.113	134.722	208.913	211.197	2,151.400	3,013.642
• 1320: *LCS Training Equipment*	29.885	29.772	36.145		36.145	27.748	28.832	31.032	31.538	Continuing	Continuing
• 0944: *LCS Class Support Equipment*	0.000	19.865	47.078		47.078	42.769	43.040	64.300	63.394	Continuing	Continuing
• 1601: *LCS MCM Mission Modules*	0.000	38.392	59.885		59.885	185.017	219.795	219.818	223.744	Continuing	Continuing
• 1602: *LCS ASW Mission Modules*	0.000	0.000	0.000		0.000	3.436	23.612	44.754	45.560	0.000	117.362
• 1603: *LCS SUW Mission Modules.*	0.000	32.897	37.168		37.168	40.042	46.282	67.581	68.791	Continuing	Continuing

Remarks

D. Acquisition Strategy

The LCS Mission Module Acquisition Strategy is employing an incremental procurement approach to allow for the rapid introduction of additional capabilities as system technology matures. This phased plan provides incremental fielding of capability through the introduction of mature programs of record into the respective Mission Packages until the full baseline capability defined in the Capability Development Document (CDD) is reached.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.1 System Engineering	WR	NSWC PC:Panama City, FL	2.982	2.565	Nov 2011	1.597	Oct 2012	2.050	Oct 2013	-		2.050	Continuing	Continuing	Continuing
1.1 System Engineering	WR	NSWC DD:Dahlgren, VA	2.950	2.850	Nov 2011	1.228	Oct 2012	1.079	Oct 2013	-		1.079	Continuing	Continuing	Continuing
1.1 System Engineering	C/CPFF	Northrop Grumman:Bethpage, NY	4.000	5.980	Jan 2012	1.196	Dec 2012	3.782	Oct 2013	-		3.782	Continuing	Continuing	Continuing
1.1 System Engineering	WR	SPAWAR PAC:San Diego, CA	1.000	1.450	Nov 2011	1.134	Nov 2012	1.928	Oct 2013	-		1.928	Continuing	Continuing	Continuing
1.1 System Engineering	WR	NUWC NPT:Newport, RI	0.500	1.800	Dec 2011	1.207	Oct 2012	0.000		-		0.000	Continuing	Continuing	Continuing
1.1 System Engineering	C/CPFF	CACI:Fairfax, VA	2.500	0.500	Jan 2012	0.137	Dec 2012	0.500	Oct 2013	-		0.500	Continuing	Continuing	Continuing
1.1 System Engineering	C/CPFF	AAC:Uniontown, PA	0.000	0.000		7.317	Jan 2013	0.000		-		0.000	0.000	7.317	
1.1 System Engineering	WR	NSWC PHD:Port Hueneme, CA	0.000	1.362	Jan 2012	0.000		0.000		-		0.000	0.000	1.362	
1.1 System Engineering	WR	NSWC Carderock:Bethesda, MD	0.000	0.000		0.000	Nov 2012	0.450	Oct 2013	-		0.450	0.000	0.450	
1.1 System Engineering	C/CPFF	JHU/APL:Laurel, MD	0.000	0.000		0.000	Jan 2013	0.450	Oct 2013	-		0.450	0.000	0.450	
1.4 Integration, Assembly, Test and Check	WR	NAWC AD:Patuxent River, MD	0.340	0.794	Nov 2011	0.486	Nov 2012	0.800	Oct 2013	-		0.800	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Checkout	C/CPFF	Northrop Grumman:Bethpage, NY	0.000	0.000		0.857	Dec 2012	0.400	Oct 2013	-		0.400	0.000	1.257	
1.4 Integration, Assembly, Test and Check	WR	SPAWAR PAC:San Diego, CA	0.994	0.235	Nov 2011	1.204	Nov 2012	0.000		-		0.000	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	NUWC NPT:Newport, RI	0.647	0.297	Dec 2011	0.202	Oct 2012	0.000		-		0.000	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	NSWC PC:Panama City, FL	0.000	2.000	Nov 2011	0.128	Oct 2012	0.450	Oct 2013	-		0.450	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.4 Integration, Assembly, Test and Check	WR	SUPSHIP Gulfcoast:Pascagoula, MS	0.500	1.000	Feb 2012	0.543	Jan 2013	0.000	Oct 2013	-		0.000	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	SUPSHIP Bath:Bath, ME	0.500	1.000	Feb 2012	0.550	Jan 2013	0.000	Oct 2013	-		0.000	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	NSWC DD:Dahlgren, VA	1.758	3.034	Nov 2011	0.768	Oct 2012	1.115	Oct 2013	-		1.115	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Checkout	WR	NSWC PHD:Port Hueneme, CA	0.000	0.000		0.850	Oct 2012	0.000	Oct 2013	-		0.000	0.000	0.850	
1.4 Integration, Assembly, Test and Checkout	WR	NSWC Crane:Crane, Indiana	0.000	0.000		0.000	Nov 2012	0.600	Oct 2013	-		0.600	0.000	0.600	
1.4 Integration, Assembly, Test and Checkout	WR	NSWC Carderock:Bethesda, MD	0.000	0.000		0.000	Oct 2012	0.966	Oct 2013	-		0.966	0.000	0.966	
1.4 Integration, Assembly, Test and Checkout	C/CPFF	CACI:Fairfax, VA	0.000	0.000		0.000	Dec 2012	0.400	Oct 2013	-		0.400	0.000	0.400	
1.4 Integration, Assembly, Test and Checkout	Sub Allot	CECOM Bldg 1207:Various	0.000	0.000		0.000	Nov 2012	0.400	Oct 2013	-		0.400	0.000	0.400	
1.12 Common Equipment Development	WR	NSWC PC:Panama City, FL	68.070	10.892	Nov 2011	5.702	Oct 2012	4.702	Oct 2013	-		4.702	Continuing	Continuing	Continuing
1.12 Common Equipment Development	C/CPFF	Northrop Grumman:Bethpage, NY	18.727	0.000		3.001	Dec 2012	1.729	Oct 2013	-		1.729	Continuing	Continuing	Continuing
1.12 Common Equipment Development	WR	NUWC NPT:Newport, RI	7.829	0.000		0.840	Nov 2012	0.488	Oct 2013	-		0.488	Continuing	Continuing	Continuing
1.12 Common Equipment Development	WR	NSWC DD:Dahlgren, VA	1.921	0.000		2.687	Oct 2012	1.245	Oct 2013	-		1.245	Continuing	Continuing	Continuing
1.12 Common Equipment Development	WR	NAVAIR PMA266:Patuxent River, MD	4.500	2.000	Nov 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
1.12 Common Equipment Development	C/CPFF	AAC:Uniontown, PA	0.000	0.000		0.000	Jan 2013	0.932	Oct 2013	-		0.932	0.000	0.932	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.12 Common Equipment Development	WR	PMW 760:Various	0.000	0.000		0.000	Nov 2012	0.356	Oct 2013	-		0.356	0.000	0.356	
1.12 Common Equipment Development	WR	SPAWAR PACIFIC:San Diego, CA	0.000	0.000		0.000	Nov 2012	1.070	Oct 2013	-		1.070	0.000	1.070	
1.12 Common Equipment Development	C/CPFF	ARL/UT:Austin, TX	0.000	0.000		0.000	Dec 2012	0.262	Oct 2013	-		0.262	0.000	0.262	
1.13 MCM MP	WR	NSWC PC:Panama City, FL	116.600	16.296	Nov 2011	9.265	Oct 2012	15.031	Oct 2013	-		15.031	Continuing	Continuing	Continuing
1.13 MCM MP	WR	NSWC CD:Little Creek, VA	0.000	6.000	Feb 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
1.13 MCM MP	Sub Allot	PMS 406:Various	0.000	0.000		6.337	Oct 2012	6.013	Oct 2013	-		6.013	0.000	12.350	
1.13 MCM MP	C/CPFF	Lockheed Martin:Riviera Beach, FL	0.000	0.000		8.000	Oct 2012	7.750	Oct 2013	-		7.750	0.000	15.750	
1.14 ASW MP	Sub Allot	PEO IWS5:Various	0.000	0.000		10.877	Nov 2012	29.202	Oct 2013	-		29.202	0.000	40.079	
1.14 ASW MP	WR	NUWC NPT:Newport, RI	0.000	0.000		11.100	Oct 2012	9.708	Oct 2013	-		9.708	0.000	20.808	
1.14 ASW MP	TBD	Various:Various	153.473	0.000		10.170	Dec 2012	0.000		-		0.000	Continuing	Continuing	Continuing
1.14 ASW MP	WR	NSWC Dam Neck:Virginia Beach, VA	0.000	0.000		0.920	Dec 2012	1.380	Oct 2013	-		1.380	0.000	2.300	
1.14 ASW MP	C/CPFF	Northrop Grumman:Bethpage, NY	0.000	0.000		1.300	Dec 2012	1.600	Oct 2013	-		1.600	0.000	2.900	
1.15 SUW MP	WR	NSWC DD:Dahlgren, VA	165.774	20.026	Nov 2011	37.194	Oct 2012	23.706	Oct 2013	-		23.706	Continuing	Continuing	Continuing
1.15 SUW MP	WR	NSWC PHD:Port Hueneme, CA	6.000	2.500	Dec 2011	2.558	Oct 2012	6.388	Oct 2013	-		6.388	Continuing	Continuing	Continuing
1.15 SUW MP	WR	SPAWAR PACIFIC:San Diego, CA	1.205	0.937	Nov 2011	1.117	Oct 2012	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.15 SUW MP	C/CPFF	Northrop Grumman:Bethpage, NY	0.000	0.000		10.995	Dec 2012	15.000	Oct 2013	-		15.000	0.000	25.995	
1.15 SUW MP	WR	NAWC WD:Ridgecrest, CA	0.000	0.000		0.000	Dec 2012	6.000	Oct 2013	-		6.000	0.000	6.000	
1.20 Irregular Warfare Module	WR	SPARWAR PAC:San Diego, CA	0.000	0.000		1.320	Nov 2012	0.000		-		0.000	0.000	1.320	
1.20 Irregular Warfare Module	C/CPFF	Northrop Grumman:Bethpage, NY	0.000	0.000		2.680	Dec 2012	0.000		-		0.000	0.000	2.680	
1.16 MP-PCS Equipment	WR	Various:Various	3.547	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
1.19 Pre-Production Engineering	WR	Various:Various	8.425	0.000		0.000		0.000		-		0.000	0.000	8.425	
1.1.7 System Engineering RAM-C Project	WR	Various:Various	0.000	1.500	Oct 2011	1.961	Nov 2012	3.202	Dec 2013	-		3.202	0.000	6.663	
		Subtotal	574.742	85.018		147.428		151.134		0.000		151.134			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.5 Training Systems Development	WR	NAWC TSD:Orlando, FL	6.933	2.887	Jan 2012	4.917	Jan 2013	1.725	Oct 2013	-		1.725	Continuing	Continuing	Continuing
1.5 Training Systems Development	WR	NSWC PC:Panama City, FL	10.823	4.715	Nov 2011	1.215	Oct 2012	1.575	Oct 2013	-		1.575	Continuing	Continuing	Continuing
1.5 Training Systems Development	WR	NSWC PHD:Port Hueneme, CA	2.900	2.500	Dec 2011	1.054	Dec 2012	1.477	Oct 2013	-		1.477	Continuing	Continuing	Continuing
1.5 Training Systems Development	C/CPFF	AAC:Uniontown, PA	4.000	3.800	Mar 2012	3.010	Jan 2013	1.496	Oct 2013	-		1.496	Continuing	Continuing	Continuing
1.5 Training Systems Development	C/CPFF	CACI:Fairfax, VA	0.000	0.000		0.576	Nov 2012	0.750	Oct 2013	-		0.750	0.000	1.326	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.5 Training Systems Development	WR	CSCS:Dahlgren, VA	0.000	1.240	Feb 2012	0.843	Jan 2013	1.828	Oct 2013	-		1.828	Continuing	Continuing	Continuing
1.5 Training Systems Development	C/CPFF	Northrop Grumman:Bethpage, NY	0.000	0.000		1.934	Dec 2012	1.088	Oct 2013	-		1.088	0.000	3.022	
1.5 Training Systems Development	WR	CNSF:San Diego, CA	0.000	1.000	Feb 2012	1.100	Dec 2012	0.750	Oct 2013	-		0.750	Continuing	Continuing	Continuing
1.6 Program Technical Data	WR	NSWC PC:Panama City, FL	0.000	1.082	Dec 2011	0.279	Nov 2012	0.243	Oct 2013	-		0.243	Continuing	Continuing	Continuing
1.6 Program Technical Data	C/CPFF	Northrop Grumman:Bethpage, NY	0.000	0.000		0.750	Dec 2012	0.337	Oct 2013	-		0.337	0.000	1.087	
1.6 Program Technical Data	WR	CACI:Fairfax, VA	0.000	0.000		0.250	Dec 2012	0.225	Oct 2013	-		0.225	0.000	0.475	
		Subtotal	24.656	17.224		15.928		11.494		0.000		11.494			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.3 System Test and Evaluation	WR	NSWC PC:Panama City, FL	27.165	16.183	Nov 2011	10.275	Nov 2012	14.210	Nov 2013	-		14.210	Continuing	Continuing	Continuing
1.3 System Test and Evaluation	WR	NSWC DD:Dahlgren, VA	24.500	4.500	Nov 2011	5.513	Nov 2012	7.369	Nov 2013	-		7.369	Continuing	Continuing	Continuing
1.3 System Test and Evaluation	WR	NUWC NPT:Newport, RI	5.000	1.200	Dec 2011	0.000	Nov 2012	0.750	Nov 2013	-		0.750	Continuing	Continuing	Continuing
1.3 System Test and Evaluation	WR	NSWC PHD:Port Hueneme, CA	4.000	6.718	Dec 2011	5.852	Oct 2012	7.937	Nov 2013	-		7.937	Continuing	Continuing	Continuing
1.3 System Test and Evaluation	WR	SPAWAR PAC:San Diego, CA	3.645	1.068	Nov 2011	0.894	Nov 2012	1.250	Nov 2013	-		1.250	Continuing	Continuing	Continuing
1.3 System Test and Evaluation	WR	COMOPTEVFOR:Norfolk, VA	1.435	1.400	Jan 2012	0.248	Nov 2012	1.250	Nov 2013	-		1.250	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.3 System Test and Evaluation	WR	PMA 266:Patuxent River, MD	0.000	0.000		0.344	Jan 2013	0.350	Nov 2013	-		0.350	0.000	0.694	
1.3 System Test and Evaluation	C/BA	Silver Ships:Theodore, AL	0.000	0.000		0.550	Jan 2013	0.550	Nov 2013	-		0.550	0.000	1.100	
1.3 System Test and Evaluation	C/BA	CNSF:Norfolk, VA	0.000	0.000		0.264	Dec 2012	0.250	Nov 2013	-		0.250	0.000	0.514	
1.3 System Test and Evaluation	C/BA	NAWC WD:Point Mugu, CA	0.000	0.000		2.420	Nov 2012	2.500	Nov 2013	-		2.500	0.000	4.920	
		Subtotal	65.745	31.069		26.360		36.416		0.000		36.416			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	Various	Various:Various	1.047	0.000		0.000		0.000		-		0.000	0.000	1.047	
1.2 Program Management	C/CPFF	CACI:Fairfax, VA	25.688	6.403	Dec 2011	3.175	Nov 2012	2.199	Nov 2013	-		2.199	Continuing	Continuing	Continuing
1.2 Program Management	WR	NSWC PC:Panama City, FL	0.000	0.000		1.453	Oct 2012	1.264	Oct 2013	-		1.264	Continuing	Continuing	Continuing
1.2 Program Management	WR	NSWC DD:Dahlgren, VA	0.000	0.000		1.480	Oct 2012	1.264	Oct 2013	-		1.264	Continuing	Continuing	Continuing
		Subtotal	26.735	6.403		6.108		4.727		0.000		4.727			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	691.878	139.714		195.824		203.771		0.000		203.771			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603581N: *Littoral Combat Ship (LCS)*	**PROJECT** 3129: *LCS Mission Package Development*

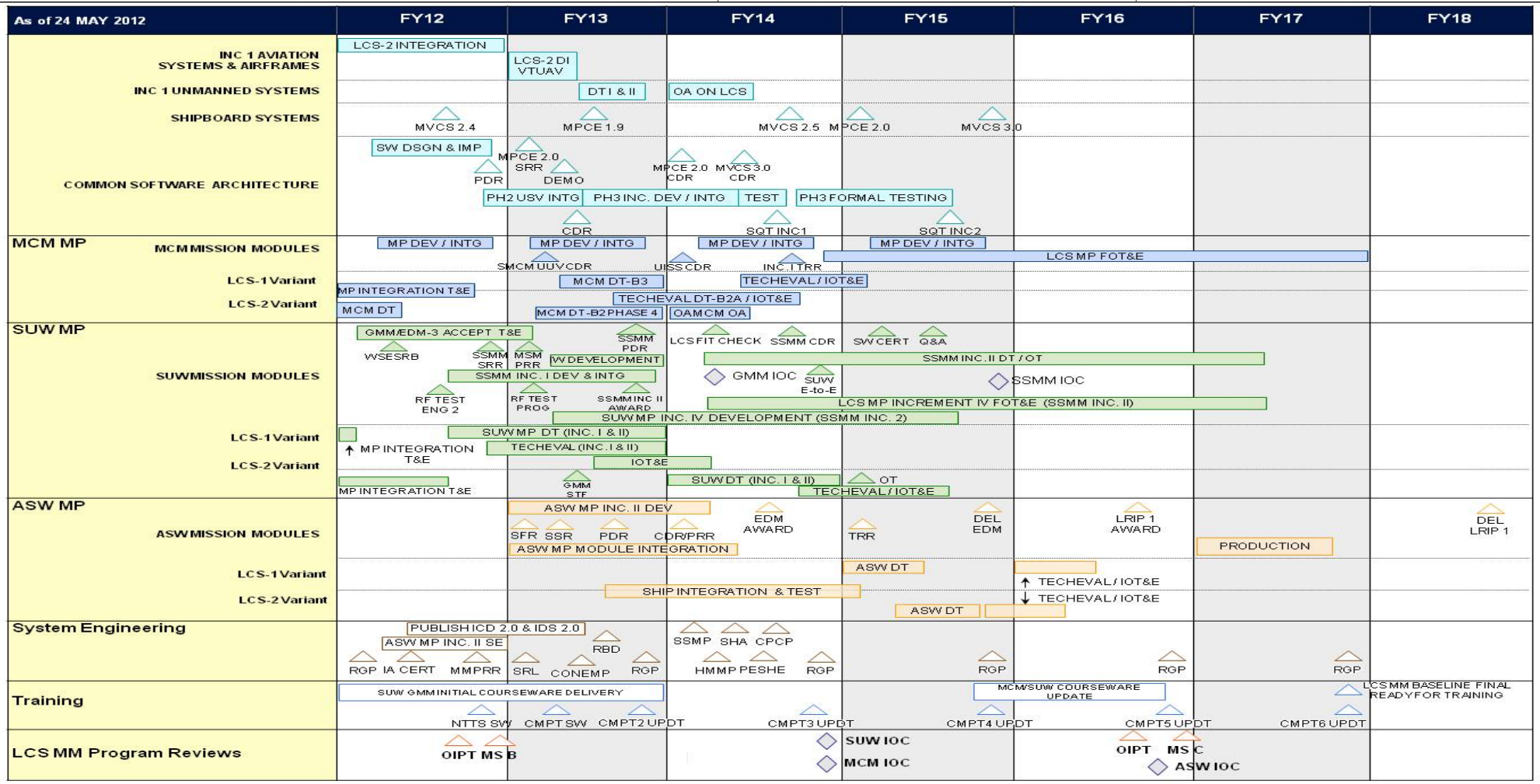


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603581N: *Littoral Combat Ship (LCS)*	**PROJECT** 3129: *LCS Mission Package Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3129				
MCM Aviation Systems and Airframe Integration (LCS 2)	1	2012	4	2012
MCM MP Integration T&E (LCS 2)	1	2012	3	2012
MCM MP Aviation Systems & Airframe Dynamic Interface Testing (LCS 2)	1	2013	2	2013
MCM MP Increment I DT-B3 (LCS 1)	2	2013	4	2013
MCM MP Increment I DT-B2 Phase 4 (LCS 2)	2	2013	4	2013
MCM MP OAMCM Operational Assessment (LCS 2)	1	2014	2	2014
MCM MP Increment I TECHEVAL DT-B2A (LCS 2)	3	2013	3	2014
MCM MP Increment I IOT&E (LCS 2)	3	2013	3	2014
MCM MP Increment I IOC	4	2014	4	2014
MCM - UISS CDR	1	2014	1	2014
MCM - SMCM UUV CDR	2	2013	2	2013
MCM MP FOT&E	4	2014	4	2017
MCM MP Shipboard System MVCS vs. 1.0.0 (SW 2.4) INSTALL	3	2012	3	2012
MVCS 2.5 Install	3	2014	3	2014
MVCS 3.0 Install	4	2015	4	2015
MCM Courseware Update (MCM UUV, RMMV & UISS IOC)	4	2015	3	2016
Initial LCS MM Baseline Final Ready for Training	4	2017	4	2017
SUW MP GMM/EDM-3 Acceptance T&E	1	2012	1	2013
SUW MP Increment II PRR (MSM)	1	2013	1	2013
SUW MP Increment I & II DT (LCS 1 variant)	3	2012	4	2013
SUW MP Increment I & II DT (LCS 2 variant)	1	2014	4	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SUW MP GMM Structural Test Fire	2	2013	2	2013
SUW MP Increment I & II TECHEVAL (LCS 1 variant)	4	2012	4	2013
SUW MP Increment I & II IOT&E (LCS 1 variant)	3	2013	2	2014
SUW MP Increment I & II IOC	4	2014	4	2014
SUW MP Increment III Development (IW & SSMM)	2	2013	4	2013
SUW Increment III E2E	4	2014	4	2014
SUW MP Increment III FOT&E	2	2014	2	2015
SUW Increment III (SSMM Increment 1) IOC	4	2015	4	2015
SUW MP Increment IV SRR (SSMM Increment 2)	4	2012	1	2013
SUW MP Increment IV PDR (SSMM)	4	2013	4	2013
SUW MP Increment IV Development (SSMM Increment 2)	2	2013	3	2015
SUW MP Increment IV FOT&E (SSMM Increment 2)	2	2014	2	2017
SUW GMM Initial Courseware Delivery	1	2012	4	2013
SUW Courseware Update (SSMM IOC)	4	2015	3	2016
ASW MP Increment II SFR	1	2013	1	2013
ASW MP Increment II SSR	2	2013	2	2013
ASW MP Increment II PDR	3	2013	3	2013
ASW MP Increment II CDR/PRR	1	2014	1	2014
ASW MP Increment II Module Integration	1	2013	2	2014
ASW MP Increment II Ship Integration & Test	3	2013	1	2015
ASW MP Increment II EDM/PRA Award	1	2014	1	2014
ASW MP Increment II EDM 1 Delivery	4	2015	4	2015
ASW MP Increment II TRR	1	2015	1	2015
ASW MP Increment II DT (LCS 1 variant)	1	2015	2	2015
ASW MP Increment II DT (LCS 2 variant)	2	2015	3	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 3129: *LCS Mission Package Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ASW MP Increment II TECHEVAL (LCS 1 variant)	1	2016	1	2016
ASW MP Increment II TECHEVAL (LCS 2 variant)	4	2015	4	2015
ASW MP Increment II IOT&E (LCS 1 variant)	1	2016	2	2016
ASW MP Increment II IOT&E (LCS 2 variant)	4	2015	1	2016
ASW MP Increment II IOC	4	2016	4	2016
ASW MP Increment II LRIP 1 Award	3	2016	3	2016
ASW MP Increment LRIP 1 Delivery	3	2018	3	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 4018: *Littoral Combat Ship Construction*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
4018: *Littoral Combat Ship Construction*	1,438.972	63.378	9.915	4.880	-	4.880	0.000	0.000	0.000	0.000	0.000	1,517.145
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Littoral Combat Ship (LCS) is a fast, agile, and networked surface combatant with capabilities optimized to defeat asymmetric threats, and assure naval and joint force access into contested littoral regions. It uses open-systems-architecture design, modular weapons, and sensor systems, and a variety of manned and unmanned vehicles to expand the battle space and project offensive power into the littoral. LCS operates with focused-mission packages that deploy manned and unmanned vehicles to execute a variety of missions, including littoral anti-submarine warfare (ASW), surface warfare (SUW), and mine countermeasures (MCM). LCS also possesses inherent capabilities, regardless of mission package installed, including Intelligence Surveillance Reconnaissance (ISR), homeland defense, Maritime Interdiction/Interception Operations (MIO), anti-terrorism/force protection (AT/FP), air self-defense, joint littoral mobility, and Special Operating Forces (SOF) and logistic support for movement of personnel and supplies. This relatively small, high-speed surface combatant will complement the U.S. Navy's AEGIS fleet by operating in environments where it is less desirable to employ larger, multi-mission ships. It can deploy independently to overseas littoral regions, remain on station for extended periods of time either with a battle group or through a forward-basing arrangement, and is capable of underway replenishment. It will operate with Carrier Strike Groups, Surface Action Groups, in groups of other similar ships, or independently for diplomatic and presence missions. Additionally, it can operate cooperatively with the U.S. Coast Guard and Allies. The LCS construction phase includes the construction of two LCS Flight 0 Class Ships, one each of two designs, and includes Government Furnished Equipment (GFE) for ships systems, Final System Design (FSD), Detail Design, introduction of final interface requirements for integration with mission packages from the Mission Systems and Ship Integration Team (MSSIT), and Outfitting and Post Delivery (OF/PD).

Data as of Jan 2013:
USS Freedom (LCS 1)
Basic Construction: 521.0
Change Orders: 0.5
GFE: 12.0
Other: 3.5
Total Cost*: 537.0

USS Independence (LCS 2)
Basic Construction: 635.0
Change Orders: 3.5

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 4018: *Littoral Combat Ship Construction*

GFE: 7.0
Other: 7.5
Total Cost*: 653.0

Non End Cost Item: FSD/MSSIT 25.0 (LCS1), 54.0 (LCS2) Non End Cost Item: OF/PD 121.8 (LCS1), 118.3 (LCS2) FSD/MSSIT costs for USS Freedom and USS Independence are not true construction costs and are costs associated with design completion.

* Does not include OF/PD and early design costs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Outfitting and Post Delivery	63.378	9.915	4.880
Articles:	0	0	0

Description: Provides for the completion of ship outfitting to include: (a) ship provisioning and fuel, (b) initial load-out of repair parts, spares, and test equipment in accordance with allowance list, (c) provision of technical manuals and required drawings, (d) installation and validation of PMS and EOSS, and (e) crew training and completion of ship system certification requirements. Implements instrumentation packages and validates structural, sea keeping, and hydrodynamic performance. Provides emergent support during the execution of Post Delivery Test & Trials (PDT&T) and Post-Shakedown Availability (PSA). Incorporates Engineering Change Proposals (ECPs) to correct trial card deficiencies, and mission critical upgrades (as required).

FY 2012 Accomplishments:
For USS Freedom (LCS 1):
Completed PSA 1 to accomplish dry-docking, engineering changes, equipment repairs, and correction of trial cards and seaframe discrepancies identified during PDT&T. Continued PSA 2 planning to include engineering efforts, work package development, and procurement of long-lead materials. Conducted Final Contract Trials (FCT)/Special Trials (ST) and provided technical support for the Board of Inspection and Survey (INSURV). Began PSA 2 to accomplish engineering changes, equipment repairs, and correction of trial cards and seaframe discrepancies identified during PDT&T.

For USS Independence (LCS 2):
Continued PSA 1 and PSA 2 planning to include engineering efforts, work package development, and procurement of long-lead materials. Began PSA 1 to accomplish dry-docking, engineering changes, equipment repairs, and correction of trial cards and seaframe discrepancies identified during PDT&T.

FY 2013 Plans:
For USS Freedom (LCS 1):
Complete PSA 2 to accomplish engineering changes, equipment repairs, and correction of trial cards and seaframe discrepancies identified during PDT&T.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 4018: *Littoral Combat Ship Construction*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
For USS Independence (LCS 2): Complete PSA 1 to accomplish dry-docking, engineering changes, equipment repairs, and correction of trial cards and seaframe discrepancies identified during PDT&T. Conduct FCT/ST and provide technical support for the INSURV Board. Continued PSA 2 planning to include engineering efforts, work package development, and procurement of long-lead materials. Begin PSA 2 to accomplish engineering changes, equipment repairs, and correction of trial cards and seaframe discrepancies identified during PDT&T. ***FY 2014 Plans:*** For USS Independence (LCS 2): Complete PSA 2 to accomplish engineering changes, equipment repairs, and correction of trial cards and seaframe discrepancies identified during PDT&T.			
Accomplishments/Planned Programs Subtotals	63.378	9.915	4.880

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 2127: *Littoral Combat Ship*	1,755.093	1,784.959	1,793.014		1,793.014	1,824.944	997.051	1,032.475	1,056.018	13,085.300	27,004.652
• 1600: *LCS Modules*	65.848	31.319	45.966		45.966	30.951	14.696	18.570	18.897	Continuing	Continuing
• 0443: *Aircraft Procurement, Navy*	191.986	124.573	60.980		60.980	81.336	0.000	0.000	0.000	Continuing	Continuing
• 5110: *Outfitting/Post Delivery*	25.986	60.053	79.823		79.823	134.113	134.722	208.913	211.197	2,151.400	3,013.642
• 1320: *LCS Training*	29.885	29.772	36.145		36.145	27.748	28.832	31.032	31.538	Continuing	Continuing
• 0944: *LCS Class Support Equipment*	0.000	19.865	47.078		47.078	42.769	43.040	64.300	63.394	Continuing	Continuing
• 1601: *MCM Mission Modules*	0.000	38.392	59.885		59.885	185.017	219.795	219.818	223.744	Continuing	Continuing
• 1602: *ASW Mission Modules*	0.000	0.000	0.000		0.000	3.436	23.612	44.754	45.560	0.000	117.362
• 1603: *SUW Mission Modules*	0.000	32.897	37.168		37.168	40.042	46.282	67.581	68.791	Continuing	Continuing

Remarks

D. Acquisition Strategy

The LCS program takes an evolutionary approach to acquisition that emphasizes competition as a key to achieving affordability. Initially, two industry teams competed against each other with two distinctly different LCS designs. The decision produced two flights with a vessel from each design: Flight 0 (LCS 1 and LCS 2); and Flight 0+ (LCS 3 and out). The Flight 0+ baseline incorporates lessons learned from the design, construction, and testing of the Flight 0 ships. The Navy conducted a limited competition amongst the existing LCS industry teams or team participants for the award of a contract for the construction of a block buy of up to ten (10) LCS Flight 0+ Class ships, with an objective of competitively awarding a single contract to a single industry team. By Acquisition Decision Memorandum of December 23, 2010, the

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 4018: *Littoral Combat Ship Construction*

USD (AT&L) authorized execution of an alternative acquisition strategy for the FY 2010 through FY 2015 procurement of 20 seaframes through two ten-ship block buy contracts. On December 29, 2010, the Navy awarded two contracts for block buys of up to ten ships, beginning with the award to each contractor of one FY 2010 ship and associated non-recurring engineering, the development of the Technical Data Package (TDP), core class services, and associated data. This was followed by the contractual funding of one ship to each contractor in FY 2011 and two ships each funded in FY 2012 through FY 2015.

E. Performance Metrics

The LCS Program achieved Milestone A and Program Initiation in May 2004, and underwent a Milestone A update in FY09. Milestone B was achieved in February 2011.

In an October 2012 LCS Program Acquisition Decision Memorandum (ADM), USD (AT&L) formally rescinded the requirement for the Seaframe to conduct a Milestone C. The decision directs the integrated LCS program to conduct annual Defense Acquisition Board In-Process Reviews (DAB IPRs). The first Seaframe and Mission Module integrated program DAB IPR was conducted in January 2013. DAB IPRs will be held each September hereafter.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 4018: *Littoral Combat Ship Construction*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LCS Ship 1 Construction	C/CPAF	Lockheed Martin:Moorestown, NJ	521.000	0.000		0.000		0.000		-		0.000	0.000	521.000	521.000
LCS Ship 1 Change Orders	C/CPAF	Lockheed Martin:Moorestown, NJ	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	0.500
LCS Ship 1 GFE	C/CPAF	Lockheed Martin:Moorestown, NJ	12.000	0.000		0.000		0.000		-		0.000	0.000	12.000	12.000
LCS Ship 2 Construction	C/CPAF	General Dynamics:Bath, ME	635.000	0.000		0.000		0.000		-		0.000	0.000	635.000	635.000
LCS Ship 2 Change Orders	C/CPAF	General Dynamics:Bath, ME	3.500	0.000		0.000		0.000		-		0.000	0.000	3.500	3.500
LCS Ship 2 GFE	C/CPAF	General Dynamics:Bath, ME	7.000	0.000		0.000		0.000		-		0.000	0.000	7.000	7.000
LCS Ship 1 FSD/MSSIT	C/CPAF	Lockheed Martin:Moorestown, NJ	25.000	0.000		0.000		0.000		-		0.000	0.000	25.000	25.000
LCS Ship 2 FSD/MSSIT	C/CPAF	General Dynamics:Bath, ME	54.000	0.000		0.000		0.000		-		0.000	0.000	54.000	54.000
Initial Outfitting/Logistics	Various	Various:Various	21.601	0.000		0.000		0.000		-		0.000	0.000	21.601	21.601
Test and Trials	WR	Various:Various	32.013	8.412	Oct 2011	0.500	Nov 2012	0.300	Nov 2013	-		0.300	0.000	41.225	
Post Delivery ECP	C/CPAF	Lockheed Martin - General Dynamics:Various	46.957	0.500	Oct 2011	0.400	Oct 2012	0.200	Oct 2013	-		0.200	0.000	48.057	57.457
PSA/PSA Planning/ INSURV/OPTAR	WR	Various:Various	68.720	54.466	Oct 2011	9.015	Oct 2012	4.380	Oct 2013	-		4.380	0.000	136.581	
		Subtotal	1,427.291	63.378		9.915		4.880		0.000		4.880	0.000	1,505.464	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 4018: *Littoral Combat Ship Construction*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	WR	SUPSHIP:Various	0.460	0.000		0.000		0.000		-		0.000	0.000	0.460	
Other Program Costs	WR	Various:Various	11.000	0.000		0.000		0.000		-		0.000	0.000	11.000	
		Subtotal	11.460	0.000		0.000		0.000		0.000		0.000	0.000	11.460	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	Various	Various:Various	0.221	0.000		0.000		0.000		-		0.000	0.000	0.221	
		Subtotal	0.221	0.000		0.000		0.000		0.000		0.000	0.000	0.221	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,438.972	63.378		9.915		4.880		0.000		4.880	0.000	1,517.145	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 4018: *Littoral Combat Ship Construction*

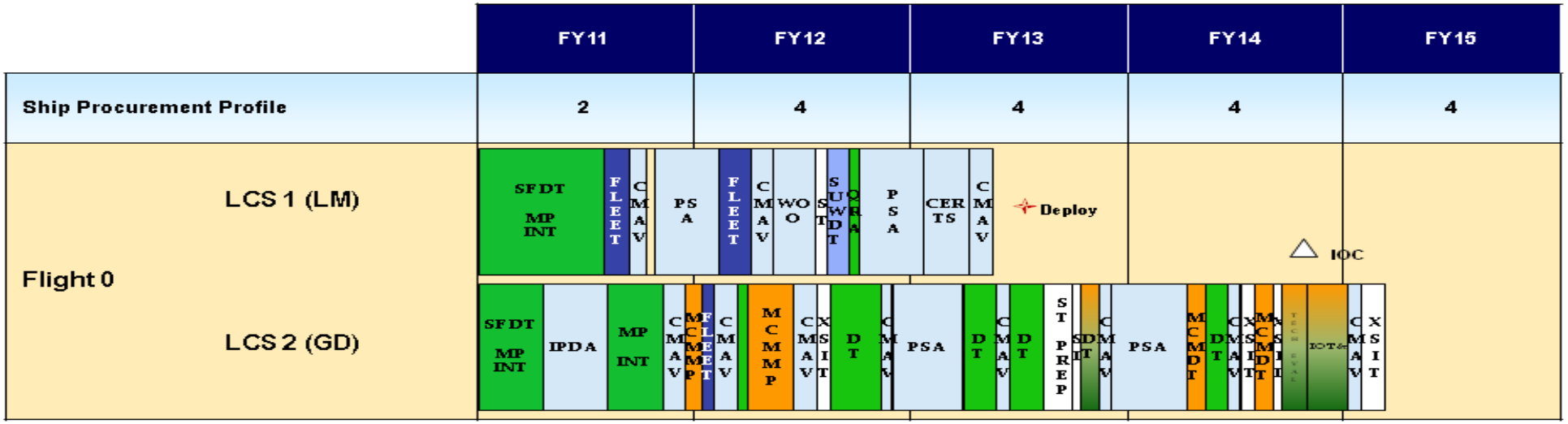


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603581N: *Littoral Combat Ship (LCS)*	**PROJECT** 4018: *Littoral Combat Ship Construction*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4018				
LCS 2 PSA 1	4	2012	2	2013
LCS 2 Final Contract Trials/ Special Trials	4	2013	4	2013
LCS 2 PSA 2	4	2013	1	2014
LCS 2 Transit (XSIT) 2 (Fleet Cost)	3	2014	3	2014
LCS 2 Transit (XSIT) 3 (Fleet Cost)	1	2015	1	2015

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	10.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.000
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Provides resources to support both LCS Mission Package Development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013
Congressional Add: LCS MM SBIR (Cong)	10.000	-
FY 2012 Accomplishments: Continue development of a next generation LCS test bed, which supports development, demonstration, testing and evaluation of critical technologies to enable rapid introduction of advance warfighting capabilities and workload reduction initiatives required by the LCS mission packages. Deliverables include: a next generation LCS test bed based on Service-Oriented Architecture (SOA); demonstration of the ease of inserting a SOA-based C2 product such as MCM Supervision of Unmanned Vehicle Mission Management by Interactive Teams (SUMMIT) or USW-DSS with documented metrics in Demonstration Report ; and a prototype of SOA-based Unmanned System Control System for future LCS unmanned systems (surface and underwater vehicles).		
Congressional Adds Subtotals	10.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Adds.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 9999: *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.18 Technology Insertion	C/CPFF	AAC:Uniontown, PA	0.000	0.204	Feb 2013	0.000		0.000		-		0.000	0.000	0.204	
1.18 Technology Insertion	C/CPFF	Lockheed Martin:Riveria Beach, FL	0.000	1.617	Mar 2013	0.000		0.000		-		0.000	0.000	1.617	
1.18 Technology Insertion	WR	NSWC DD:Dahlgren, VA	0.000	0.118	Nov 2012	0.000		0.000		-		0.000	0.000	0.118	
1.18 Technology Insertion	WR	NSWC PC:Panama City, FL	0.000	0.523	Dec 2012	0.000		0.000		-		0.000	0.000	0.523	
1.18 Technology Insertion	WR	NSWC NPT:Rhode Island	0.000	0.435	Jan 2013	0.000		0.000		-		0.000	0.000	0.435	
1.18 Technology Insertion	C/CPFF	Adaptive Methods:Centreville, VA	0.000	0.200	Jul 2012	0.000		0.000		-		0.000	0.000	0.200	
1.18 Technology Insertion	C/CPFF	Progeny:Manassas, VA	0.000	6.000	Jul 2012	0.000		0.000		-		0.000	0.000	6.000	
1.18 Technology Insertion	C/BA	TBD:TBD	0.000	0.383	Apr 2013	0.000		0.000		-		0.000	0.000	0.383	
1.18 Technology Insertion	WR	NSWC KPT:Keyport, WA	0.000	0.125	Aug 2012	0.000		0.000		-		0.000	0.000	0.125	
1.18 Technology Insertion	WR	SSC PAC:San Diego, CA	0.000	0.260	Nov 2012	0.000		0.000		-		0.000	0.000	0.260	
		Subtotal	0.000	9.865		0.000		0.000		0.000		0.000	0.000	9.865	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.2 Program Management	C/CPFF	CACI:Fairfax, VA	0.000	0.135	Aug 2012	0.000		0.000		-		0.000	0.000	0.135	
		Subtotal	0.000	0.135		0.000		0.000		0.000		0.000	0.000	0.135	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603581N: *Littoral Combat Ship (LCS)*	PROJECT 9999: *Congressional Adds*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	10.000		0.000		0.000		0.000		0.000	0.000	10.000	

Remarks

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	280.954	48.999	56.551	36.570	-	36.570	41.949	44.351	48.417	49.760	Continuing	Continuing
0164: *Combat System Integration*	280.954	35.989	41.854	18.040	-	18.040	24.347	26.975	30.621	33.345	Continuing	Continuing
3312: *MTMD-Maritime Theater Missile Defense Forum*	0.000	3.135	4.561	8.525	-	8.525	9.478	9.140	9.385	7.863	Continuing	Continuing
9B88: *Automated Test and Re-Test*	0.000	9.875	10.136	10.005	-	10.005	8.124	8.236	8.411	8.552	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Chief of Naval Operations (CNO) created the Navy's Strike Force Interoperability (SFI) Program in 1998 in response to critical shortfalls in the introduction of integrated and interoperable system of systems to deploying Strike Forces. Naval Sea Systems Command (NAVSEA) acts as management lead for Joint System Command (SYSCOM) system certification policy and guidance and certifies platforms for interoperability within the platform and throughout the enterprise, in accordance with Commander, US Fleet Forces Command/Commander, Pacific Fleet (COMUSFLTFORCOM/COMPACFLT) Inst. 4720.3B (OCT 2008), C5ISR Modernization Policy. COMUSFLTFORCOM/COMPACFLT Inst. 4720.3B also requires that NAVSEA act as administrative agent for COMNAVNETWARCOM Command and Control, Communications, Computers, and Combat Systems Integration Modernization Process (C5IMP) and execution agent for Navy Command and Control, Communications, Computers, and Combat Systems Integration (C5I) Modernization Conferences (NCMC). This program conducts Interoperability Assessments that are required to certify Aircraft Carriers, Amphibious Assault Ships, and Surface Combatants in accordance with the Naval Warfare System Certification Policy (NWSCP), NAVSEAINST 9410.2A, NAVAIR 5230.20, SPAWAR 5234.1.

The SFI Program ensures overall strike force interoperability is characterized and assessed. NAVSEA is assigned central United States Navy (USN) responsibility for interoperability, directing the development of policy and architecture for Strike Force warfare systems engineering and implementation of a common warfare systems engineering process. There are three priorities within the Strike Force Interoperability Program: 1) Support Fleet As-Is state which includes Navigation System Certification (NAVCERT), Interoperability Capabilities & Limitations, and Interoperability Tactical Information Coordinator Technical Aids (TIC TECHAIDs); 2) Ship system modernization (non-HME) including warfighting capability & other C5I upgrades. This includes C5IMP Baseline Management and Non-Aegis Combat System Integration Testing; and 3) Ship Warfare System Certification & Force Level Assessments. This includes Warfare Systems Certification, Interoperability Certification, Force Level Interoperability Analysis, Assessments, and reports recommending force level interoperability improvements to the program offices for implementation at the systems level.

In addition to these core efforts, this program also aims to improve the efficiency of testing processes through the Automated Test and Re-test (ATRT) program and engages in efforts designed to ensure the U.S. Navy is interoperable with Joint and Coalition forces through the Maritime Theater Missile Defense (MTMD).

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*

Project 0164 Combat System Integration:

This project consist of five key pillars executed within the SFI program, beginning in FY13: 1) Command & Control, Communications, Computer, Combat Systems, and Intelligence Modernization Process (C5IMP) and Fleet Readiness. The C5IMP validates the introduction of new systems into the Fleet and ensures system maturity prior to installation, thereby reducing risk and enhancing readiness and effectiveness of deploying ships and strike groups; 2) Warfare Systems Certification, which is essential to validating the maturity and operational performance of warfare systems prior to fleet delivery and deployment; 3) Navigation Certification (NAVCERT) and Electronic Charting and Display System - Navy (ECDIS-N) certification, which certifies ship electronic charting capability and certifies the accurate transmission of navigation data to combat and weapons systems; 4) Combat Systems Integration Testing (CSIT), formerly known as Warfare Systems Integration and Interoperability Testing (WSI2T), which is essential in the identification of critical integration and interoperability issues. CSIT also provides Objective Quality Evidence (OQE) for warfare system certification decisions for installation and deployment; and 5) Interoperability Certification and Assessment, the independent assessment of Strike Group Warfare Systems operational performance. Interoperability Assessments examine force level engagement threads, aircraft control, air battle-space management, and operational displays. Assessments of deploying ships in Strike Force configurations are accomplished through the utilization of the Navy's Distributed Engineering Plant (DEP), which is the cornerstone for the Distributed Integration & Interoperability Assessment Capability (DIIAC) Concept. It is a U.S. Fleet Forces Command and Commander In Chief, U.S Pacific Fleet (COMPACFLT) requirement that all Strike Forces undergo Interoperability Assessment testing in the DEP prior to deployment. Interoperability Certification results are used to develop fleet tactical tools (Capabilities & Limitations (C&L) and Tactical Information Coordinator Technical Aids (TIC TECHAIDs)), which ensure that operators understand the interoperability capabilities and limitations of their combat systems.

Project 3312 Maritime Theater Missile Defense Forum (MTMD):

This project funds participation in the Maritime Missile Defense Projects Framework Memorandum of Understanding of 2004 (as amended in 2009). Known as the Maritime Theater Missile Defense (MTMD) forum, it promotes interoperability with the Navies of nine participating nations. This project funds participation in several Project Arrangements and includes maritime contribution to the NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) project.

The MTMD forum provides protection against the proliferation of short, medium and long-range Ballistic Missile (BM) and Advanced Anti-Ship Cruise Missile (ASCM) threats through the creation of an interoperable sea-based Integrated Air and Missile Defense (IAMD) capability among coalition nations. This includes protection across the full spectrum of these threats through the enhanced utilization of existing sea-based systems to protect against current threats while progressively improving and developing systems and system-of- systems to effectively counter evolving threats.

MTMD supports USN participation in several MTMD related Project Arrangements and Working Groups including:
(1) Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I) to define and develop architectures as well as to perform engineering to address coalition capability gaps.
(2) Modeling & Simulation (M&S) to establish and maintain a maritime coalition M&S testbed and to perform legacy and future systems simulation testing.
(3) Coalition Distributed Engineering Plant (CDEP) to establish and maintain a maritime coalition Hardware-in-the-Loop Testbed and to conduct CDEP testing.
(4) Open Architecture (OA) to develop Interface Standards and Data Models.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*

(5) Test Planning and Execution (TPEX) to develop Test Plans, oversee exercise participation and conduct post event data analysis and reporting.
(6) Operational Requirements (OR) to develop a Coalition Maritime Missile Defense Operational Concept Document and to identify operational constraints and tactical constructs surrounding coalition maritime missile defense activities.
(7) Next Generation Infrared Search and Track (IRST) to evaluate commercial-based technologies to develop a passive IRST sensor system in support of coalition maritime missile defense operations.

Project 9B88 Automated Test and Retest (ATRT):

The Navy, through Automated Test and Re-Test (ATRT) is developing an automated test/analysis capability, which is applicable at phases within system development and integration which provides reproducible and quantitative evaluation of system performance with reduced levels of effort and schedule in order to support one of the Navy's priority initiatives of reduction of Total Ownership Cost (TOC). Funding will provide additional work towards ongoing testing and analysis efforts within the Combat Systems Integration Testing (CSIT), formerly known as Warfare Systems Integration and Interoperability Testing (WSI2T), AEGIS Combat System Advanced Capability Build (ACB) 12, Antisubmarine Warfare Integrated Common Processor/Acoustic Rapid Commercial Off The Shelf (COTS) Insertion, the Littoral Combat Ship (LCS) Mission Module development and other major acquisition programs. In addition, funding will support the development of standards, specifications, and guidance to facilitate NAVSEA-affiliated programs' adoption of this TOC-reducing discipline and technology.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	34.123	56.551	36.592	-	36.592
Current President's Budget	48.999	56.551	36.570	-	36.570
Total Adjustments	14.876	0.000	-0.022	-	-0.022
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	15.536	0.000			
• SBIR/STTR Transfer	-0.660	0.000			
• Program Adjustments	0.000	0.000	0.290	-	0.290
• Rate/Misc Adjustments	0.000	0.000	-0.312	-	-0.312

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0164: *Combat System Integration*	280.954	35.989	41.854	18.040	-	18.040	24.347	26.975	30.621	33.345	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Project 0164: Combat System Integration:

This project funds the Strike Force Interoperability Program through the following pillars: 1) Command & Control, Communications, Computer, Combat Systems, and Intelligence Modernization Process (C5IMP) and Fleet Readiness. The C5IMP validates the introduction of new systems into the Fleet and ensures system maturity prior to installation, thereby reducing risk and enhancing readiness and effectiveness of deploying ships and strike groups; 2) Warfare Systems Certification, which is essential to validating the maturity and operational performance of warfare systems prior to fleet delivery and deployment; 3) Navigation Certification (NAVCERT) and Electronic Charting and Display System - Navy (ECDIS-N) certification, which certifies ship electronic charting capability and certifies the accurate transmission of navigation data to combat and weapons systems; 4) Combat Systems Integration Testing (CSIT), formerly known as Warfare Systems Integration and Interoperability Testing (WSI2T), which is essential in the identification of critical integration and interoperability issues. CSIT also provides Objective Quality Evidence (OQE) for warfare system certification decisions for installation and deployment; and 5) Interoperability Certification and Assessment, the independent assessment of Strike Group Warfare Systems operational performance. Interoperability Assessments examine force level engagement threads, aircraft control, air battle-space management, and operational displays. Assessments of deploying ships in Strike Force configurations are accomplished through the utilization of the Navy's Distributed Engineering Plant (DEP), which is the cornerstone for the Distributed Integration & Interoperability Assessment Capability (DIIAC) Concept. It is a U.S. Fleet Forces Command and Commander In Chief, U.S Pacific Fleet (COMPACFLT) requirement that all Strike Forces undergo Interoperability Assessment testing in the DEP prior to deployment. Interoperability Certification results are used to develop fleet tactical tools (Capabilities & Limitations (C&L) and Tactical Information Coordinator Technical Aids (TIC TECHAIDs)), which ensure that operators understand the interoperability capabilities and limitations of their combat systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Navigation System Certification (NAVCERT)	0.616	1.762	1.252
Articles:	0	0	0
Description: NAVSEAINST 9420.4 dated May 02 requires that a Navigation System Certification (NAVCERT) be performed for all initial installation/new construction, major overhaul/modification/repair when it is determined to impact the accuracy of navigation data, changes to the navigation baseline configuration, greater than six months ship availability, or elapsed time of more than five (5) years since previous NAVCERT. These project funds assessments are in support of NAVCERT associated with modernizations and/or new capability upgrades. A			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
NAVCERT certifies to NAVSEA, Ship Program Managers (SPMs), Type Commanders (TYCOMs), and the Fleet that shipboard navigation systems are: properly installed and in good physical condition, operating to specified accuracy and requirements. A NAVCERT certifies: (1) Ship electronic charting display capability ensuring safety at sea. (2) Accurate transmission of navigation data to combat and weapons systems ensuring ordnance is delivered on target. (3) Aircraft inertial alignment system which is critical for returning aircraft. A successful NAVCERT is required for Warfare Systems Certification Decisions (WSCD), TOMAHAWK Weapons System (TTWCS) Certifications, Precision Approach Landing Systems (PALS) Certifications, and Electronic Charting and Display System-Navy (ECDIS-N) Certification. ***FY 2012 Accomplishments:*** Performed 28 NAVCERTs on cruisers, destroyers, carriers, and amphibs. ***FY 2013 Plans:*** Plans are to perform 24 NAVCERTs on cruisers, destroyers, carriers, and amphibs based on the finding of the Flag Certification Task Force. Initiate update of NAVSEA Instruction 9420.4A to incorporate fleet input and lessons learned. ***FY 2014 Plans:*** Plans are to perform 18 NAVCERTs on cruisers, destroyers, carriers, and amphibs based on the finding of the Flag Certification Task Force. Issue update of NAVSEA Instruction 9420.4A.			
Title: Command, Control, Communications, Computer, Combat Systems, and Intelligence Modernization Process (C5IMP) and Fleet Readiness (C5ISR)	3.749	2.420	1.842
Articles:	0	0	0
Description: This program is required to support the fleet C5I Modernization Policy (per COMUSFLTFORCOM/COMPACFLT Inst. 4720.3B), perform engineering analysis for the introduction of each proposed C5IMP capability improvement (Baseline Change), develop installation recommendations of C5I system upgrades for the Fleet Commanders, and research and analyze installation or operating problems. This is done through close coordination with the FLTCDRs and TYCOMs as well as other members of the C5IMP community to address, coordinate, and resolve C5IMP modernization issues thereby reducing risk and enhancing readiness and effectiveness of deploying ships and strike groups. Strike Group Engineers (SGEs) analyze planned C5I configurations of ships and Strike Groups; identify and analyze capability, interoperability, and modernization issues in a Strike Group context; assess impacts against requirements; and provide recommendations for resolution. Funded under Fleet Response Plan (FRP) in prior years.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: This program is required to support the fleet C5I Modernization Policy (per COMUSFLTFORCOM/COMPACFLT Inst. 4720.3B), perform engineering analysis for the introduction of each proposed C5IMP capability improvement (Baseline Change), develop installation recommendations of C5I system upgrades for the Fleet Commanders, and research and analyze installation or operating problems. This is done through close coordination with the FLTCDRs and TYCOMs as well as other members of the C5IMP community to address, coordinate, and resolve C5IMP modernization issues thereby reducing risk and enhancing readiness and effectiveness of deploying ships and strike groups. Strike Group Engineers (SGEs) analyze planned C5I configurations of ships and Strike Groups; identify and analyze capability, interoperability, and modernization issues in a Strike Group context; assess impacts against requirements; and provide recommendations for resolution. ***FY 2013 Plans:*** Provide C5IMP and Strike Group Engineering support for all CSGs, ARGs, and independent deployers throughout the inter-deployment cycle, including preparations for deployment of 6 CSGs, 3 ARGs and about 40 independent deployers during FY13. Facilitate review, assessment, and execution of C5I installations during approximately 100 CNO availabilities in FY 13. Support 2 NCMCs and 12 monthly baselining events. Risk Assessment & Mitigation: Review the MH-60R LAMPS helicopter interoperability with the AEGIS Combat System (ACS). ***FY 2014 Plans:*** Provide C5IMP and Strike Group Engineering support for all CSGs, ARGs, and independent deployers throughout the inter-deployment cycle, including preparations for deployment of 4 CSGs, 3 ARGs and about 30 independent deployers during FY 14. Facilitate review, assessment, and execution of C5I installations during approximately 100 CNO Availabilities in FY 14. Support 2 NCMCs and 12 monthly baselining events.			
Title: Combat System Integration Testing (CSIT)	2.300	2.560	0.000
Articles:	0	0	
Description: This program funds Land-Based Test Sites to conduct integration testing for the Ship Self Defense Mark 1/2 Integrated Combat Systems at NSWC Dahlgren, VA and at Wallops Island, VA as well as the Advanced Combat Direction System (ACDS) Block 0/1 and FFG Combat Direction System testing at Combat Direction Systems Activity Dam Neck, VA. Combat System Testing (formerly known as SEA05H Warfare Systems Integration and Interoperability Testing (WSI2T)), is essential in the identification of critical combat systems integration issues. CST also provides Objective Quality Evidence (OQE) for warfare certification decisions to support installation and deployment approvals. OPN/OMN funds support the maintenance and upgrade of the test labs to provide an integrated test environment similar to shipboard configurations in the Fleet. Funded under Combat Systems Certification Support of Platform Certification in prior years.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: Program Combat Systems integration planning/conduct/execution/OQE reporting for the following platforms: FFG 7 Class, LHD 7/8, CVN 69, LPD 20/24/25, LPD 17-19 and LPD 21-23 & CVN 73/74. ***FY 2013 Plans:*** Program Combat Systems integration planning/conduct/execution/OQE reporting for the following platforms: LHD 1, SSDS MOD 5C (LSD 50/52) & CVN 75/76.			
Title: Warfare Systems Certification	11.798	14.700	5.042
Articles:	0	0	0
Description: As directed by COMUSFLTFORCOM/COMPACFLT Inst. 4720.3B, C5ISR Modernization Policy, and in accordance with NAVSEAINST 9410.2, Naval Warfare System Certification Policy (NWSCP), NAVSEA will conduct Warfare Systems Certification against set criteria that includes operational risk assessments, using Objective Quality Evidence (OQE) to ensure installation readiness and deployment readiness of warfare systems and Navy surface platforms. OQE is obtained through testimony of subordinate activities and/or independent testing. NAVSEA accomplishes these efforts through Warfare Systems Certification Readiness Reviews (WSCRR), Warfare Systems Installation Authorizations (WSIA), and Warfare Systems Certification Decisions (WSCD) to support the installation and deployment of warfare systems in Navy surface platforms. The purpose of the WSCRR is to review and approve the Warfare System Certification Plan (WSCP), monitor warfare systems against the WSCP and monitor satisfaction of established criteria to facilitate a WSIA and WSCD. The purpose of the WSIA is to provide an early assessment of risk and characterization of the warfare systems maturity and readiness to support sail-away and any shipboard test and training events for New Construction (NC) phase, Refueling Complex Overhaul (RCOH) or lead ships that are test platforms for major modernization effort and/or an assessment to support an authorization for installation of the warfare system(s) for in-service platforms. The purpose of the WSCD is to provide warfare systems certification including an assessment of risk and characterization of the warfare systems maturity and readiness to support deployment. A NAVSEA certification decision message is released following the WSCD, which includes an operational risk assessment characterizing warfare systems maturity and readiness to support the subject ship's deployment. This program is also required to ensure that aggregate deficiencies and workarounds do not render the operator ineffective by conducting land based interoperability, at-sea interoperability and stressful endurance test and documenting issues such as trouble reports (TRs). TRs that cannot be resolved are assessed by the Interoperability Certification Assessment Group (ICAG) and are documented in Tactics, Techniques & Procedures (TTPs), Strike Group Capabilities & Limitations (SGI C&L), and Tactical Information Coordinator Technical Aids (TIC TECHAIDS).			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Warfare Systems Certification funded under Platform/Strike Force Certification in prior years. ***FY 2012 Accomplishments:*** Supported 110 certification events, and validated corrections of CEC/LINK 16 deficiencies prior to their installation in CGs and DDGs. Platform Certification Decision (PCDs) involved CVNs, CGs, DDGs, and amphibious assault ships. Documented TTPs, workarounds, limitations & restrictions and conducted 4 AEGIS & 1 SSDS baseline assessments of interoperability issues impacting ship mission areas. Transitioned to NAVSEAINST 9410.2A. ***FY 2013 Plans:*** Support approximately 110 Warfare Systems Certification Events (WSCRRs, WSIAs, and WSCDs). Warfare Systems Certification Decision will involve CG 47, DDG 51/1000, CVN 65/68/78, LHA 1/6, LHD 1, LPD 17, LSD 41/49 and LCS Ship Class and amphibious assault ships. Support increase in number of Warfare System Certification criteria from 17 to 20, requiring review of Trouble Reports, Tactics, Techniques, and Procedures (TTP) aggregate workload assessment, and mission area assessment. Support stressful endurance test results. Develop an Integrated Product Data Management Tool for a unified data environment, classified to secret level. Conduct Accelerated Mid-Term Interoperability Improvement Project (AMIIP) interoperability assessment, and conduct two at-sea interoperability tests, data analysis and assessment. ***FY 2014 Plans:*** Support approximately 120 Warfare Systems Certification Events and pilot certification efforts for Patrol Coastal and Mine Countermeasure ships.			
Title: Interoperability Certification and Assessment	17.526	20.412	9.904
Articles:	0	0	0
Description: To ensure NAVSEA/PEOs are delivering mature and interoperable warfare systems at the platform and strike group level, NAVSEA provides strike force interoperability certification and assessments. This program focuses on new systems and platforms under development. Interoperability Assessments of deploying ships in Strike Force configurations is accomplished through the utilization of the Navy's Distributed Engineering Plant (DEP), which provides operational configurations for all naval combat systems located at multiple Navy land-based sites located across the country and connected via networking technology. It is a U.S. Fleet Forces Command requirement that all Strike Forces undergo Interoperability Assessment testing in the DEP prior to deployment. The DEP provides the only opportunity for comprehensive interoperability testing of combat system and C5I configuration items prior to shipboard delivery for operational use in surface combatant platforms and strike group units. Further, the DEP provides the mechanism to support the surface Navy's participation in the Joint testing environments as well as the MTMD Coalition forces interoperability testing. The Distributed Integration & Interoperability Assessment Capability (DIIAC) will leverage the existing DEP (facilities, skilled resources, live assets, and network connectivity) and ATRT applications to test and assess battle force interoperability. The results of DEP testing is to feed into the development of fleet tactical tools (Capabilities &			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Limitations (C&L) and Tactical Information Coordinator Technical Aids (TIC TECHAIDs)), which ensure that operators understand the interoperability capabilities and limitations of their combat systems. C&L are delivered for Strike Groups and their Coalition and Joint partners. Program was funded under Platform/Strike Force Certification, Fleet Response Plan (FRP), and DEP Engineering and Operations in prior years. ***FY 2012 Accomplishments:*** Conducted three DEP tests, (ACS 6.3, 7.1R, the 8.1 certification; ACS 5.3.9 and SSDS Baseline 6 certification; ACB 12 ACS baseline 9A development) and reconstruction with data analyses. Conducted two interoperability assessments, (ACS 6.3, 7.1R, 8.1; ACS 5.3.9 and SSDS Baseline 6) as determined by Interoperability Certification Assessment Group (ICAG). Conducted one Verification, Validation, and Accreditation (VV&A) test and facilitated the completion of C5I installations during approximately 100 CNO availabilities in FY 12. Provided C&L documents for 65 Strike Groups comprised of 237 ships and 110 Naval Air Squadrons (covering F/A-18s, E-2Cs, MH-60s, EA-6Bs and P-3s). TIC TECHAIDs will be delivered for 35 SG ships, 30 independent deploying ships and 4 Land Based Sites. ***FY 2013 Plans:*** Conduct four DEP tests (SSDS 8.07 DEP certifications; AMIIP certification; ACB 12 ACS baseline 9A certification; ACS 7.2 DEP certification) and reconstruction with data analyses. Conduct three interoperability assessments, (AMIIP; ACB 12 ACS baseline 9A; ACS 7.2) as determined by Interoperability Certification Assessment Group (ICAG). Conduct two VV&As and two System Engineering Events (SEEs). Provide C&L documents for 65 Strike Groups comprised of 237 ships and 110 Naval Air Squadrons (covering F/A-18s, E-2Cs, MH-60s, EA-6Bs and P-3s). Conduct analysis of force level engagement threads, aircraft control, air battle-space management, and operational displays, focusing on deploying Strike Groups and new systems and platforms under development. TIC TECHAIDs will be delivered for 35 SG ships, 30 independent deploying ships, and 4 Land Based Sites. ***FY 2014 Plans:*** Conduct four DEP tests (ACB 12 ACS baseline 9C development; SSDS baseline 9 certification; SSDS 8.07 certification; AMIIP certification) and reconstruction with data analysis. Conduct three interoperability assessments (SSDS baseline 9; ACB 12 ACS baseline 9C; LCS) as determined by Interoperability Certification Assessment Group (ICAG). Conduct two VV&As and two System Engineering Events (SEEs). Provide C&L documents for 65 Strike Groups comprised of 237 ships and 110 Naval Air Squadrons (covering F/A-18s, E-2Cs, MH-60s, EA-6Bs and P-3s). TIC TECHAIDs will be delivered for 35 SG ships, 30 independent deploying ships, and 4 Land Based Sites.			
Accomplishments/Planned Programs Subtotals	35.989	41.854	18.040

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN 2960: *(ICSTD/DEP): Integrated Combat System Test Division/Distributed Engineering Plant*	4.430	4.495	4.963		4.963	5.073	5.141	5.254	5.321	Continuing	Continuing

Remarks

D. Acquisition Strategy

RDTEN funding under this line supports independent certification of the integration of major capability upgrades acquired by Program Executive Offices (PEOs) into host Navy Platforms and Strike Forces. The RDTEN engineering and certification activities at field sites do not involve direct procurement of equipment or engineering services, and hence no acquisition strategy is required. The major capability upgrades evaluated under this program fall under their associated PEOs' acquisition strategies.

E. Performance Metrics

Quarterly Program Reviews and Baseline Assessments

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SF Requirements Engineering & Analysis	WR	NSWCs:DN/PHD/ Corona	5.157	0.000		0.000		0.000		-		0.000	0.000	5.157	
SF Requirements Engineering & Analysis	WR	Non-NSWCs:Various	5.295	0.000		0.000		0.000		-		0.000	0.000	5.295	
Platform/Strike Force Certification	WR	NSWCs:DD/ICSTD/ DN/Corona	39.732	0.000		0.000		0.000		-		0.000	0.000	39.732	
Platform/Strike Force Certification	WR	Non-NSWCs:Various	27.843	0.000		0.000		0.000		-		0.000	0.000	27.843	
Fleet Response Plan (FRP)	WR	NSWCs:DD/PHD/DN	27.030	0.000		0.000		0.000		-		0.000	0.000	27.030	
Fleet Response Plan (FRP)	WR	Non-NSWCs:Various	3.793	0.000		0.000		0.000		-		0.000	0.000	3.793	
Combat Systems Cert ISO Platform Cert	WR	NSWCs:DN/DD/ PHD/Corona	24.640	0.000		0.000		0.000		-		0.000	0.000	24.640	
Combat Systems Cert ISO Platform Cert	WR	Non-NSWCs:Various	1.853	0.000		0.000		0.000		-		0.000	0.000	1.853	
Navigation System Certification	WR	SPAWAR:Charleston	4.464	0.616	Dec 2011	1.650	Dec 2012	1.252	Sep 2014	-		1.252	Continuing	Continuing	Continuing
C5IMP & Fleet Readiness	WR	NSWCs:DD/PHD/DN	0.000	3.440	Dec 2011	1.200	Dec 2012	1.190	Sep 2014	-		1.190	Continuing	Continuing	Continuing
C5IMP & Fleet Readiness	WR	Non-NSWCs:Various	0.000	0.000		0.000	Dec 2012	0.000		-		0.000	Continuing	Continuing	Continuing
Warfare Systems Certification	WR	NSWCs:DD//DN/ Corona	0.000	4.154	Dec 2011	12.000	Dec 2012	3.500	Sep 2014	-		3.500	0.000	19.654	
Warfare Systems Certification	WR	NSWCs:Various	0.000	3.000	Dec 2011	0.500	Dec 2012	0.490	Sep 2014	-		0.490	0.000	3.990	
CNI/Design Agent	SS/CPAF	General Dynamics:Not Specified	47.926	0.000		0.000		0.000		-		0.000	0.000	47.926	
CNI/Software Engineering	WR	NSWC:Dahlgren	8.383	0.000		0.000		0.000		-		0.000	0.000	8.383	
CNI/Test and Evaluation	WR	CDSA:Not Specified	3.922	0.000		0.000		0.000		-		0.000	0.000	3.922	
CNI/Systems Engineering	WR	NSWC:PHD	2.645	0.000		0.000		0.000		-		0.000	0.000	2.645	
CNI/Miscellaneous	WR	Various:Various	7.529	0.000		0.000		0.000		-		0.000	0.000	7.529	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
OA Automated Test and Retest	WR	NSWCs:Various	17.500	0.000		0.000		0.000		-		0.000	0.000	17.500	
Contract Engineering Support	C/CPFF	Gryphon Technology:VA	12.259	4.778	Dec 2011	7.604	Dec 2012	3.500	Sep 2014	-		3.500	Continuing	Continuing	Continuing
Contract Program Management Support	C/CPFF	Delta Resources Inc.:VA	8.141	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA HQ:Washington, DC	1.590	0.300	Dec 2011	0.400	Dec 2012	0.100	Sep 2014	-		0.100	Continuing	Continuing	Continuing
Interoperability Fixes	WR	NSWCs:Various	1.500	0.000		0.000		0.000		-		0.000	0.000	1.500	
		Subtotal	251.202	16.288		23.354		10.032		0.000		10.032			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Combat System Integration Testing (CSIT)	WR	NSWCs:DD/ICSTF	0.000	3.475	Dec 2011	2.500	Dec 2012	0.000		-		0.000	0.000	5.975	
Interoperability Certification Assessment	WR	NSWCs:DD/ SPAWAR/San Diego	0.000	16.226	Dec 2011	16.000	Dec 2012	8.008	Sep 2014	-		8.008	0.000	40.234	
DEP Engineering and Operations	WR	NSWCs:DD/ SPAWAR/San	17.129	0.000	Dec 2011	0.000		0.000		-		0.000	0.000	17.129	
DEP Engineering and Operations	WR	NSWCs:Various	12.623	0.000	Dec 2011	0.000		0.000		-		0.000	0.000	12.623	
		Subtotal	29.752	19.701		18.500		8.008		0.000		8.008	0.000	75.961	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	280.954	35.989		41.854		18.040		0.000		18.040			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

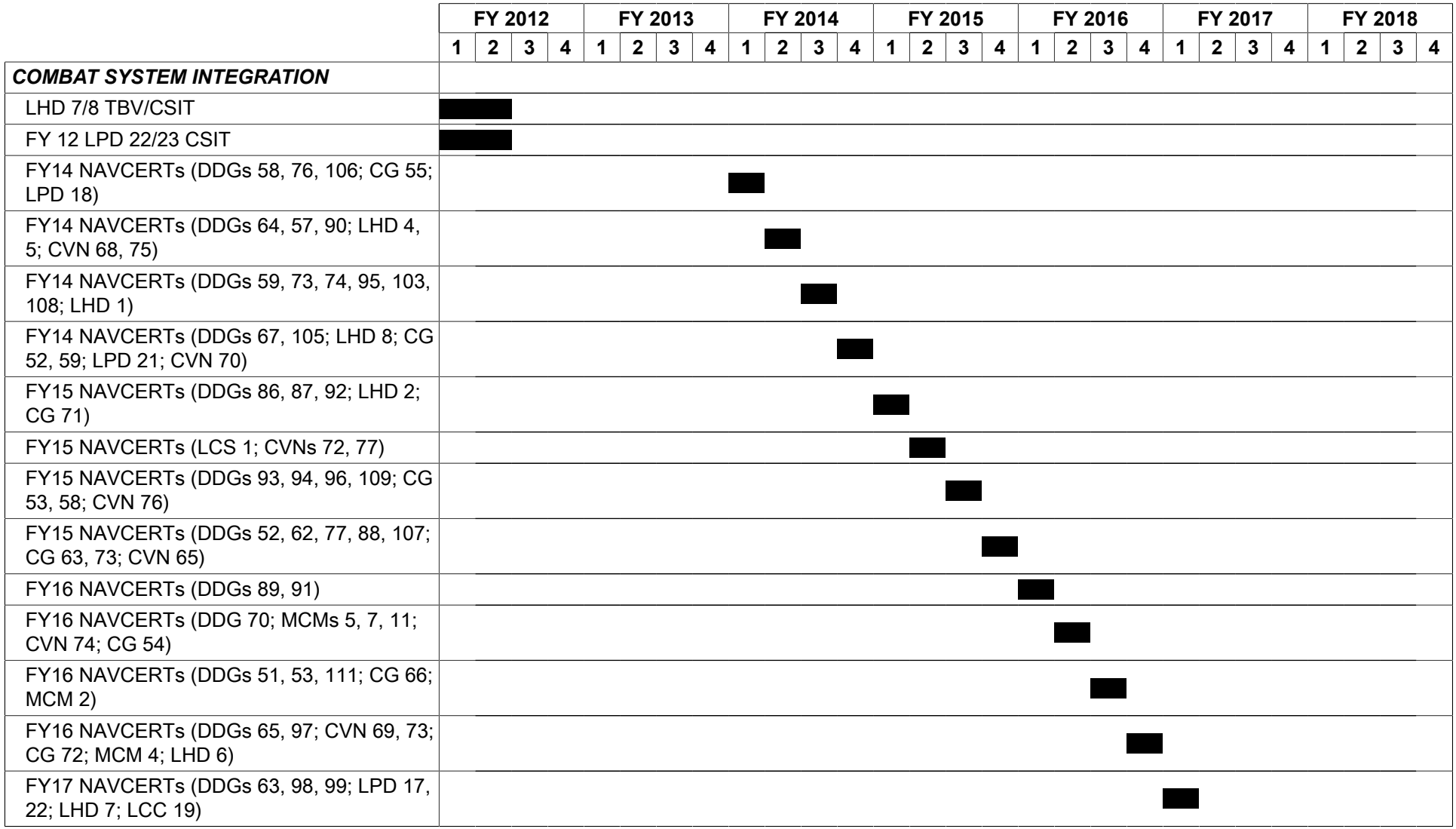


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

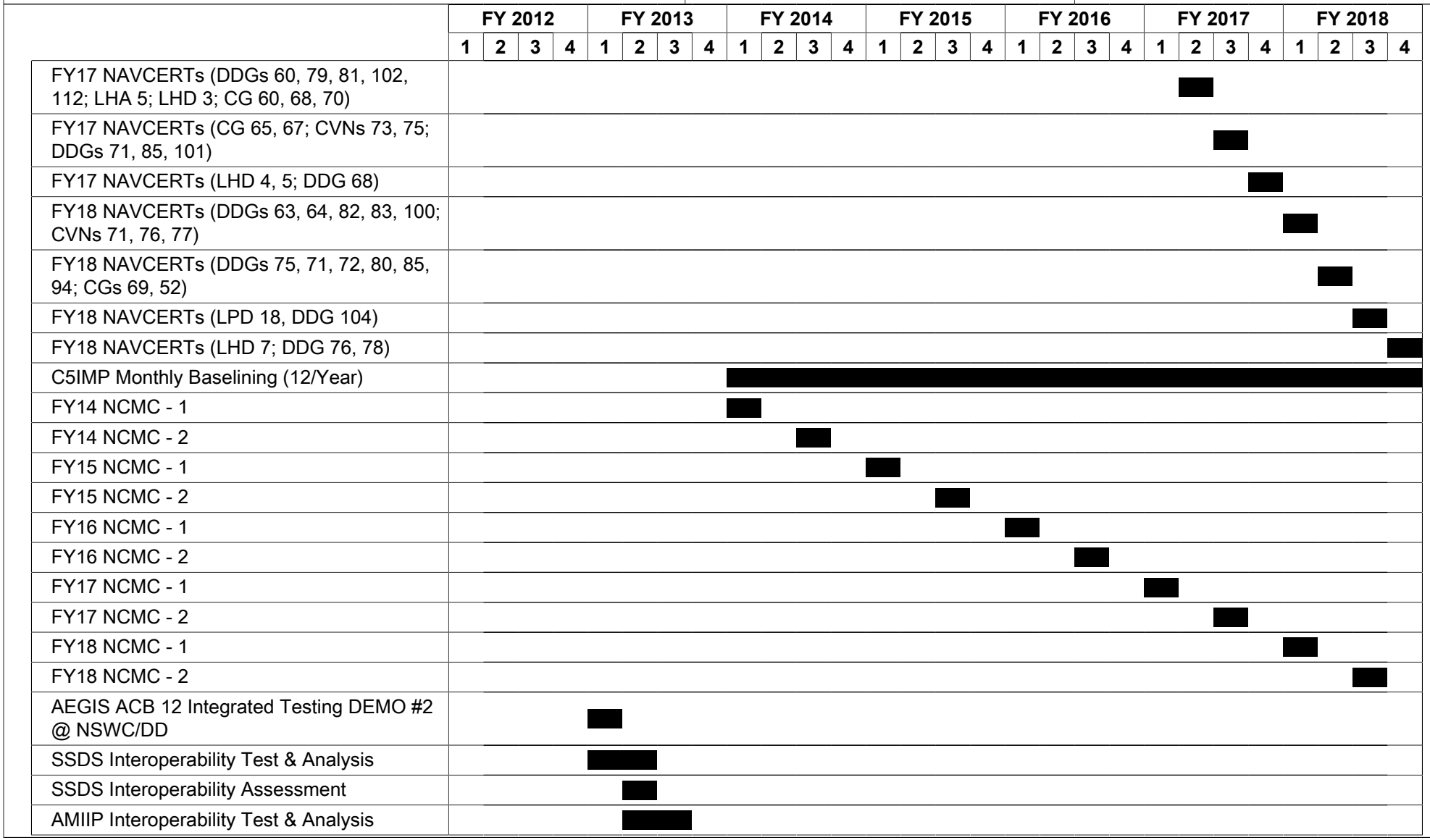


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

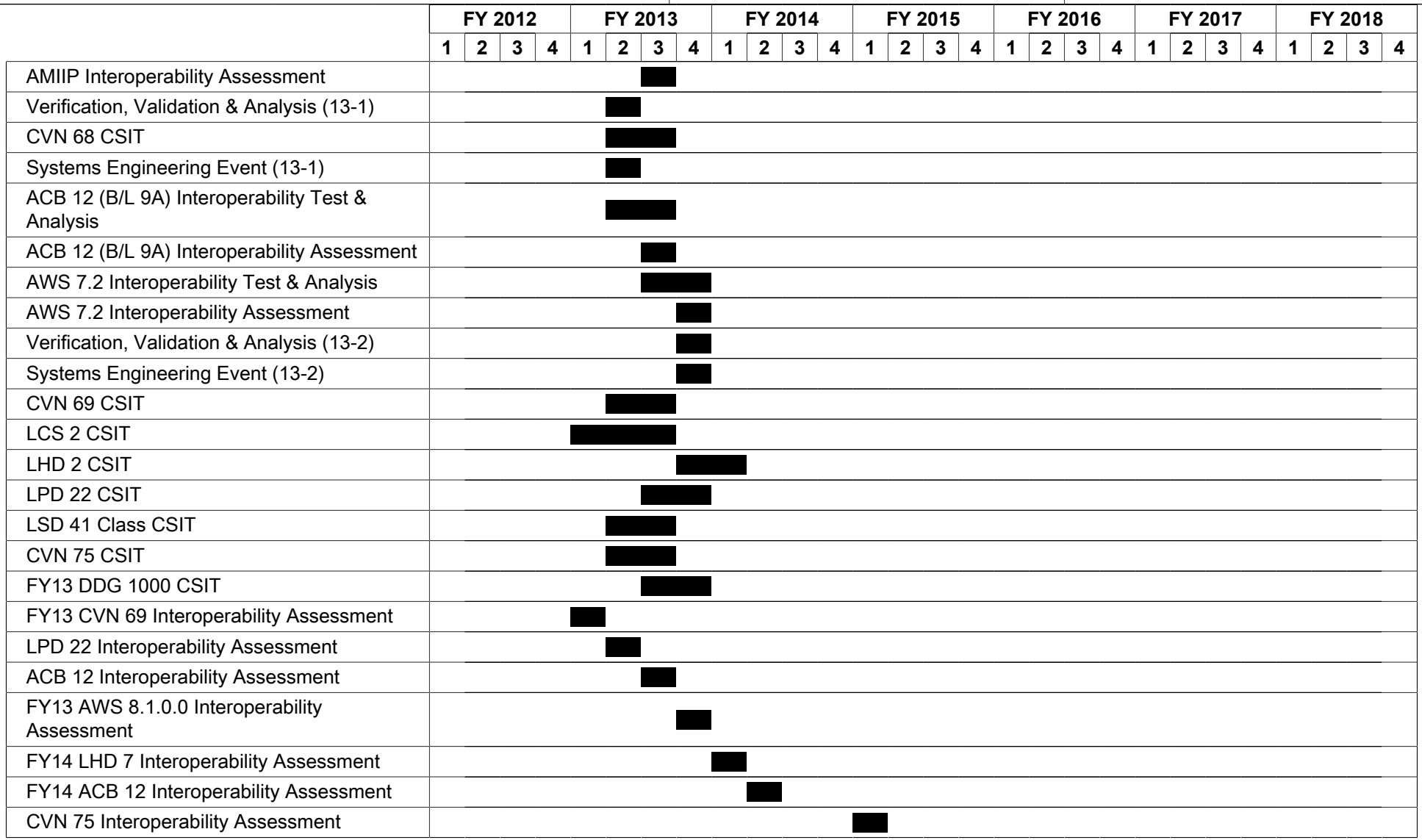


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

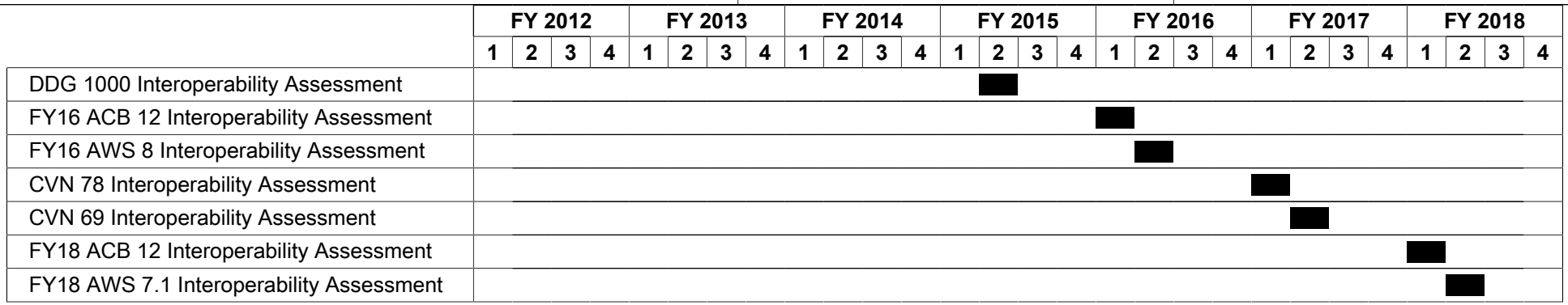


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603582N: *Combat System Integration*	**PROJECT** 0164: *Combat System Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
COMBAT SYSTEM INTEGRATION				
LHD 7/8 TBV/CSIT	1	2012	2	2012
FY 12 LPD 22/23 CSIT	1	2012	2	2012
FY14 NAVCERTs (DDGs 58, 76, 106; CG 55; LPD 18)	1	2014	1	2014
FY14 NAVCERTs (DDGs 64, 57, 90; LHD 4, 5; CVN 68, 75)	2	2014	2	2014
FY14 NAVCERTs (DDGs 59, 73, 74, 95, 103, 108; LHD 1)	3	2014	3	2014
FY14 NAVCERTs (DDGs 67, 105; LHD 8; CG 52, 59; LPD 21; CVN 70)	4	2014	4	2014
FY15 NAVCERTs (DDGs 86, 87, 92; LHD 2; CG 71)	1	2015	1	2015
FY15 NAVCERTs (LCS 1; CVNs 72, 77)	2	2015	2	2015
FY15 NAVCERTs (DDGs 93, 94, 96, 109; CG 53, 58; CVN 76)	3	2015	3	2015
FY15 NAVCERTs (DDGs 52, 62, 77, 88, 107; CG 63, 73; CVN 65)	4	2015	4	2015
FY16 NAVCERTs (DDGs 89, 91)	1	2016	1	2016
FY16 NAVCERTs (DDG 70; MCMs 5, 7, 11; CVN 74; CG 54)	2	2016	2	2016
FY16 NAVCERTs (DDGs 51, 53, 111; CG 66; MCM 2)	3	2016	3	2016
FY16 NAVCERTs (DDGs 65, 97; CVN 69, 73; CG 72; MCM 4; LHD 6)	4	2016	4	2016
FY17 NAVCERTs (DDGs 63, 98, 99; LPD 17, 22; LHD 7; LCC 19)	1	2017	1	2017
FY17 NAVCERTs (DDGs 60, 79, 81, 102, 112; LHA 5; LHD 3; CG 60, 68, 70)	2	2017	2	2017
FY17 NAVCERTs (CG 65, 67; CVNs 73, 75; DDGs 71, 85, 101)	3	2017	3	2017
FY17 NAVCERTs (LHD 4, 5; DDG 68)	4	2017	4	2017
FY18 NAVCERTs (DDGs 63, 64, 82, 83, 100; CVNs 71, 76, 77)	1	2018	1	2018
FY18 NAVCERTs (DDGs 75, 71, 72, 80, 85, 94; CGs 69, 52)	2	2018	2	2018
FY18 NAVCERTs (LPD 18, DDG 104)	3	2018	3	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
FY18 NAVCERTs (LHD 7; DDG 76, 78)	4	2018	4	2018
C5IMP Monthly Baselining (12/Year)	1	2014	4	2018
FY14 NCMC - 1	1	2014	1	2014
FY14 NCMC - 2	3	2014	3	2014
FY15 NCMC - 1	1	2015	1	2015
FY15 NCMC - 2	3	2015	3	2015
FY16 NCMC - 1	1	2016	1	2016
FY16 NCMC - 2	3	2016	3	2016
FY17 NCMC - 1	1	2017	1	2017
FY17 NCMC - 2	3	2017	3	2017
FY18 NCMC - 1	1	2018	1	2018
FY18 NCMC - 2	3	2018	3	2018
AEGIS ACB 12 Integrated Testing DEMO #2 @ NSWC/DD	1	2013	1	2013
SSDS Interoperability Test & Analysis	1	2013	2	2013
SSDS Interoperability Assessment	2	2013	2	2013
AMIIP Interoperability Test & Analysis	2	2013	3	2013
AMIIP Interoperability Assessment	3	2013	3	2013
Verification, Validation & Analysis (13-1)	2	2013	2	2013
CVN 68 CSIT	2	2013	3	2013
Systems Engineering Event (13-1)	2	2013	2	2013
ACB 12 (B/L 9A) Interoperability Test & Analysis	2	2013	3	2013
ACB 12 (B/L 9A) Interoperability Assessment	3	2013	3	2013
AWS 7.2 Interoperability Test & Analysis	3	2013	4	2013
AWS 7.2 Interoperability Assessment	4	2013	4	2013
Verification, Validation & Analysis (13-2)	4	2013	4	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 0164: *Combat System Integration*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Systems Engineering Event (13-2)	4	2013	4	2013
CVN 69 CSIT	2	2013	3	2013
LCS 2 CSIT	1	2013	3	2013
LHD 2 CSIT	4	2013	1	2014
LPD 22 CSIT	3	2013	4	2013
LSD 41 Class CSIT	2	2013	3	2013
CVN 75 CSIT	2	2013	3	2013
FY13 DDG 1000 CSIT	3	2013	4	2013
FY13 CVN 69 Interoperability Assessment	1	2013	1	2013
LPD 22 Interoperability Assessment	2	2013	2	2013
ACB 12 Interoperability Assessment	3	2013	3	2013
FY13 AWS 8.1.0.0 Interoperability Assessment	4	2013	4	2013
FY14 LHD 7 Interoperability Assessment	1	2014	1	2014
FY14 ACB 12 Interoperability Assessment	2	2014	2	2014
CVN 75 Interoperability Assessment	1	2015	1	2015
DDG 1000 Interoperability Assessment	2	2015	2	2015
FY16 ACB 12 Interoperability Assessment	1	2016	1	2016
FY16 AWS 8 Interoperability Assessment	2	2016	2	2016
CVN 78 Interoperability Assessment	1	2017	1	2017
CVN 69 Interoperability Assessment	2	2017	2	2017
FY18 ACB 12 Interoperability Assessment	1	2018	1	2018
FY18 AWS 7.1 Interoperability Assessment	2	2018	2	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 3312: *MTMD-Maritime Theater Missile Defense Forum*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3312: *MTMD-Maritime Theater Missile Defense Forum*	0.000	3.135	4.561	8.525	-	8.525	9.478	9.140	9.385	7.863	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project funds participation in the Maritime Missile Defense Projects Framework Memorandum of Understanding of 2004 (as amended in 2009). Known as the Maritime Theater Missile Defense (MTMD) forum, it promotes interoperability with the Navies of nine participating nations. This project funds participation in several Project Arrangements and includes maritime contribution to the NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) project.

The MTMD forum provides protection against the proliferation of short, medium and long-range Ballistic Missile (BM) and Advanced Anti-Ship Cruise Missile (ASCM) threats through the creation of an interoperable sea-based Integrated Air and Missile Defense (IAMD)capability among coalition nations. This includes protection across the full spectrum of these threats through the enhanced utilization of existing sea-based systems to protect against current threats while progressively improving and developing systems and system-of- systems to effectively counter evolving threats.

MTMD supports USN participation in several MTMD related Project Arrangements and Working Groups including:
(1) Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I) to define and develop architectures as well as to perform engineering to address coalition capability gaps.
(2) Modeling & Simulation (M&S) to establish and maintain a maritime coalition M&S testbed and to perform legacy and future systems simulation testing.
(3) Coalition Distributed Engineering Plant (CDEP) to establish and maintain a maritime coalition Hardware-in-the-Loop Testbed and to conduct CDEP testing.
(4) Open Architecture (OA) to develop Interface Standards and Data Models.
(5) Test Planning and Execution (TPEX) to develop Test Plans, oversee exercise participation and conduct post event data analysis and reporting.
(6) Operational Requirements (OR) to develop a Coalition Maritime Missile Defense Operational Concept Document and to identify operational constraints and tactical constructs surrounding coalition maritime missile defense activities.
(7) Next Generation Infrared Search and Track (IRST) to evaluate commercial-based technologies to develop a passive IRST sensor system in support of coalition maritime missile defense operations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Maritime Theater Missile Defense Forum (MTMD)	3.135	4.561	8.525
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 3312: *MTMD-Maritime Theater Missile Defense Forum*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Description: This project funds participation in the MTMD forum to promote interoperability with participating coalition nations. This project funds participation in the Modeling and Simulation (M&S), Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I), and Coalition Distributed Engineering Plant (CDEP), Test Planning and Execution (TPEX), Open Architecture (OA), Operational Requirements (OR) and Next Generation Infrared Search and Track (IRST) Project Arrangements and working groups. ***FY 2012 Accomplishments:*** MTMD participated in the Modeling and Simulation (M&S), Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I), and Coalition Distributed Engineering Plant (CDEP), Test Planning and Execution (TPEX), Open Architecture (OA), Operational Requirements (OR) and Next Generation Infrared Search and Track (IRST) Project Arrangements and working groups. Funding was used for collaborative development of architectures, engineering, test and evaluation to improve key allies' maritime missile defense interoperability with U.S. Forces and included collation-level Integrated Air and Missile Defense exercises with targets and weapons. ***FY 2013 Plans:*** To participate in the Modeling and Simulation (M&S), Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I), and Coalition Distributed Engineering Plant (CDEP), Test Planning and Execution (TPEX), Open Architecture (OA), Operational Requirements (OR) and Next Generation Infrared Search and Track (IRST) Project Arrangements and working groups. ***FY 2014 Plans:*** To participate in the Modeling and Simulation (M&S), Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I), and Coalition Distributed Engineering Plant (CDEP), Test Planning and Execution (TPEX), Open Architecture (OA), Operational Requirements (OR) and Next Generation Infrared Search and Track (IRST) Project Arrangements and working groups.			
Accomplishments/Planned Programs Subtotals	3.135	4.561	8.525

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 3312: *MTMD-Maritime Theater Missile Defense Forum*

E. Performance Metrics

Quarterly Program Reviews and Baseline Assessments

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 3312: *MTMD-Maritime Theater Missile Defense Forum*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Maritime Theater Missile Defense Forum	WR	Various NWCSs:Dam Neck/ Dahlgren/Corona	0.000	1.997	Dec 2011	2.995	Dec 2012	5.632	Sep 2014	-		5.632	Continuing	Continuing	Continuing
Maritime Theater Missile Defense Forum	C/FFP	Various Contracts:SAIC/ EG&G/NOVONICS/ TASC/BCI/JHU APL	0.000	1.138	Dec 2011	1.566	Dec 2012	2.893	Sep 2014	-		2.893	0.000	5.597	
		Subtotal	0.000	3.135		4.561		8.525		0.000		8.525			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	3.135		4.561		8.525		0.000		8.525			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603582N: *Combat System Integration*	**PROJECT** 3312: *MTMD-Maritime Theater Missile Defense Forum*

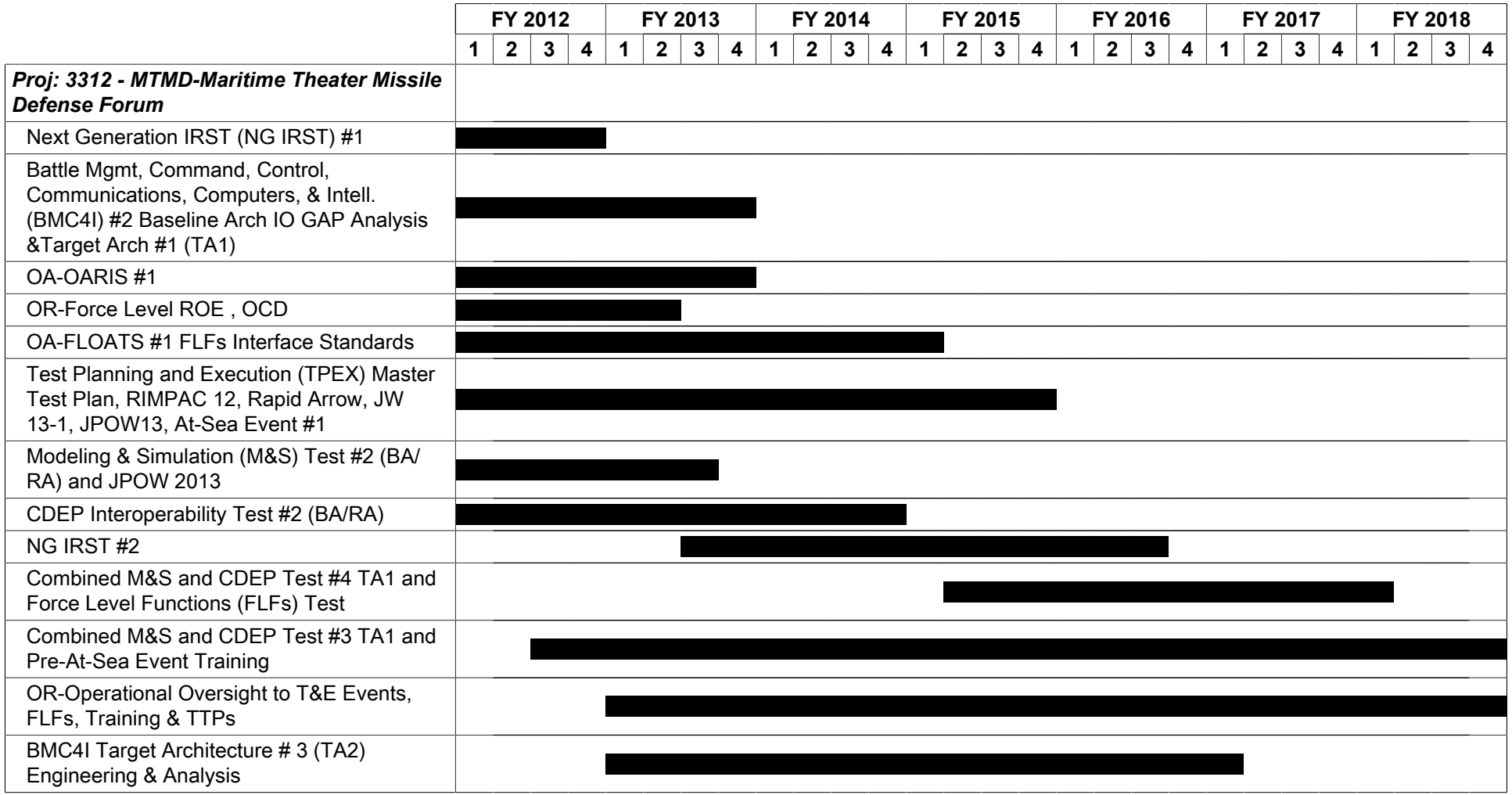


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 3312: *MTMD-Maritime Theater Missile Defense Forum*

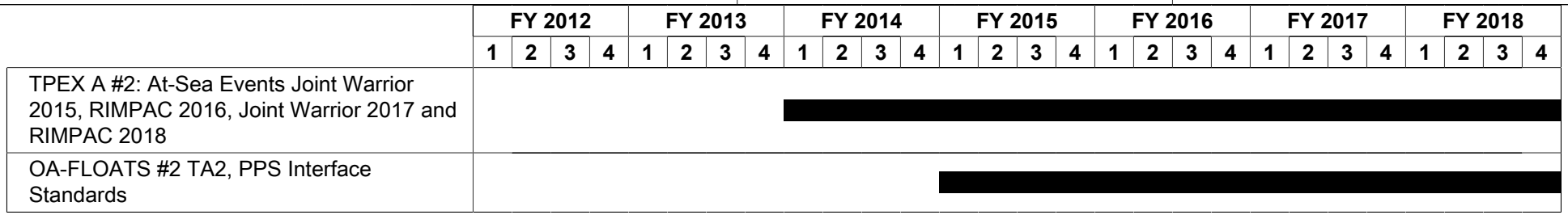


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 3312: *MTMD-Maritime Theater Missile Defense Forum*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj: 3312 - MTMD-Maritime Theater Missile Defense Forum				
Next Generation IRST (NG IRST) #1	1	2012	4	2012
Battle Mgmt, Command, Control, Communications, Computers, & Intell. (BMC4I) #2 Baseline Arch IO GAP Analysis &Target Arch #1 (TA1)	1	2012	4	2013
OA-OARIS #1	1	2012	4	2013
OR-Force Level ROE , OCD	1	2012	2	2013
OA-FLOATS #1 FLFs Interface Standards	1	2012	1	2015
Test Planning and Execution (TPEX) Master Test Plan, RIMPAC 12, Rapid Arrow, JW 13-1, JPOW13, At-Sea Event #1	1	2012	4	2015
Modeling & Simulation (M&S) Test #2 (BA/RA) and JPOW 2013	1	2012	3	2013
CDEP Interoperability Test #2 (BA/RA)	1	2012	4	2014
NG IRST #2	3	2013	3	2016
Combined M&S and CDEP Test #4 TA1 and Force Level Functions (FLFs) Test	2	2015	1	2018
Combined M&S and CDEP Test #3 TA1 and Pre-At-Sea Event Training	3	2012	4	2018
OR-Operational Oversight to T&E Events, FLFs, Training & TTPs	1	2013	4	2018
BMC4I Target Architecture # 3 (TA2) Engineering & Analysis	1	2013	1	2017
TPEX A #2: At-Sea Events Joint Warrior 2015, RIMPAC 2016, Joint Warrior 2017 and RIMPAC 2018	1	2014	4	2018
OA-FLOATS #2 TA2, PPS Interface Standards	1	2015	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 9B88: *Automated Test and Re-Test*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
9B88: *Automated Test and Re-Test*	0.000	9.875	10.136	10.005	-	10.005	8.124	8.236	8.411	8.552	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Navy, through Automated Test and Re-Test (ATRT) is developing an automated test/analysis capability, which is applicable at phases within system development and integration which provides reproducible and quantitative evaluation of system performance with reduced levels of effort and schedule in order to support one of the Navy's priority initiatives of reduction of Total Ownership Cost (TOC). Funding will provide additional work towards ongoing testing and analysis efforts within the Combat Systems Integration Testing (CSIT), formerly known as Warfare Systems Integration and Interoperability Testing (WSI2T), AEGIS Combat System Advanced Capability Build (ACB) 12, Antisubmarine Warfare Integrated Common Processor/Acoustic Rapid COTS Insertion, the Littoral Combat Ship (LCS) Mission Module development and other major acquisition programs. In addition, funding will support the development of standards, specifications, and guidance to facilitate NAVSEA-affiliated programs' adoption of this TOC-reducing discipline and technology.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Automated Test and Re-Test	9.875	10.136	10.005
Articles:	0	0	0

Description: The Navy, through Automated Test and Re-Test (ATRT) is developing an automated test/analysis capability, which is applicable at phases within system development and integration which provides reproducible and quantitative evaluation of system performance with reduced levels of effort and schedule in order to support one of the Navy's priority initiatives of reduction of Total Ownership Cost (TOC). Funding will provide additional work towards ongoing testing and analysis efforts within the Combat Systems Integration Testing (CSIT), formerly known as Warfare Systems Integration and Interoperability Testing (WSI2T), AEGIS Combat System Advanced Capability Build (ACB) 12, Antisubmarine Warfare Integrated Common Processor/Acoustic Rapid COTS Insertion, the Littoral Combat Ship (LCS) Mission Module development and other major acquisition programs. In addition, funding will support the development of standards, specifications, and guidance to facilitate NAVSEA-affiliated programs' adoption of this TOC-reducing discipline and technology.

FY 2012 Accomplishments:

The ATRT program will be concluding (6) FY 2011 ATRT implementation projects throughout NAVSEA - affiliated PEOs. The ATRT program has continued to lead and advocate the development of automating testing standards, specifications, and contract language. There are currently (12) FY 2012 efforts in process for award and execution through PEO SHIPS, PEO CARRIERS,

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 9B88: *Automated Test and Re-Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
PEO SUB, PEO IWS, PEO LCS, NAVSEA 05, and NAVSEA Warfare Centers. The ATRT program has continued to promote ATRT applications across NAVSEA - affiliated PEOs, with the intent of transitioning further development of the ATRT applications out of NAVSEA 05 program office funds. ***FY 2013 Plans:*** The ATRT program will continue to provide funding for investments in seed projects to implement ATRT within existing test processes in programs across NAVSEA. In parallel, the program will facilitate the development standards, specifications, and guidance for the use of ATRT tools and processes. With the recent engagement of other SYSCOMs in ATRT, a community of practice is gradually being developed across the system commands as the automated testing community becomes more engaged in the discipline. ***FY 2014 Plans:*** The ATRT program will continue to increase the number of ATRT pilot programs with the result of accelerating ATRT implementation as part of acquisition program development. Also, the ATRT program will continue to advocate the maturation/ development of standards, specifications, and contract language that would improve test tool commonality and reuse across the Navy T&E domains.			
Accomplishments/Planned Programs Subtotals	9.875	10.136	10.005

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Program Strategy for the ATRT program includes the following:

- Investigation of applicable similarities to industry standards, specifications, and processes that are relevant to ATRT program to recognize best practices and leverage opportunities
- Development of standards and specifications for ATRT tools/processes
- Funding and execution of ATRT startup projects within acquisition programs per submission of proposals and Business Case Analyses (BCA)
- Development of training and outreach efforts to promote awareness of automated testing and analysis body of knowledge and available tools/processes
- Setup and maintain an ATRT portal for the collection and dissemination of body of knowledge
- Produce Contract Language Guidebook for ATRT

E. Performance Metrics

Progress towards meeting the objectives of the ATRT efforts will be monitored via the following:

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 9B88: *Automated Test and Re-Test*

- Progress Briefs at Quarterly ATRT Stakeholders Meetings
- Program Technical Reviews
- Return on Investment (ROI) metrics based on testing and analysis level of effort (LOE) - before and after implementation of ATRT
- Return on Investment Metrics based on work hours for test process execution - before and after automation

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 9B88: *Automated Test and Re-Test*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Auto Test Retest	C/CPFF	Innovative Defense Technologies (IDT):Ballston, VA	0.000	9.056	Dec 2011	9.090	Dec 2012	9.005	Sep 2014	-		9.005	0.000	27.151	
Auto Test Retest	WR	Various NSWCs:Not Specified	0.000	0.779	Dec 2011	0.842	Dec 2012	0.800	Sep 2014	-		0.800	0.000	2.421	
		Subtotal	0.000	9.835		9.932		9.805		0.000		9.805	0.000	29.572	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Auto Test & Retest	C/CPFF	Gryphon Technologies:Herndon, VA	0.000	0.040	Dec 2011	0.204	Dec 2012	0.200	Sep 2014	-		0.200	Continuing	Continuing	Continuing
		Subtotal	0.000	0.040		0.204		0.200		0.000		0.200			

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	9.875		10.136		10.005		0.000		10.005			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603582N: *Combat System Integration*	PROJECT 9B88: *Automated Test and Re-Test*

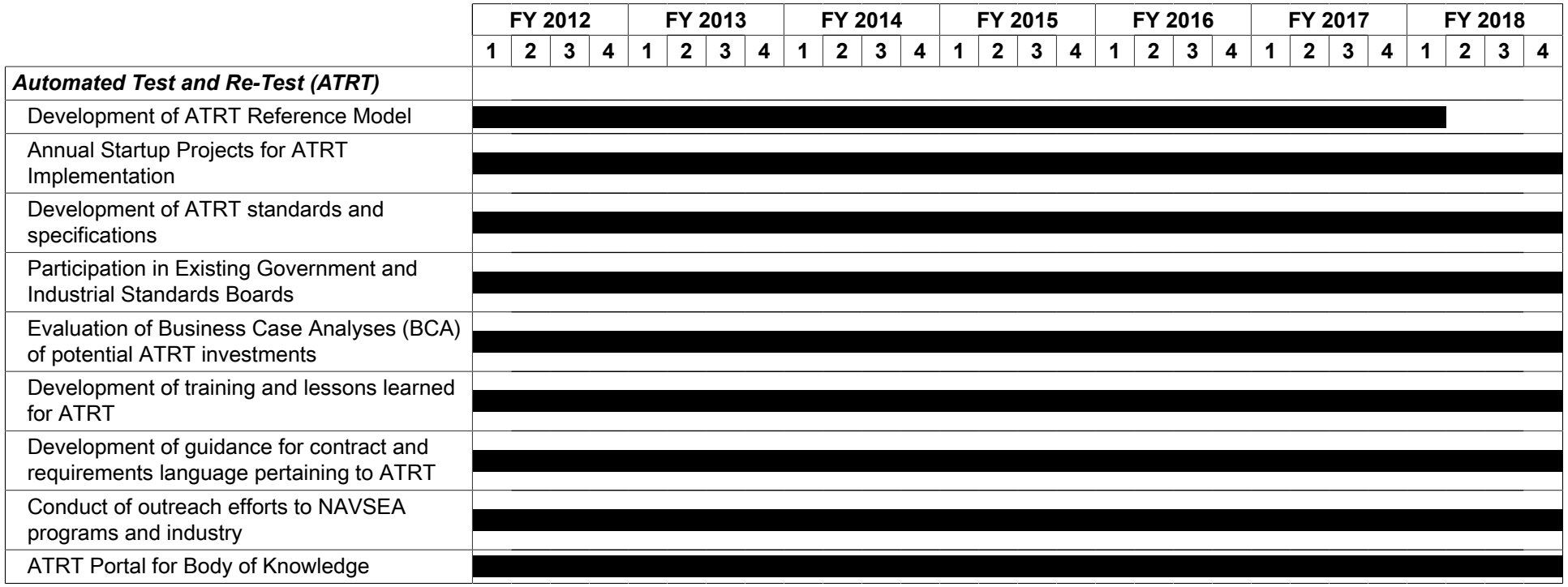


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603582N: *Combat System Integration*	**PROJECT** 9B88: *Automated Test and Re-Test*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Automated Test and Re-Test (ATRT)				
Development of ATRT Reference Model	1	2012	1	2018
Annual Startup Projects for ATRT Implementation	1	2012	4	2018
Development of ATRT standards and specifications	1	2012	4	2018
Participation in Existing Government and Industrial Standards Boards	1	2012	4	2018
Evaluation of Business Case Analyses (BCA) of potential ATRT investments	1	2012	4	2018
Development of training and lessons learned for ATRT	1	2012	4	2018
Development of guidance for contract and requirements language pertaining to ATRT	1	2012	4	2018
Conduct of outreach efforts to NAVSEA programs and industry	1	2012	4	2018
ATRT Portal for Body of Knowledge	1	2012	4	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603609N: *Conventional Munitions*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	195.377	4.660	7.342	8.404	-	8.404	8.548	9.428	8.680	8.804	Continuing	Continuing
0363: *Insensitive Munitions Adv. Development*	195.377	4.660	7.342	8.404	-	8.404	8.548	9.428	8.680	8.804	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock and bullet or fragment impact, thus presenting a great hazard to ships, aircraft and personnel. The Insensitive Munitions Advanced Development (IMAD) program will provide, validate, and transition technology to all new weapon developments and priority weapon systems and enable production of munitions insensitive to these stimuli with no reduction in combat performance. Insensitive Munitions (IM) is the Navy's focused effort on propellants, propulsion units, explosives, warheads, fuses and pyrotechnics to reduce the severity of cook-off and bullet/ fragment impact reactions, minimizing the probability for sympathetic detonation, both in normal storage and in use, increasing ship and platform survivability and satisfying performance and readiness requirements.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	4.753	7.342	8.513	-	8.513
Current President's Budget	4.660	7.342	8.404	-	8.404
Total Adjustments	-0.093	0.000	-0.109	-	-0.109
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.093	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.109	-	-0.109

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603609N: *Conventional Munitions*	PROJECT 0363: *Insensitive Munitions Adv. Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0363: *Insensitive Munitions Adv. Development*	195.377	4.660	7.342	8.404	-	8.404	8.548	9.428	8.680	8.804	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Each technology area is divided into subtasks addressing specific munition/munition class IM deficiencies. Energetic materials producibility is demonstrated to assure national capability to produce and load munitions systems. The program leverages are being closely coordinated with other Military Departments, North Atlantic Treaty organization (NATO) and allied countries to eliminate redundant efforts and maximize efficiency. A joint service IM requirement has been developed and through the IM Strategic Planning process, all PEO's are implementing IM in their priority munitions. Insensitive munitions are identified as a DoD critical technology requirement and considered as part of a weapon design. The IMAD program matures the technology developed by a variety of Science and Technology (S&T) sources for program management integration into weapons systems to meet the IM technical deficiencies documented in the PEO IM Strategic Plans. IMAD provides the link between S&T programs and the PMs by optimizing IM technologies to meet Navy requirements. IMAD offers risk mitigation for the PMs in terms of IM technical knowledge, expertise and manpower with the State of the Art expertise across IM products. Each technology area is divided into subtasks addressing specific munition and munition class IM deficiencies.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Insensitive Munitions Adv. Development	4.660	7.342	8.404
Articles:	0	0	0
Description: Validate and assess weapon systems POA&M's for IM compliance. Review Insensitive Munitions Strategic Plan (IMSP) for Navy Compile and analyze weapon system, energetic material and generic technology IM test data. Perform Threat Hazard Assessments (THAs). Perform analysis of Energetic Material properties logistic process. Review IM Certification and Waivers. Support Insensitive Munitions Council (IMC), Insensitive Munitions Coordination Group (IMCG), and IMC Working Group. Support and develop Insensitive Munitions Technology Tool (IMT2). Support North Atlantic Treaty Organization Standardization Agreement (NATO STANAG) and Advanced Operations (AOP) development. Support IMAD program briefs. Support all Navy Joint Services Insensitive Munitions Technical Panel (JSIMTP) meetings. Support Explosive Safety Working Group (ESWG) meetings. Provide task management support for financial management, review of programmatic deliverables and overall task coordination.			
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603609N: *Conventional Munitions*	PROJECT 0363: *Insensitive Munitions Adv. Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Evaluate and demonstrate IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combine candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Demonstrate an insensitive multi-mission, high performance rocket motor. Evaluate options for minimum smoke propellants for shoulder launched applications. Evaluated and demonstrated IM boost propellant formulation for future Tomahawk systems which provide improved and comparable performance to in-service systems and better IM characteristics. Combined candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Design a composite booster case for Tomahawk which will improve IM performance for cookoff and impact scenarios. Demonstrate new formulations that will self extinguish while maintaining performance for Advanced Medium-Range Air to Air Missile (AMRAAM), Sidewinder and other air launched systems. Look at new ways to develop rocket propellant formulations that meet performance requirements and solve IM deficiencies. IM problems resolution using top down approach.Evaluate ordnance and container concepts. Model applications that reduce and enhance IM warhead design. Assess the operations utility of current and projected IM improvements to determine current state of IM and prioritize future funding for IM technology. Assess shielding evaluation of Tomahawk VLS storage canister. New cooperative effort with Advanced Gun System (AGS) Long Range Land Attack Projectile (LRLAP) to review modeling to solve impact and cookoff with AUR pallet.			
FY 2013 Plans: Evaluate and demonstrate IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combine candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Demonstrate an insensitive multi-mission, high performance rocket motor. Evaluate options for minimum smoke propellants for shoulder launched applications. Evaluate and demonstrate IM boost propellant formulation for future Tomahawk systems providing improved and comparable performance to in-service systems and better IM characteristics. Assess combined candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Design a composite booster case for Tomahawk which will improve IM performance for cook-off and impact scenarios. Demonstrate new formulations that will self extinguish while maintaining performance for AMRAAM, Sidewinder and other air launched systems. Look at new ways to develop rocket propellant formulations that meet performance requirements and solve IM deficiencies. Resolve IM problems using top down approach. Evaluate ordnance and container concepts. Model applications that could reduce and enhance IM warhead container design. Assess the operations utility of current and projected IM improvements to determine current state of IM and prioritize future funding for IM technology. Assess shielding evaluation of Tomahawk VLS storage canister. Review modeling to solve impact and cook-off with AUR pallet in support of a cooperative effort with AGS LRLAP. The technical focus is on new weapons and product improvement programs (PIP). IMAD works collaboratively with the Joint IM Technology Program (JIMTP) to transition JIMTP's S&T products to address PEO IM requirements. The PEOs IM Strategic Plans (IMSPs) provide a comprehensive IM technology requirements list that helps to focus IM technology thrusts throughout DoD.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603609N: *Conventional Munitions*	PROJECT 0363: *Insensitive Munitions Adv. Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Additionally, in FY 2013 the program will evaluate and demonstrate MK54 Vertical Launched Anti-Submarine Rocket (ASROC) (VLA) solid propellant rocket IM capabilities that meet performance. Demonstrate and qualify Tomahawk weapon systems to include improved booster explosives and insensitive metalized propellants that are IM compliant. Evaluation of all issues and concerns related to heated RDX discoloration. Perform demonstration and qualification testing of AMRAAM and Sidewinder for Joint Insensitive Munitions to improve response to combat and hazards. Evaluate and provide a modular ballistic shield for protection of Navy Munitions. Assess characterization of Micro-Electro-Mechanical System (MEMS) in support of IM Navy qualifications. Demonstrate and qualify Insensitive Primer for large caliber gun propellant charges.			
FY 2014 Plans: Evaluate and demonstrate IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combine candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Demonstrate an insensitive multi-mission, high performance rocket motor. Evaluate options for minimum smoke propellants for shoulder launched applications. Evaluate and demonstrate IM boost propellant formulation for future Tomahawk systems providing improved and comparable performance to in-service systems and better IM characteristics. Assess combined candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Design a composite booster case for Tomahawk which will improve IM performance for cook-off and impact scenarios. Look at new ways to develop rocket propellant formulations that meet performance requirements and solve IM deficiencies. Resolve IM problems using top down approach. Evaluate ordnance and container concepts. Assess the operations utility of current and projected IM improvements to determine current state of IM and prioritize future funding for IM technology. Assess shielding evaluation of Tomahawk VLS storage canister. Review modeling to solve impact and cook-off with AUR pallet in support of a cooperative effort with AGS) LRLAP. The technical focus is on new weapons and PIP. Evaluate and demonstrate MK54 ASROC VLA) solid propellant rocket IM capabilities that meet performance. Demonstrate and qualify improved booster explosives and insensitive metalized propellants that are IM compliant for Tomahawk weapon systems. Evaluation of all issues and concerns related to heated RDX discoloration. Perform demonstration and qualification testing of AMRAAM and Sidewinder for Joint Insensitive Munitions to improve response to combat and hazards. Evaluate and provide a modular ballistic shield for protection of Navy Munitions. Assess characterization of MEMS in support of IM Navy qualifications. Demonstrate and qualify Insensitive Primer for large caliber gun propellant charges. IMAD works collaboratively with the JIMTP to transition JIMTP's S&T products to address PEO IM requirements. The PEOs IMSPs provide a comprehensive IM technology requirements list that helps to focus IM technology thrusts throughout DoD. Additional resources are necessary in FY 2014 to support the additional efforts such as: the demonstration and qualification of IM improved booster explosive for GP Bombs; the demonstration and qualification of Insensitive Metalized propellants in			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603609N: *Conventional Munitions*	PROJECT 0363: *Insensitive Munitions Adv. Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
IM compliant rocket motors for High Performance Systems such as Standard Missile and Tomahawk; and to perform process development of cook-off resistant Thermoplastic Plastomer (TPE) Explosives a potential replacement for all explosives.			
Accomplishments/Planned Programs Subtotals	4.660	7.342	8.404

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

IMAD is assigned as a Non-ACAT program and therefore does not have program milestones like the ACAT I to IV programs. IMAD develops and evaluates IM technologies for use in Navy weapon systems and is not part of a particular weapon acquisition program.

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603609N: *Conventional Munitions*	PROJECT 0363: *Insensitive Munitions Adv. Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PROPULSION DEV. AND EVAL.	WR	NAWC DIV/CHINA LAKE:WX	90.125	1.016	Nov 2011	1.655	Nov 2012	2.191	Nov 2013	-		2.191	Continuing	Continuing	Continuing
EXPLOSIVES DEV. AND EVAL.	WR	NSWC/INDIAN HEAD DIV.:WX	75.006	1.200	Nov 2011	2.364	Nov 2012	2.295	Nov 2013	-		2.295	Continuing	Continuing	Continuing
ORDNANCE DEV. AND EVAL.	WR	NSWC/ DAHLGREN:WX	21.282	0.814	Nov 2011	0.654	Nov 2012	1.397	Nov 2013	-		1.397	Continuing	Continuing	Continuing
GUN PROPULSION AND EVAL.	WR	NSWC/INDIAN HEAD DIV.:WX	2.952	0.674	Nov 2011	1.718	Nov 2012	1.573	Nov 2013	-		1.573	Continuing	Continuing	Continuing
		Subtotal	189.365	3.704		6.391		7.456		0.000		7.456			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PROGRAM MANAGEMENT SUPT	WR	NOSSA:IN HEAD MD	5.227	0.275	Nov 2011	0.151	Nov 2012	0.156	Nov 2013	-		0.156	Continuing	Continuing	Continuing
PROGRAM MANAGEMENT SUPPORT	MIPR	DTIC:FT BELVOIR VA	0.785	0.681	Nov 2011	0.800	Nov 2012	0.792	Nov 2013	-		0.792	Continuing	Continuing	Continuing
		Subtotal	6.012	0.956		0.951		0.948		0.000		0.948			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	195.377	4.660		7.342		8.404		0.000		8.404			

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603611M: *Marine Corps Assault Vehicles*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	37.000	95.182	136.967	-	136.967	275.760	387.437	134.591	124.176	Continuing	Continuing
0025: *New Amphibious Vehicle*	0.000	12.000	95.182	136.967	-	136.967	275.760	387.437	134.591	124.176	Continuing	Continuing
9999: *Congressional Adds*	0.000	25.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	25.000

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This Program Element (PE) includes funds for the the Amphibious Combat Vehicle (ACV) Programs.

C0025: The Amphibious Combat Vehicle (ACV) program meets the Marine Corps' requirement for self-deploying, fully amphibious vehicles in order to maintain the Marine Corps' amphibious forcible entry capability. The ACV will be included as part of the Marine Corps' integrated and complementary portfolio of combat vehicles critical to the future expeditionary Marine Air Ground Task Force (MAGTF) operations.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	37.000	95.182	149.871	-	149.871
Current President's Budget	37.000	95.182	136.967	-	136.967
Total Adjustments	0.000	0.000	-12.904	-	-12.904
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-0.719	-	-0.719
• Rate/Misc Adjustments	0.000	0.000	-12.185	-	-12.185

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2012	FY 2013
Project: 9999: *Congressional Adds*		
Congressional Add: *New Amphibious Vehicle (Cong)*	25.000	-
Congressional Add Subtotals for Project: 9999	25.000	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603611M: *Marine Corps Assault Vehicles*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2012	FY 2013
Congressional Add Totals for all Projects	25.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603611M: *Marine Corps Assault Vehicles*	PROJECT 0025: *New Amphibious Vehicle*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0025: *New Amphibious Vehicle*	0.000	12.000	95.182	136.967	-	136.967	275.760	387.437	134.591	124.176	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Amphibious Combat Vehicle (ACV) program meets the Marine Corps' requirement for self-deploying, fully amphibious vehicles, in order to maintain an amphibious forcible entry capability. The ACV will be included as part of the Marine Corps' integrated and complementary portfolio of combat vehicles critical to the future expeditionary Marine Air Ground Task Force (MAGTF) operations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Product Development	8.456	89.819	127.720
Articles:	0	0	0

Description: System Design and Development.

FY 2012 Accomplishments:

Technology integration and demonstration. Technical evaluation and engineering for digital integration architecture and facilitization.

Program awarded four Hull Survivability Demonstrator (HSD) FFP contracts.

FY 2013 Plans:

Continue HSD activities to include prototype fabrication and testing. Award "Phase 1" contract for ACV requirements definition to include identification of requirements trade-space, development of "baseline" technical parameters, and establishment of a common analytical framework for developing and evaluating concept design alternatives.

Technology maturation, integration, and demonstration efforts. Provide technical assessment and engineering for digital integration architecture and facilitization.

FY 2014 Plans:

Award "Phase 2" contract for ACV concept development to include development and evaluation of ACV concept design alternatives for a survivable, high-water speed Amphibious Combat Vehicle.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603611M: *Marine Corps Assault Vehicles*	PROJECT 0025: *New Amphibious Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Technology maturation, integration, and demonstration efforts. Provide technical assessment and engineering for digital integration architecture and facilitization.			
Title: Test & Evaluation	1.069	0.000	2.000
Articles:	0		0
Description: Provides funds for developmental testing. ***FY 2012 Accomplishments:*** Completed Buoyancy and RAM testing to establish a baseline reliability assessment. ***FY 2014 Plans:*** Perform concept technology testing.			
Title: Contractor Support	1.935	5.097	7.012
Articles:	0	0	0
Description: Contract Advisory & Asst Services (CA&AS) provides contractor engineering and technical services and management support services for program planning, analysis and execution; acquisition documentation development; and development of an Analysis of Alternatives (AOA). ***FY 2012 Accomplishments:*** Provided contractor technical and management support for program planning, analysis and execution including acquisition documentation development and development of an Analysis of Alternatives (AOA). Provided engineering and technical services in support of Hull Survivability Demonstrator design and analysis and engineering support for vehicle integration architecture prototyping. ***FY 2013 Plans:*** Continue support of HSD activities. Provide engineering and technical services in support of technology integration and demonstration activities, and support of requirements definition efforts. Continue providing contractor engineering and management support for program planning, analysis, and execution. ***FY 2014 Plans:*** Continue engineering and technical services in support of technology integration and demonstration activities, and concept development efforts. Continue contractor engineering and management support for program planning, analysis, and execution, including development of a supplemental AoA.			
Title: Program Support	0.540	0.266	0.235
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603611M: *Marine Corps Assault Vehicles*	PROJECT 0025: *New Amphibious Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Description: Program Support provides program management support for training development, technical publications and Interactive Electronic Technical Manual (IETMs) in support of program planning, analysis and execution. ***FY 2012 Accomplishments:*** Provide program management support for technology integration and demonstration efforts for training development, technical publications and IETMs in support of program planning, analysis and execution. Perform travel in support of program requirements. ***FY 2013 Plans:*** Provide transportation/shipment of government equipment in support of HSD test activiteis. Perform travel in support of program requirements. ***FY 2014 Plans:*** Provide transportation/shipment of government equipment in support of HSD test activiteis. Perform travel in support of program requirements.			
Accomplishments/Planned Programs Subtotals	12.000	95.182	136.967

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The ACV acquisition strategy includes three phases including requirements definition (Phase 1), concept development (Phase 2), and detailed design (Phase 3) followed by Engineering & Manufacturing Development. The approach leverages mature technological capabilities gained through EFV development and includes models, simulation, and advanced technology research to optimize vehicle design while controlling vehicle cost.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603611M: *Marine Corps Assault Vehicles*	PROJECT 0025: *New Amphibious Vehicle*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Design & Development	C/FPIF	Various:TBD	0.000	0.000		0.000		122.120	Oct 2013	-		122.120	Continuing	Continuing	Continuing
Other Product Development (HSD)	C/FFP	Various:2 BAE/ GDLS/SAIC	0.000	0.000		17.697	Oct 2013	0.000		-		0.000	Continuing	Continuing	Continuing
Other Product Development	C/FFP	Various:TBD	0.000	0.000		70.320	Mar 2013	0.000		-		0.000	0.000	70.320	
Architecture Development	WR	Various:Various	0.000	8.456	Feb 2012	1.802	Jan 2013	5.600	Jan 2014	-		5.600	Continuing	Continuing	Continuing
		Subtotal	0.000	8.456		89.819		127.720		0.000		127.720			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistic Support	WR	Various:Various	0.000	0.962	Jun 2012	0.091	Jan 2013	0.060	Jan 2014	-		0.060	Continuing	Continuing	Continuing
		Subtotal	0.000	0.962		0.091		0.060		0.000		0.060			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	Various	various:various	0.000	1.069	Sep 2012	0.000	Jan 2013	2.000	Jun 2014	-		2.000	Continuing	Continuing	Continuing
		Subtotal	0.000	1.069		0.000		2.000		0.000		2.000			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Services	C/FP	Various:Various	0.000	1.032	May 2012	2.756	Jan 2013	3.512	Jan 2014	-		3.512	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603611M: *Marine Corps Assault Vehicles*	PROJECT 0025: *New Amphibious Vehicle*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Support Services	C/FFP	MCSC:Quantico, VA	0.000	0.000	Apr 2012	2.341	Apr 2013	3.500	Jan 2014	-		3.500	Continuing	Continuing	Continuing
Program Management Support	Various	Various:Various	0.000	0.057	Apr 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Travel	Various	Various:Various	0.000	0.424	Jan 2012	0.175	Jan 2013	0.175	Jan 2014	-		0.175	Continuing	Continuing	Continuing
		Subtotal	0.000	1.513		5.272		7.187		0.000		7.187			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	12.000		95.182		136.967		0.000		136.967			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603611M: *Marine Corps Assault Vehicles*	PROJECT 0025: *New Amphibious Vehicle*

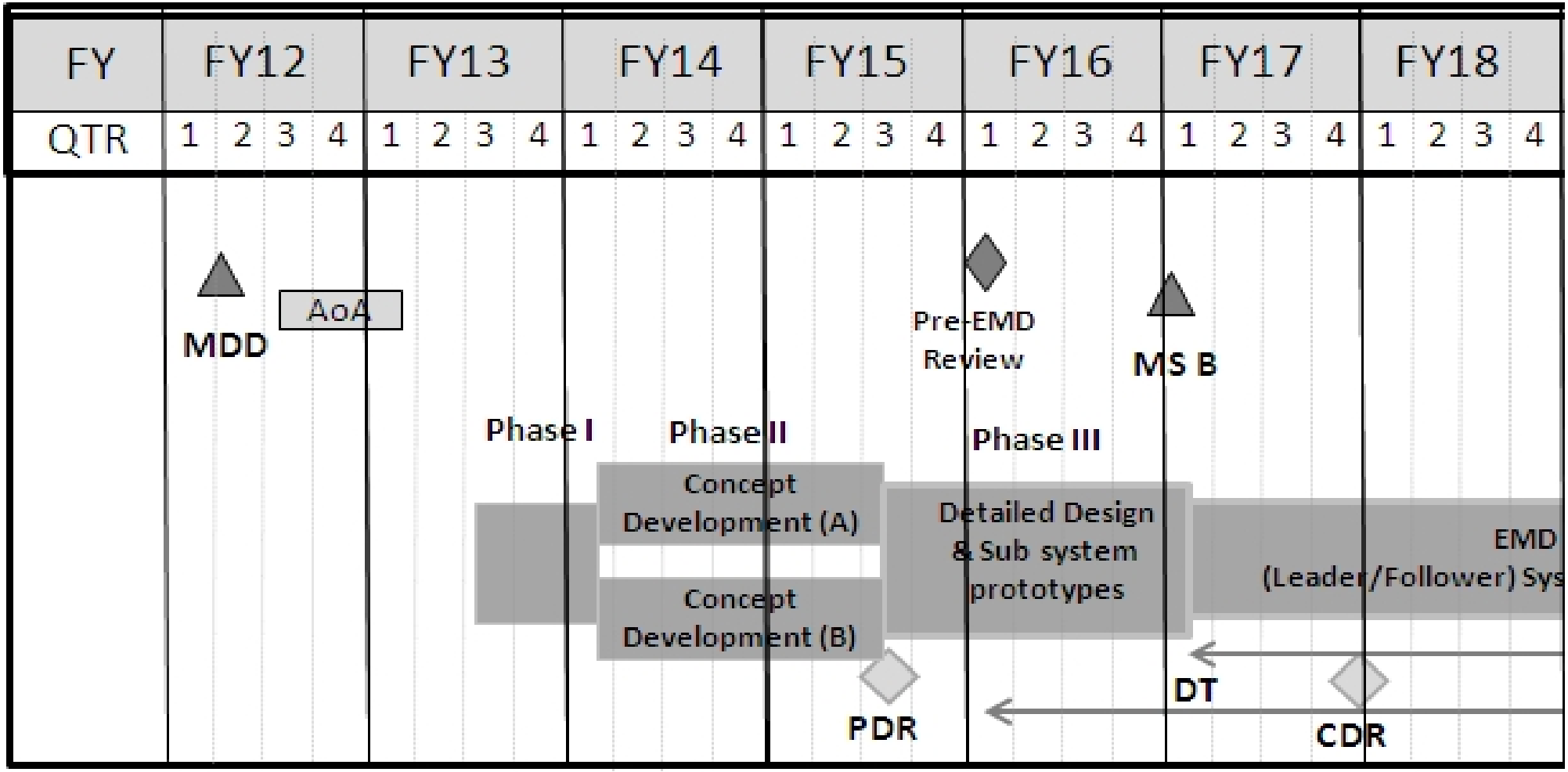


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603611M: *Marine Corps Assault Vehicles*	**PROJECT** 0025: *New Amphibious Vehicle*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0025				
Materiel Development Decision (MDD)	2	2012	2	2012
Defense Acquisition Board (DAB) Review	1	2013	1	2013
Analysis of Alternatives (AoA) - Joint Requirements Oversight Council (JROC)	3	2012	1	2013
Joint Requirements Oversight Council (JROC) Approved Capability Development Document (CDD)	3	2014	3	2014
Preliminary Design Review (PDR)	3	2015	3	2015
Milestone B	1	2017	1	2017
Critcial Design Review (CDR)	4	2017	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603611M: *Marine Corps Assault Vehicles*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	25.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	25.000
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Amphibious Combat Vehicle (ACV) program meets the Marine Corps' requirement for self-deploying, fully amphibious vehicles, in order to maintain an amphibious forcible entry capability. The ACV will be included as part of the Marine Corps' integrated and complementary portolio of combat vehicles critical to the future expeditionary Marine Air Ground Task force (MAGTF) operations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013
Congressional Add: New Amphibious Vehicle (Cong)	25.000	-
FY 2012 Accomplishments: Performed Hull Survivability Demonstrator and Technology Integration Demonstration efforts. Provided concept design, analysis, and test support. Provided engineering and technical services in support of vehicle integration architecture prototyping.		
Congressional Adds Subtotals	25.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603611M: *Marine Corps Assault Vehicles*	PROJECT 9999: *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hull Survivability Demonstrator	C/FFP	Various:Various	0.000	18.976	Oct 2012	0.000		0.000		-		0.000	0.000	18.976	
Technical Integration Demonstrator	C/FFP	NATC:: Silver Spring, NV	0.000	3.000	May 2012	0.000		0.000		-		0.000	0.000	3.000	
		Subtotal	0.000	21.976		0.000		0.000		0.000		0.000	0.000	21.976	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Services (ETS)	Various	CSS:MCSC:CSS:MCSC	0.000	3.024	Jan 2012	0.000		0.000		-		0.000	0.000	3.024	
		Subtotal	0.000	3.024		0.000		0.000		0.000		0.000	0.000	3.024	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	25.000		0.000		0.000		0.000		0.000	0.000	25.000	

Remarks

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/Supt Sys*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	160.923	52.992	10.496	1.489	-	1.489	1.386	1.410	1.445	1.469	Continuing	Continuing
1964: *Anti-Armor Weapon System*	2.652	1.240	1.124	1.143	-	1.143	1.010	1.026	1.044	1.061	Continuing	Continuing
2614: *SMAW Follow-On*	15.220	6.614	9.372	0.346	-	0.346	0.376	0.384	0.401	0.408	Continuing	Continuing
3209: *Joint Light Tactical Vehicle*	143.051	45.138	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	188.189

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

The Joint Light Tactical Vehicle (JLTV) program, Project number 3209 is transitioning to BA 04 PE 0605812M beginning in FY 2013.

A. Mission Description and Budget Item Justification

This PE supports the demonstration and validation of Marine Corps Ground/Supporting Arms Systems for utilization in Marine Air-Ground Expeditionary Force amphibious operations. This program is funded under Demonstration & Validation because it develops and integrates hardware for experimental tests related to specific ground weapon system.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	54.877	10.496	1.495	-	1.495
Current President's Budget	52.992	10.496	1.489	-	1.489
Total Adjustments	-1.885	0.000	-0.006	-	-0.006
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.807	0.000			
• SBIR/STTR Transfer	-1.078	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.006	-	-0.006

Change Summary Explanation

Funding profile for JLTV moved to BA 04 PE 0605812M beginning in FY 2013.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 1964: *Anti-Armor Weapon System*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1964: *Anti-Armor Weapon System*	2.652	1.240	1.124	1.143	-	1.143	1.010	1.026	1.044	1.061	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Anti-Armor Weapons System-Heavy (AAWS-H) program, working in concert with the U.S. Army, will develop and integrate technology improvements into the Improved Target Acquisition System (ITAS) to meet Increment II system requirements as jointly agreed. Improvements will center on integration of sight image enhancements, far-target location accuracy improvements, traversing unit upgrades/improvements, battlefield networking communications capability and a laser designation capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Contractor conducted systems integration and qualification	0.638	0.570	0.587
Articles:	0	0	0
FY 2012 Accomplishments: Completed qualification of Saber far-target location accuracy improvements. Supported contractor development and qualification of Saber traversing unit improvements.			
FY 2013 Plans: Assess improvements to the Saber laser subsystem to integrate/upgrade and qualify a laser marking and/or designation capability for supporting arms missions.			
FY 2014 Plans: Assess improvements to the Saber system to integrate a battlefield network interface and integrate Target Detection upgrades.			
Title: Provide engineer and technical support	0.297	0.269	0.274
Articles:	0	0	0
FY 2012 Accomplishments: Provided continued Army program management office engineering and test support for the far-target location accuracy improvements and for the integration of traversing unit improvements.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 1964: *Anti-Armor Weapon System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Provide continued Army program management office engineering and test support for integration of the laser marker/designator upgrade. ***FY 2014 Plans:*** Provide continued Army program management office engineering and test support for integration of network interface and Target Detection upgrades.			
Title: Provide Government program management/in-house support	0.305	0.285	0.282
Articles:	0	0	0
FY 2012 Accomplishments: Provided continued USMC program management office engineering and test support for the far-target location accuracy improvements and for the integration of traversing unit improvements. ***FY 2013 Plans:*** Provide continued USMC program management office engineering and test support for integration of the laser marker/designator upgrade. ***FY 2014 Plans:*** Provide continued USMC program management office engineering and test support for integration network interface and Target Detection Upgrade.			
Accomplishments/Planned Programs Subtotals	1.240	1.124	1.143

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• PMC/3017: *Saber*	19.606	20.708	1.136		1.136	1.555	1.543	1.507	1.529	0.000	47.584

Remarks

D. Acquisition Strategy

The Saber system is a joint program with the U.S. Army. In FY12-14 funding will be used in the development, integration, and qualification of incremental improvements to the Saber system to meet objective requirements for the system and to assess emergent technologies.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 1964: *Anti-Armor Weapon System*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Anti Armor	C/CPIF	Raytheon:McKinney, TX	1.423	0.638	Mar 2012	0.570	Mar 2013	0.587	Mar 2014	-		0.587	Continuing	Continuing	Continuing
		Subtotal	1.423	0.638		0.570		0.587		0.000		0.587			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Anti Armor	WR	NSWC:Dahlgren, VA	0.571	0.297	Oct 2011	0.269	Oct 2012	0.274	Oct 2013	-		0.274	Continuing	Continuing	Continuing
		Subtotal	0.571	0.297		0.269		0.274		0.000		0.274			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Anti Armor	C/CPIF	BAE Systems:Stafford, VA	0.658	0.305	Oct 2011	0.285	Oct 2012	0.282	Mar 2014	-		0.282	Continuing	Continuing	Continuing
		Subtotal	0.658	0.305		0.285		0.282		0.000		0.282			

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.652	1.240		1.124		1.143		0.000		1.143			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 1964: *Anti-Armor Weapon System*

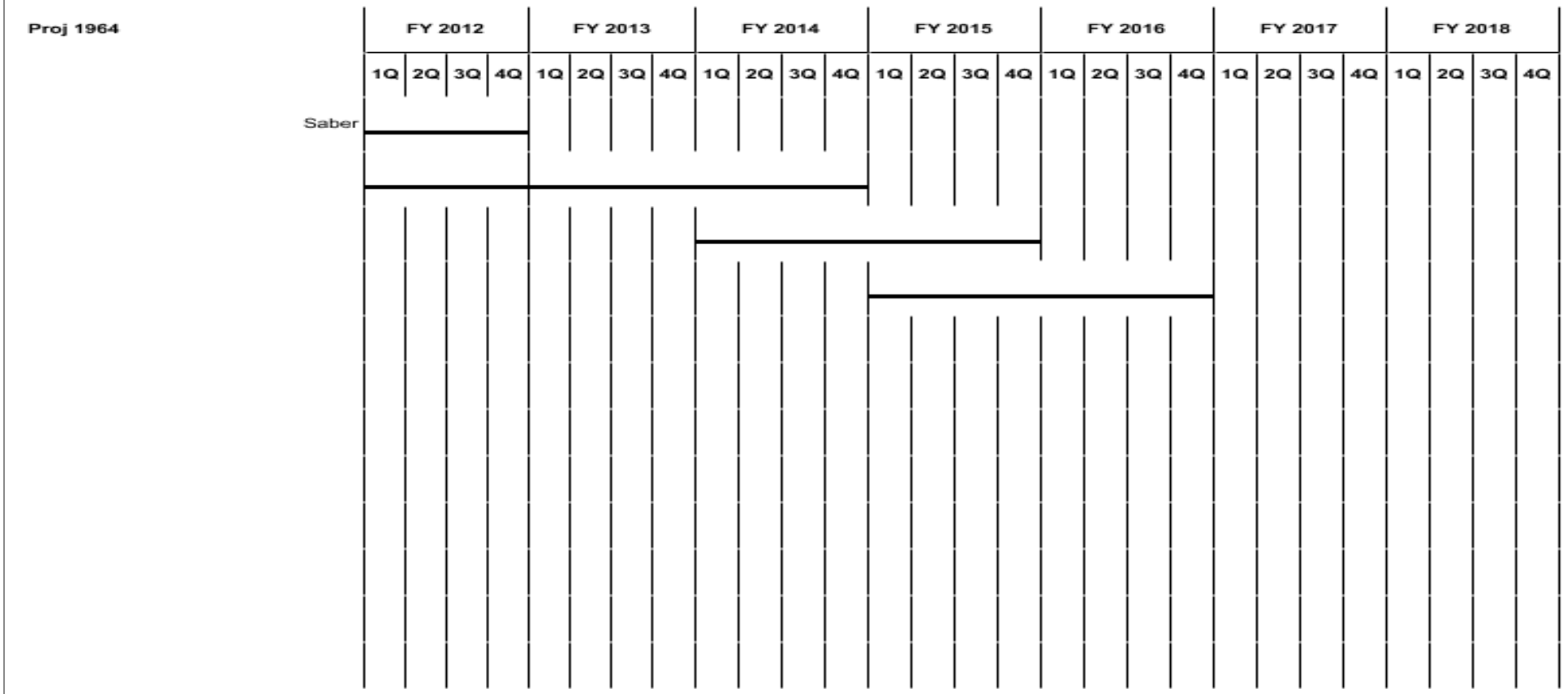


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	**PROJECT** 1964: *Anti-Armor Weapon System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1964				
Saber: Image Enhancement	1	2012	4	2012
Saber: PADS GPS Improvements	1	2012	4	2012
Saber: Battlefield Networking / Target Designation	1	2014	4	2015
Saber: Traversing Unit Upgrade	1	2015	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 2614: *SMAW Follow-On*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2614: *SMAW Follow-On*	15.220	6.614	9.372	0.346	-	0.346	0.376	0.384	0.401	0.408	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Shoulder-Launched Multipurpose Assault Weapon II (SMAW II). Marine Expeditionary Forces will employ the Shoulder-Launched Multipurpose Assault Weapon II (SMAW II) across the spectrum of conflict, under all environmental conditions, to destroy a variety of ground targets. This requirement relates to The Concept for Future Military Operations on Urbanized Terrain, dated 25 July 1997, which requires Marine units to possess the capability to rapidly breach urban structures in order to facilitate and enhance their mobility in an urban environment. The SMAW II will support the Joint Operating Concept, Major Combat Operations via the Force Application Joint Functional Concept.

The solution to the Follow-on-to-SMAW (FOTS) requirement is the SMAW II system. The mission of the SMAW II is to provide short-range assault fires in support of infantry forces attacking fortified positions and urban structures under all field and environmental conditions. This includes employment under Mission Oriented Protective Posture (MOPP) IV Level CBRN conditions. SMAW II will be developed in two distinct blocks. Block 1 of the SMAW II system consists of a new SMAW launcher, which will be physically and functionally compatible with all current SMAW ammunition variants, and a Multipurpose (MP) Fire-From-Enclosure (FFE) SMAW round. Block 2 of the SMAW II system will be the addition of a Wall Breaching (WB) FFE round and a Common Practice (CP) FFE round.

During FY12, the development of Block 1 continued. During FY13, the Qualification of Block 1 will be completed and Low Rate Initial Production will commence. During FY13, the development of Block 2 will commence. During FY14, Pre-Full Rate Production of Block 1 will commence and the Qualification of Block 2 will be completed. In FY15, Full Rate Production of Block 1 FFE Round will continue.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Contractor conducted systems integration and qualification.	1.470	4.868	0.000
Articles:	0	0	
FY 2012 Accomplishments: Continuing Block 1 Launcher Qualification, Functional Configuration Audit, System Verification Review, Production Readiness Review and Initial Operational Test & Evaluation. Continuing Block 1 FFE Round Critical Design Review, Test Readiness Review, Qualification, Functional Configuration Audit, System Verification Review, and Production Readiness Review. Completed Block 2 FFE Round Milestone B, Design Verification Test, and Critical Design Review.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 2614: *SMAW Follow-On*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue Block 1 Launcher efforts for Milestone C. Complete Block 1 FFE Round Qualification, Functional Configuration Audit, System Verification Review, Production Readiness Review and Initial Operational Test & Evaluation. Commence Block 2 FFE Round Development and Qualification efforts.			
Title: Provide engineer and technical support. ***Articles:*** ***FY 2012 Accomplishments:*** Provided engineering support for the Block 1 Launcher and Block 1 and 2 FFE Round development and testing. Provided review of all contract technical deliverables. ***FY 2013 Plans:*** Provide engineering support for the Block 1 and 2 FFE Round development and testing. Provide review of all contract technical deliverables. ***FY 2014 Plans:*** Provide engineering support for the Block 1 and 2 FFE Round development and testing. Provide review of all contract technical deliverables.	3.070 0	3.255 0	0.243 0
Title: Provide Government program management/in-house support. ***Articles:*** ***FY 2012 Accomplishments:*** Provided administrative and technical support to all programmatic and technical reviews; maintain programmatic documentation change management system; maintain CDRL deliverables review and management system; participate in all program IPTs; update the SMAW II Supportability Plan and prepare all Acquisition Logistics documentation; maintain the SMAW II LCCE; provide EVMS analytical support; manage Action Item database. ***FY 2013 Plans:*** Provide administrative and technical support to all programmatic and technical reviews; maintain programmatic documentation change management system; maintain CDRL deliverables review and management system; participate in all program IPTs; update the SMAW II Supportability Plan and prepare all Acquisition Logistics documentation; maintain the SMAW II LCCE; provide EVMS analytical support; manage Action Item database. ***FY 2014 Plans:*** Provide administrative and technical support for Block II qualification; support programmatic and logistics requirements; and update supportability requirements.	0.623 0	0.505 0	0.103 0
Title: Provide operational test support planning and document preparation	1.451	0.744	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 2614: *SMAW Follow-On*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0	0	
FY 2012 Accomplishments: Completed all SMAW II Block 1 Launcher IOT&E planning; provided operational test expertise to all programmatic and technical reviews.			
FY 2013 Plans: Conduct and report the results of the SMAW II Block 1 FFE Round IOT&E; provide operational test expertise to all programmatic and technical reviews.			
Accomplishments/Planned Programs Subtotals	6.614	9.372	0.346

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• PMC/301600: *Follow on to SMAW*	37.300	19.650	0.000		0.000	32.046	31.425	0.007	0.001	0.000	141.887

Remarks

D. Acquisition Strategy

FY12-14 strategy is to complete development and qualification of the Block 1 SMAW II system (i.e. new SMAW Launcher and new Multi Purpose Fire From Enclosure (MP FFE) round).

E. Performance Metrics

Milestone Reviews; Technical Reviews; Earned Value Management data.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 2614: *SMAW Follow-On*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Integration	C/FFP	Nammo Talley:Mesa, AZ	0.000	1.470	Dec 2011	4.868	Aug 2013	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	1.470		4.868		0.000		0.000		0.000			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering & Technical Support	WR	NSWC Dahlgren:Dahlgren, VA	10.340	3.070	Dec 2011	3.255	Apr 2013	0.243	Dec 2013	-		0.243	Continuing	Continuing	Continuing
		Subtotal	10.340	3.070		3.255		0.243		0.000		0.243			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Testing & Support	WR	Marine Corps Operational Test & Eval Activity:Quantico, VA	2.803	1.451	Dec 2011	0.744	Apr 2013	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	2.803	1.451		0.744		0.000		0.000		0.000			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Mgt & Eng Support	C/CPIF	BAE Systems:Stafford, VA	2.077	0.623	Jan 2012	0.505	Apr 2013	0.103	Jan 2014	-		0.103	Continuing	Continuing	Continuing
		Subtotal	2.077	0.623		0.505		0.103		0.000		0.103			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 2614: *SMAW Follow-On*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.220	6.614		9.372		0.346		0.000		0.346			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 3209: *Joint Light Tactical Vehicle*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3209: *Joint Light Tactical Vehicle*	143.051	45.138	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	188.189
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

Twenty two prototypes, per vendor, awarded in FY12 and will be delivered in FY13. Additonal hardware requirements for Engineering and Manufacturing Development (EMD) include trailers, ballistic hulls, and kits (including armor).

The FY11 NDAA directed the Services to separate the JLTV program into distinct program elements to provide Congress with increased transparency and allow for more effective oversight. Transition of funding from PE 0603635M to the new JLTV PE 0605812M is effective beginning in FY13.

A. Mission Description and Budget Item Justification

Funding supports the development and testing of the JLTV Family of Vehicles (FoV), which is a joint program between the Army and the Marine Corps. The JLTV goal is a FoV capable of performing multiple mission roles that will be designed to provide protected, sustained, networked mobility for personnel and payloads across the full Range of Military Operations. JLTV objectives include increased protection and performance over the current fleet; minimizing ownership costs by maximizing commonality, fuel efficiency, reliability; and maintaining effective competition, throughout the lifecycle. Commonality of components, maintenance procedures, training, etc., among vehicles is expected to be inherent in FoV solutions across mission variants to minimize total ownership cost. Unique service requirements have been minimized.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Prototype Article	26.075	0.000	0.000
Articles:	30		
FY 2012 Accomplishments: Awarded multiple Engineering and Manufacturing Development (EMD) contracts for material procurement and the fabrication of prototypes. Vehicle deliveries occur in FY13.			
Title: Primary and Ancillary Hardware Development, Systems Engineering (SE)	10.347	0.000	0.000
Articles:	0		
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 3209: *Joint Light Tactical Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Awarded multiple Engineering and Manufacturing Development (EMD) contracts to deliver JLTV Mission Role Variants and systems engineering activities in support of progression to MS B decision and RFP development.			
Title: GFE Procurement to Support Product Development and Testing	1.763	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: Procured GFE items required to support EMD prototype integration efforts.			
Title: Test and Evaluation Events & Analysis	1.453	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: Supported Milestone B preparations, prepared Test and Evaluation Master Plan (TEMP) as well as detailed test plans, and conduct coupon testing.			
Title: ILS and Facilities Documentation/Analysis and Support Engineering	0.640	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: Continued the development of logistical documentation, supported Milestone (MS) B preparations, GFE management, and provided oversight to programmatic and contractual issues related to logistics.			
Title: Program Management Support	4.860	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: Continued support of program operations and planning activities. Key events included source selection activities, EMD contract awards, and attainment of MS B.			
Accomplishments/Planned Programs Subtotals	45.138	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTEN/3209: *0605812M-JLTV*	0.000	44.500	50.362		50.362	16.606	33.058	23.938	2.372	Continuing	Continuing
• PMC/5095: *JLTV*	0.000	0.000	0.000		0.000	30.521	99.536	143.062	520.468	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 3209: *Joint Light Tactical Vehicle*

D. Acquisition Strategy

JLTV is a Joint Services program with the U.S. Army and Marine Corps as the two main components. The Navy anticipates procuring JLTV vehicles upon successful Low Rate Initial Production (LRIP) testing.

The program will use an evolutionary approach to deliver capabilities in increments based on program priorities. All technologies entering the current EMD phase shall be no less than Technology Readiness Level 6 to achieve Capabilities Development Document (CDD) requirements.

Increment I will produce two Mission Role Variant (MRV) configurations (Combat Tactical Vehicle - CTV & Combat Support Vehicle - CSV) and four mission packages (General Purpose, Heavy Guns Carrier, Close Combat Weapons Carrier, and Utility). EMD vendors will fabricate representative mission packages from both MRVs, which the Government will fully test during EMD.

Through a full and open competition, the program anticipates awarding up to three fixed price contracts for the EMD phase. Unless future market research identifies a valid non-EMD vendor capable of delivering the required capabilities, there will be a down-select from the EMD contractors to enter into the Production and Deployment phase. The down-select will result in a fixed price type contract with a base LRIP quantity, LRIP options, full rate production options, and a Technical Data Package option.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 3209: *Joint Light Tactical Vehicle*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development - TD	C/CS	BAE Systems:Santa Clara, CA	34.635	0.000		0.000		0.000		-		0.000	0.000	34.635	
Primary Hardware Development - TD	C/CS	General Tactical Vehicles:Sterling, MI	24.459	0.000		0.000		0.000		-		0.000	0.000	24.459	
Primary Hardware Development - TD	C/CS	Lockheed Martin:Owego, NY	26.833	0.000		0.000		0.000		-		0.000	0.000	26.833	
Primary Hardware Development - EMD	C/FFP	Oshkosh Corporation:Oshkosh, WI	1.000	10.866	Aug 2012	0.000		0.000		-		0.000	0.000	11.866	
Primary Hardware Development - EMD	C/FFP	Lockheed Martin:Grand Prairie, TX	0.000	25.515	Aug 2012	0.000		0.000		-		0.000	0.000	25.515	
Primary Hardware Development - EMD	C/FFP	AM General:Livonia, MI	0.000	5.333	Aug 2012	0.000		0.000		-		0.000	0.000	5.333	
Systems Engineering	C/CPFF	Various:Various	2.931	0.000		0.000		0.000		-		0.000	0.000	2.931	
Systems Engineering - Human Systems Integration	WR	NSWC Dahlgren:Dahlgren, VA	0.712	0.362	Feb 2012	0.000		0.000		-		0.000	0.000	1.074	
Systems Engineering - Force Protection	WR	NWSC Carderock:Carderock, MD	0.275	0.000		0.000		0.000		-		0.000	0.000	0.275	
Systems Engineering Toolkit	C/CPFF	ARL:Penn State	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	
Government Furnished Equipment	MIPR	Various:Various	3.028	0.897	Apr 2012	0.000		0.000		-		0.000	0.000	3.925	
JLTV Tech Demonstrator Design and Eval	C/CPFF	NATC:Carson City, NV	0.981	0.000		0.000		0.000		-		0.000	0.000	0.981	
		Subtotal	95.854	42.973		0.000		0.000		0.000		0.000	0.000	138.827	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 3209: *Joint Light Tactical Vehicle*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Training Development	WR	WBB:Indian Head, MD	0.236	0.000		0.000		0.000		-		0.000	0.000	0.236	
Integrated Logistics Support	Various	Various:Various	1.394	0.285	Jun 2012	0.000		0.000		-		0.000	0.000	1.679	
SPAWAR GFE	MIPR	SPAWAR:Charleston, SC	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	
		Subtotal	1.630	0.285		0.000		0.000		0.000		0.000	0.000	1.915	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental, Test & Evaluation (Performance, RAM, Ballistic, Report Generation)	MIPR	Aberdeen Proving Grounds:Aberdeen, MD	6.429	0.345	Jun 2012	0.000		0.000		-		0.000	0.000	6.774	
Developmental, Test & Evaluation (Performance, RAM, Ballistic, Report Generation)	MIPR	Yuma Proving Grounds:Yuma, AZ	7.005	0.084	Sep 2012	0.000		0.000		-		0.000	0.000	7.089	
Developmental, Test & Evaluation (Performance, RAM, Ballistic, Report Generation)	MIPR	Various:Various	1.666	0.191	Sep 2012	0.000		0.000		-		0.000	0.000	1.857	
Developmental, Test & Evaluation (Interoperability)	MIPR	JITC:Various	0.101	0.000		0.000		0.000		-		0.000	0.000	0.101	
Developmental, Test & Evaluation (Oversight)	WR	MCOTEA:Various	1.604	0.345	Jun 2012	0.000		0.000		-		0.000	0.000	1.949	
		Subtotal	16.805	0.965		0.000		0.000		0.000		0.000	0.000	17.770	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603635M: *Marine Corps Grnd Cmbt/ Supt Sys*	PROJECT 3209: *Joint Light Tactical Vehicle*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/FFP	SAIC:Dumfries, VA	7.789	0.000		0.000		0.000		-		0.000	0.000	7.789	
Program Management Support	C/CPFF	BAH:Mclean, VA	14.244	0.000		0.000		0.000		-		0.000	0.000	14.244	
Program Management Support	C/CPFF	Various:Various	2.046	0.279	Feb 2013	0.000		0.000		-		0.000	0.000	2.325	
Program Management Support	C/CPFF	MITRE:Stafford, VA	2.908	0.000		0.000		0.000		-		0.000	0.000	2.908	
Program Management Support - ESOH Support	C/CPFF	Eagan McAllister:Lexington Park, MD	1.030	0.480	Feb 2012	0.000		0.000		-		0.000	0.000	1.510	
Travel	Various	MCSC:Quantico, VA	0.745	0.156	Oct 2012	0.000		0.000		-		0.000	0.000	0.901	
		Subtotal	28.762	0.915		0.000		0.000		0.000		0.000	0.000	29.677	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	143.051	45.138		0.000		0.000		0.000		0.000	0.000	188.189	

Remarks

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	437.421	33.012	56.931	38.422	-	38.422	28.229	32.461	33.208	33.715	Continuing	Continuing
0377: *JT Service Expl Ord Disp System*	300.419	17.762	27.536	19.047	-	19.047	13.422	12.648	12.937	13.135	Continuing	Continuing
1317: *EOD Diving System*	95.023	3.005	4.340	2.607	-	2.607	2.640	4.593	4.699	4.770	Continuing	Continuing
3177: *Joint Counter Radio-Controlled IED Elec Warfare*	0.000	0.000	4.600	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.600
4023: *VSW MCM/Force Protection UUV*	41.979	12.245	20.455	16.768	-	16.768	12.167	15.220	15.572	15.810	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This is a Joint Service Program. This program provides for the development of Explosive Ordnance Disposal tools and equipment for use by all military services. The responsibility is assigned to the Navy as single service manager, by Department of Defense Directive 5160.62 of 26 April 1989, for management of the Joint Service Explosive Ordnance Disposal Research and Development Program. Proliferation of sophisticated types of foreign and domestic ordnance and Improvised Explosive Devices necessitate a continuing development program to provide Explosive Ordnance Disposal personnel of all military services with the special equipment and tools required to support this mission. This program also provides life support related equipment necessary to support the performance of Navy Explosive Ordnance Disposal tasks underwater. This equipment must have inherently low acoustic and magnetic signatures in order to allow the Explosive Ordnance Disposal technician to safely approach, render-safe and dispose of sea mines and other underwater ordnance. This program also provides force protection of all military services against Radio Controlled Improvised Explosive Devices (RCIED) to prevent initiation. The Navy has been designated as DOD Executive Agent and Single Manager for Military Ground-Based Counter Radio-Controlled Improvised Explosive Electronic Warfare (CREW) Technology by DOD Directive 5101.14 of 11 June 2007, requiring RDT&E to develop capabilities that meet joint requirements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	35.154	52.331	41.181	-	41.181
Current President's Budget	33.012	56.931	38.422	-	38.422
Total Adjustments	-2.142	4.600	-2.759	-	-2.759
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.466	0.000			
• SBIR/STTR Transfer	-0.676	0.000			
• Program Adjustments	0.000	0.000	-0.297	-	-0.297
• Rate/Misc Adjustments	0.000	4.600	-2.462	-	-2.462

Change Summary Explanation

Program Adjustments: FY14 $0.677K in Program Adjustments and $2.082M in Other Rate Adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 0377: *JT Service Expl Ord Disp System*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0377: *JT Service Expl Ord Disp System*	300.419	17.762	27.536	19.047	-	19.047	13.422	12.648	12.937	13.135	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Provides Explosive Ordnance Disposal personnel of all military services with the specialized equipment and tools required to support their mission of detection/location, identification, render-safe, recovery, field and laboratory evaluation, and disposal of unexploded ordnance (UXO) that is a threat to military operations, installations, personnel, or material. UXO includes foreign and domestic, both conventional and non-conventional, including Improvised Explosive Devices (IEDs). High Fidelity Weapons Mass Destruction performs detection and identification of hazardous materials contained in devices using radiological and biological means. Advanced EOD Robot System (AEODRS) consists of multiple interoperable robot systems. The first class of robot and the architecture for the system will be developed first, then the other classes of robots will be developed. Project Unit 0377: FY12 OCO: Continuous Improvement for the MK1 & MK2 Joint Service EOD robots used by EOD technicians when responding to IED incidents in OIF and OEF.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: EOD FUTURE RADIOGRAPHIC SYSTEMS (FRS) AND EOD DECISION SUPPORT SYSTEMS (DSS)	4.389	6.150	6.055
Articles:	0	0	0
FY 2012 Accomplishments: Developed Continuous Improvements of incremental capabilities for JEOD Decision Support System (DSS) and continued development of Future Radiographic Systems (FRS).			
FY 2013 Plans: Continue development of increment one capabilities for Future Radiographic System (FRS) and incremental improvements to capability for the Decision Support System (DSS).			
FY 2014 Plans: Continue improvements to the JEOD Decision Support System (DSS) based upon user input, development of the Future Radiographic Systems (FRS) and provide Analysis of Alternatives for warfighter initiated improvements.			
Title: HIGH FIDELITY WEAPONS MASS DESTRUCTION (WMD) IDENTIFICATION AND DETECTION	4.401	7.702	1.929
Articles:	0	0	0
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 0377: *JT Service Expl Ord Disp System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Developed a family of systems to address the capabilities gaps in detection and identification of Weapons Mass Destruction (WMD) threats. ***FY 2013 Plans:*** Continue development and testing of systems within a family of systems addressing capability gaps associated with identification and detection of WMD. ***FY 2014 Plans:*** Continue to develop Weapons Mass Destruction (WMD) family of systems focused on development of the Explosives Identification Kit (ID).			
Title: EOD ROBOTICS	5.063	11.547	9.633
Articles:	0	0	0
FY 2012 Accomplishments: Continued development of Advanced EOD Robot System and developed improved capabilities for existing EOD robot configurations. ***FY 2013 Plans:*** Continue development of a family of Advanced EOD Robotic of Systems to fill capability gaps and develop improved capabilities for existing EOD Robotic platforms. ***FY 2014 Plans:*** Continue development of Advanced EOD Robotic Systems Increments 1,2 and 3 to fill capability gap and to replace existing EOD Robotic Platforms.			
Title: TCM AN/PLT-XXX SYSTEMS	1.741	2.137	1.430
Articles:	0	0	0
FY 2012 Accomplishments: Continued project development capabilities to determine the state of (or neutralize) Electronic Safe/Arm Fuzes for EOD purpose. ***FY 2013 Plans:*** Continue improvements to loadsets for fielded EOD TCM systems based upon changing threats and continue monitoring and development of capabilities to determine the state of and defeat electronic safe-arm fuzes. ***FY 2014 Plans:*** Continue upgrades to EOD TCM loadsets to account for continually changing threats.			
Title: UNMANNED AERIAL SYSTEMS	0.668	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 0377: *JT Service Expl Ord Disp System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0		
FY 2012 Accomplishments: Continued development of Unmanned Aerial Systems Capabilities for the EOD community.			
Title: EOD ROBOTICS OCO	1.500	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: OCO: Joint Service EOD Robot Continuous Improvement - The MK 1 and MK 2 EOD robots are the primary tool used by EOD technicians when responding to IED incidents in OEF-A. There are unique tools for robot uses that need to be developed to counter emergent threats in both theaters (OED-A and OND) that are not part of the current program of record. Funding is required to provide for development of these theater specific tools.			
Accomplishments/Planned Programs Subtotals	17.762	27.536	19.047

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/5509: *EOD Equipment (VN075)*	2.500	0.000	8.080		8.080	22.822	12.676	4.966	7.281	0.000	65.628

Remarks

D. Acquisition Strategy

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.

E. Performance Metrics

Conducted Electronic Safe/Arm Fuze IED/UXO Technology Development review and worked with contractors to explore technology options. Processed 111 Joint Service EOD Decision Support System (DSS) change requests resulting in the release of 2490 Mobile Field Kit and Publication Suite Software copies to the Joint Services including USN. Completed TCM, AN/PLT-5 loadset upgrade for EOD use in-theatre based upon new IED/UXO threats seen during operations.Completed JSEOD Weapons of Mass Destruction developmental testing of COTS systems resulting in the procurement of systems.Completed Advanced EOD Robotics Systems first of two Critical Design Reviews for Increment 1 and Test Readiness Review for Increment 1.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 0377: *JT Service Expl Ord Disp System*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	EODTD:Indian Head, MD	124.334	10.614	Oct 2011	16.886	Oct 2012	10.017	Oct 2013	-		10.017	Continuing	Continuing	Continuing
Software Development	WR	EODTD:Indian Head, MD	20.234	2.500	Oct 2011	3.600	Oct 2012	3.700	Oct 2013	-		3.700	Continuing	Continuing	Continuing
ILS	WR	EODTD:Indiah Head, MD	44.670	1.670	Oct 2011	1.000	Oct 2012	1.000	Oct 2013	-		1.000	Continuing	Continuing	Continuing
		Subtotal	189.238	14.784		21.486		14.717		0.000		14.717			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	ITT:Arlington, VA	6.271	0.176	Oct 2011	0.550	Oct 2012	0.500	Oct 2013	-		0.500	Continuing	Continuing	Continuing
		Subtotal	6.271	0.176		0.550		0.500		0.000		0.500			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	EODTD:Indian Head, MD	70.647	2.202	Oct 2011	4.000	Oct 2012	2.630	Oct 2013	-		2.630	Continuing	Continuing	Continuing
Operation Test & Evaluation	WR	EODTD:Indian Head, MD	9.933	0.300	Oct 2011	0.500	Oct 2012	0.500	Oct 2013	-		0.500	Continuing	Continuing	Continuing
		Subtotal	80.580	2.502		4.500		3.130		0.000		3.130			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 0377: *JT Service Expl Ord Disp System*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Manangement Support	WR	EODTD:Indian Head, MD	8.278	0.200	Oct 2011	0.675	Oct 2012	0.700	Oct 2013	-		0.700	Continuing	Continuing	Continuing
Miscellaneous	WR	EODTD:Indian Head, MD	16.052	0.100	Oct 2011	0.325	Oct 2012	0.000	Oct 2013	-		0.000	Continuing	Continuing	Continuing
		Subtotal	24.330	0.300		1.000		0.700		0.000		0.700			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	300.419	17.762		27.536		19.047		0.000		19.047			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603654N: *JT Service Explosive Ordn Dev*	**PROJECT** 0377: *JT Service Expl Ord Disp System*

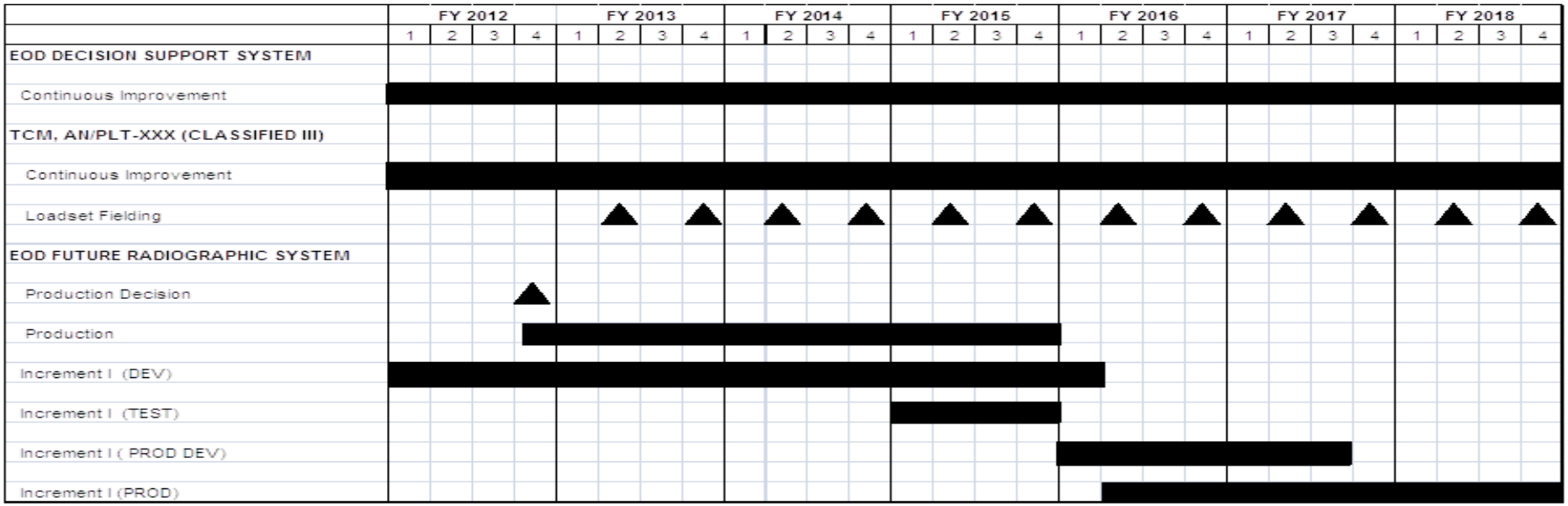


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603654N: *JT Service Explosive Ordn Dev*	**PROJECT** 0377: *JT Service Expl Ord Disp System*

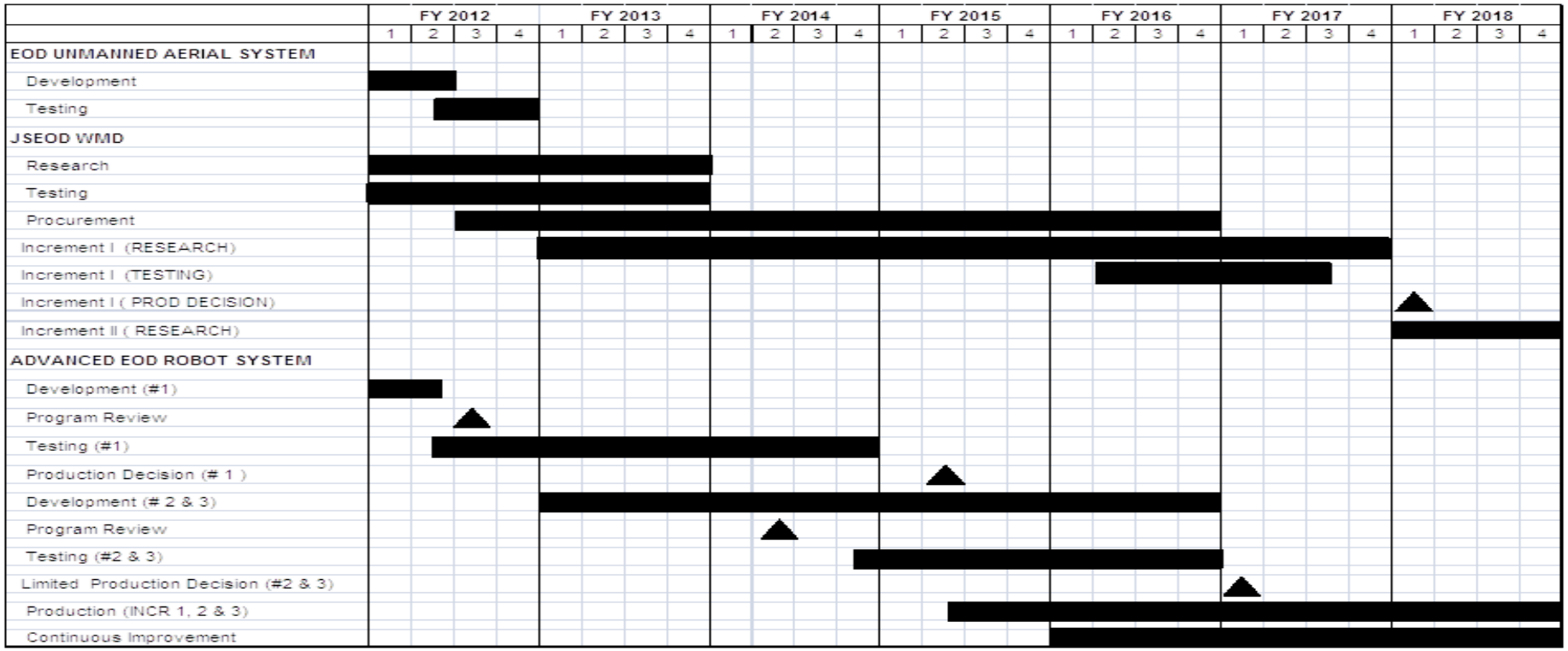


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603654N: *JT Service Explosive Ordn Dev*	**PROJECT** 0377: *JT Service Expl Ord Disp System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0377				
Title: EOD DECISION SUPPORT SYSTEM	1	2012	4	2018
Continous Improvement 1	1	2012	4	2018
Title: TCM, AN/PLT-XXX (CLASSIFIED III)	1	2012	4	2018
Continous Improvement 2	1	2012	4	2018
Loadset Fielding 1	2	2013	2	2013
Loadset Fielding 2	4	2013	4	2013
Loadset Fielding 3	2	2014	2	2014
Loadset Fielding 4	4	2014	4	2014
Loadset Fielding 5	2	2015	2	2015
Loadset Fielding 6	4	2015	4	2015
Loadset Fielding 7	2	2016	2	2016
Loadset Fielding 8	4	2016	4	2016
Loadset Fielding 9	2	2017	2	2017
Loadset Fielding 10	4	2017	4	2017
Loadset Fielding 11	2	2018	2	2018
Loadset Fielding 12	4	2018	4	2018
Title: EOD FUTURE RADIOGRAPHIC SYSTEM	1	2012	4	2018
Production Decision	4	2012	4	2012
Production	4	2012	4	2015
Increment I (DEV)	1	2012	1	2016
Increment I (TEST)	1	2015	4	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 0377: *JT Service Expl Ord Disp System*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Increment I (PROD DEV)	1	2016	3	2017
Increment I (PROD)	2	2016	4	2018
Title: EOD UNMANNED AERIAL SYSTEM	1	2012	4	2012
Development	1	2012	2	2012
Testing 1	2	2012	4	2012
Title: JS EOD WMD	1	2012	4	2018
Research	1	2012	4	2013
Testing 2	1	2012	4	2013
Procurement	3	2012	4	2016
Increment I (RESEARCH)	1	2013	4	2017
Increment I (TESTING)	2	2016	3	2017
Increment I (PROD DECISION)	1	2018	1	2018
Increment II (RESEARCH)	1	2018	4	2018
Title: ADVANCED EOD ROBOT SYSTEM	1	2012	4	2018
Development # 1	1	2012	2	2012
Program Review 1	3	2012	3	2012
Testing (#1)	2	2012	4	2014
Production Decision (#1)	2	2015	2	2015
Development (# 2 & 3)	1	2013	4	2016
Program Review 2	2	2014	2	2014
Testing (# 2 & 3)	4	2014	4	2016
Limited Production Decision (# 2 & 3)	1	2017	1	2017
Production 3 (INC 1, 2 & 3)	2	2015	4	2018
Continous Improvement 3	2	2016	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 1317: *EOD Diving System*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1317: *EOD Diving System*	95.023	3.005	4.340	2.607	-	2.607	2.640	4.593	4.699	4.770	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Provides for development of Diver Safety/Life Support Equipment, Advanced Diver Integrated Sensors and Advanced Firing Systems to support Navy Explosive Ordnance Disposal (EOD) underwater operations. The equipment must have inherently low acoustic and magnetic signatures in order to allow the EOD divers to safely approach, render-safe, recover, exploit, and dispose of underwater explosive threats to include sea mines, limpet mines and unexploded ordnance.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: DIVER SAFETY & LIFE SUPPORT SYSTEMS	1.630	2.118	1.056
Articles:	0	0	0
Description: Diver Safety & Life Support Systems: Develop diver safety tools to include more capable life support systems for EOD, and Mobile Diving & Salvage Units (MDSU) operations. Specific tools include but are not limited to Underwater Breathing Apparatus (UBA), specialized dive masks, heads-up displays, and emergency life support systems.			
FY 2012 Accomplishments: Initiated a VSW/MCM UBA program to develop modern and safer UBA. Developed and tested UW Lift System for EOD and VSW/MCM missions.			
FY 2013 Plans: Continue acquisition efforts to develop, test and field future EOD and Underwater Mine Countermeasures (UMCM) UBA in accordance with OPNAV approved requirements.			
FY 2014 Plans: Continue EOD UBA acquisition initiative.			
Title: ADVANCED DIVER INTEGRATED SENSORS	1.125	1.461	0.901
Articles:	0	0	0
Description: Develop Advanced Diver Integrated Sensors equipment to enhance EOD and MDSU ability to detect, neutralize and gather intelligence on underwater targets of interest. Requirements include Diver Hull Inspection Navigation System (DHINS) and improvements to the Underwater Imaging System (UIS).			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 1317: *EOD Diving System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: Conducted testing of diver held sensors. As part of a Continuous Improvement Program (CIP) developed and tested technologies for integration into DHINS and UIS. ***FY 2013 Plans:*** Initiate an acquisition initiative to field the next generation EOD and UMCM diver based sensor and navigation system. Continue to upgrade DHINS with fleet recommended engineering changes. ***FY 2014 Plans:*** Initiate acquisition program to replace UIS based on Analysis of Alternatives (AOA) conducted in FY13. Continue CIP integration with DHINS.			
Title: ADVANCED FIRING SYSTEM	0.250	0.761	0.650
Articles:	0	0	0
Description: Develops new acquisitions and product improvements to existing systems for below and above water neutralization of underwater threats to support EOD and MDSU operations. ***FY 2012 Accomplishments:*** Conducted Analysis Of Alternative (AOA). Developed improvements to AFS to increase system performance and capabilities. ***FY 2013 Plans:*** Continue implementing upgrades in accordance with OPNAV approved requirements and validate system performance. ***FY 2014 Plans:*** Field miniaturized AFCT to meet approved inventory objectives.			
Accomplishments/Planned Programs Subtotals	3.005	4.340	2.607

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/0977a: *Underwater EOD Program (Cost Code UQ034)*	4.800	5.000	6.175		6.175	6.292	4.002	3.652	1.540	0.000	42.561
• 0340: *PANMC*	0.505	0.326	0.000		0.000	0.000	1.593	0.000	0.000	0.000	2.640
• OPN/0977b: *UW EOD (UQ036)*	1.200	0.000	2.000		2.000	1.200	1.700	2.400	3.083	0.000	11.583

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 1317: *EOD Diving System*

D. Acquisition Strategy

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new sub-projects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the sub-projects life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.

E. Performance Metrics

Research and Develop technologies for the design of Diver Safety Systems, Advanced Diver Integrated Sensors and Advanced Underwater Firing Systems used to render safe, recover, exploit, and dispose of sea limpet mines and unexploded ordnance.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 1317: *EOD Diving System*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	EODTECHDIV:IH, MD	39.202	0.709	Oct 2011	1.079	Oct 2012	0.654	Oct 2013	-		0.654	Continuing	Continuing	Continuing
Software Development	WR	EODTECHDIV:IH MD	3.792	0.220	Oct 2011	0.359	Oct 2012	0.218	Oct 2013	-		0.218	Continuing	Continuing	Continuing
Systems Engineering	WR	EODTECHDIV:IH MD	8.228	0.000		0.000		0.000		-		0.000	0.000	8.228	
ILS	WR	EODTECHDIV:IH MD	11.916	0.000		0.000		0.000		-		0.000	0.000	11.916	
Systems Engineering	WR	NSWC:Panama City	1.070	0.231	Oct 2011	0.315	Oct 2012	0.191	Oct 2013	-		0.191	Continuing	Continuing	Continuing
Systems Engineering	WR	SPAWAR:San Diego	2.000	0.441	Oct 2011	0.629	Oct 2012	0.381	Oct 2013	-		0.381	Continuing	Continuing	Continuing
		Subtotal	66.208	1.601		2.382		1.444		0.000		1.444			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support1	C/CPFF	ITT:Arlington VA	3.537	0.000		0.000		0.000		-		0.000	0.000	3.537	
Program Management Support2	C/CPFF	ITT:Arlington VA	2.481	0.405	Oct 2011	0.364	Oct 2012	0.221	Oct 2013	-		0.221	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	Not Specified:Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	
Configuration Management	WR	Not Specified:Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	
Technical Data	WR	Not Specified:Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	
GFE	WR	Not Specified:Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	
Award Fees	WR	Not Specified:Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	
		Subtotal	6.018	0.405		0.364		0.221		0.000		0.221			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 1317: *EOD Diving System*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	EODTECHDIV:IH MD	5.688	0.613	Oct 2011	0.944	Oct 2012	0.572	Oct 2013	-		0.572	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	EODTECHDIV:IH MD	1.560	0.000		0.000		0.000		-		0.000	0.000	1.560	
		Subtotal	7.248	0.613		0.944		0.572		0.000		0.572			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	EODTECHDIV:IH MD	8.763	0.312	Oct 2011	0.450	Oct 2012	0.274	Oct 2013	-		0.274	0.000	9.799	
Miscellaneous	WR	NSWC, Activities:Not Specified	6.773	0.074	Oct 2011	0.200	Oct 2012	0.096	Oct 2013	-		0.096	0.000	7.143	
Acquisition Workforce Fund	Various	Various:Various	0.013	0.000		0.000		0.000		-		0.000	0.000	0.013	
		Subtotal	15.549	0.386		0.650		0.370		0.000		0.370	0.000	16.955	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	95.023	3.005		4.340		2.607		0.000		2.607			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 1317: *EOD Diving System*

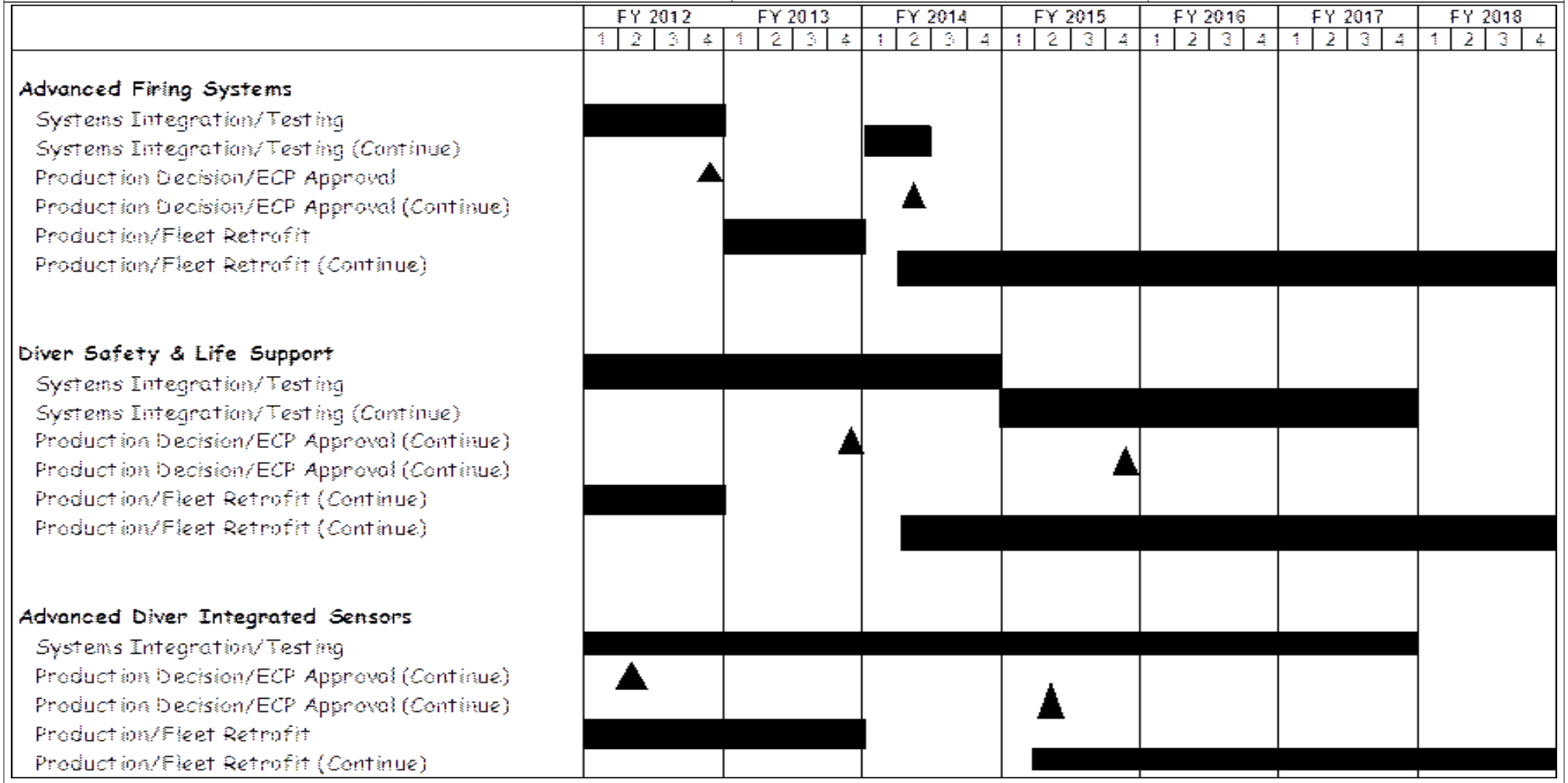


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603654N: *JT Service Explosive Ordn Dev*	**PROJECT** 1317: *EOD Diving System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1317				
Title: ADVANCED FIRING SYSTEMS	1	2012	4	2017
System Integration/Testing 1	1	2012	4	2012
System Integration/Testing (Continue)	1	2014	2	2014
Production Decision/ECP Approval 1	4	2012	4	2012
Production Decision/ECP Approval (Continue) 1	2	2014	2	2014
Production/Fleet Retrofit (Continue) 1	1	2013	4	2013
Production/Fleet Retrofit (Continue) 2	2	2014	4	2018
Title: DIVER SAFETY & LIFE SUPPORT	1	2012	4	2017
System Integration/Testing	1	2012	4	2014
Systems Integration/Testing (Continue)	1	2015	4	2017
Production Decision/ECP Approval (Continue)	4	2013	4	2013
Production Decision/ECP Approval (Continue) 3	4	2015	4	2015
Production/Fleet Retrofit (Continue) 3	1	2012	4	2012
Production/Fleet Retrofit (Continue) 4	2	2014	4	2018
Title: ADVANCED DIVER INTEGRATED SENSORS	1	2012	4	2017
System Integration/Testing 3	1	2012	4	2017
Production Decision/ECP Approval (Continue) 5	2	2012	2	2012
Production Decision/ECP Approval (Continue) 6	2	2015	2	2015
Production/Fleet Retrofit	1	2012	4	2013
Production/Fleet Retrofit (Continue)	2	2015	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 3177: *Joint Counter Radio-Controlled IED Elec Warfare*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3177: *Joint Counter Radio-Controlled IED Elec Warfare*	0.000	0.000	4.600	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.600
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Provides for the research, development, for all military services against Radio Controlled Improvised Explosive Devices (RCIED) to prevent initiation. The Navy has been designated as DOD Executive Agent and Single Manager for Military Ground-Based Counter Radio-Controlled Improvised Explosive Electronic Warfare (CREW) Technology by DOD Directive 5101.14 of 11 June 2007, requiring RDT&E to develop capabilities that meet joint requirements. Utilize Joint requirements to provide a system of systems approach for a suite of equipment for mounted, dismounted and fixed site operations. CREW development to make rapid improvements to performance, supportability and affordability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: JOINT CREW OCO	0.000	4.600	0.000
Articles:		0	
FY 2013 Plans: OCO:OCO: JOINT CREW - New techniques and threat loads will be needed to support delivered systems in order to address in-theater priority threats, including threat analysis, procurement of test assets, building of threat libraries, etc.			
Accomplishments/Planned Programs Subtotals	0.000	4.600	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost effective solution over subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included. Procurements across the services will be combined to gain quantity discounts.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 3177: *Joint Counter Radio-Controlled IED Elec Warfare*

E. Performance Metrics

Threat prototyping, characterization, procurement, and sustainment of threats for testing, coalition coordination and support, generation of EME scripts for testing, protocol development.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 3177: *Joint Counter Radio-Controlled IED Elec Warfare*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	WR	EOD/CRANE:Indian Head, MD/Crane, IN	0.000	0.000		4.600	Jan 2013	0.000		-		0.000	0.000	4.600	
		Subtotal	0.000	0.000		4.600		0.000		0.000		0.000	0.000	4.600	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		4.600		0.000		0.000		0.000	0.000	4.600	

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 4023: *VSW MCM/Force Protection UUV*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
4023: *VSW MCM/Force Protection UUV*	41.979	12.245	20.455	16.768	-	16.768	12.167	15.220	15.572	15.810	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Provides for development of affordable expeditionary, unmanned underwater systems to support Navy Expeditionary forces including Explosive Ordnance (EOD). Mobile Diving and Salvage Units, and Shallow Water (SW), Very Shallow Water (VSW) and Underwater Mine Countermeasures (UMCM) mission operations. The equipment must be highly portable in order to support the Navy EOD technician to safely approach, render safe, recover, exploit and dispose of underwater explosive threats to include sea mines, limpet mines and unexploded ordnance. Provides support for the Navy's high priority missions of Maritime Homeland Defense, MCM, including clandestine reconnaissance and mine clearance in support of amphibious operations. Development of Expeditionary UUV systems to support localization render-safe and detailed intelligence gathering of UXO including Underwater Improvised Explosive Devices. This project supports CNO N957 MCM UUV Roadmap.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: VSW MCM/Force Protection UUV	12.245	20.455	16.768
Articles:	0	0	0

Description: This program supports development, testing and Fleet approval for evolving generations of affordable, expenditionary Unmanned Underwater Vehicles (UUV), support equipment, and Common Operator Interface Navy (COIN) systems to address validated requirements in support of Expeditionary SW and VSW UMCM mission areas. Mission areas include: open and confined areas, hulls, piers and pilings to search, classify, map, re-acquire, identify, and neutralize sea and limpet mines and underwater improvised explosive devices.

FY 2012 Accomplishments:

Leveraged prior UOES testing and ONR Science and Technology (S&T) investments in standoff neutralization capabilities to initiate 1st increment of UUV-Neutralization (UUV-N) program to develop standoff neutralization capabilities to counter naval mines and other underwater explosive threats. Inserted mature technologies and validate system retrofit to UMCM UUV systems as incremental capability improvement packages to enhance performance in harsh environments in accordance with CNO/ONR technology transition agreements. Completed HULS validation testing to support fielding of baseline system. Begun development of technology in support of capability upgrades to UUV systems insertion retrofit to HULS and UUV-N systems as the next

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 4023: *VSW MCM/Force Protection UUV*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
increment capability improvement package to enhance performance in complex areas of ship hulls, piers and pilings and other certified areas. Continued to develop Common Operator Interface Navy (COIN). ***FY 2013 Plans:*** Continue to enhance both the HULS and UMCM UUV's with pre-planned product improvements to meet approved OPNAV operational requiremetns. UOES and RDT&E will be used to validate operational capabilities. ***FY 2014 Plans:*** Continue to develop, test and evaluate mature technology solutions to support integration into block upgrades via ECP retrofits to fielded MK 18 MOD 1, MOD 2, HULS UUV and Neutralization systems. Plan and execute structure UOES and requirements compliance testing and evaluation (RCT&E) to evaluate effectiveness, supportability and suitability of prototype block upgrade retrofit kits. Develop Joint Capability Integration Development System (JCIDS) documentation as required to support future MK 18 MOD 2 improvements. Conduct Analysis of next generation EOD UUV Expeditionary Mission module to replace the UUV Family of Systems (FOS) at the end of their service life beginning in FY14.			
Accomplishments/Planned Programs Subtotals	12.245	20.455	16.768

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/0977: *Underwater EOD Program (Cost Code UQ034)*	6.271	17.874	14.400		14.400	12.552	22.674	23.885	25.188	0.000	131.194

Remarks

D. Acquisition Strategy

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new sub-projects. The AOA addresses and emphasizes acquisitions strategies of the most cost-effective solution over the sub-projects' life -cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modifications), non-developmental item (including modifications), and lastly, developmental programs. Contracting for RDT&E, if required is always competitive and when feasible, production options are included.

This ongoing program capitalizes on a User Operational Evaluation System (UOES) effort involving Fleet operators engaged in tactical experimentation with prototype UUVs prior to fielding baseline systems and capability improvement package increments. These UUV operators also participate in detailed requirements analyses and definition. Operational capabilities with UUV have been realized at designated operational units, with a competitive acquisition strategy. The addition of enhanced

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 4023: *VSW MCM/Force Protection UUV*

capabilities through an evolutionary acquisition approach to the UUV toolbox is programmed for delivery in accordance with approved CNO requirements and ONR TTAs. Further improvements to the toolbox to add basic mine and underwater explosive threats neutralization capabilities will be pursued.

E. Performance Metrics

Research and Develop technologies for the design of Unmanned Underwater Systems to provide enhanced fleet capabilities to locate, classify, and neutralized mines and unexploded ordnance.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 4023: *VSW MCM/Force Protection UUV*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	Multiple Activites:Not Specified	0.000	5.600	Oct 2011	5.159	Oct 2012	4.227	Oct 2013	-		4.227	0.000	14.986	
Systems Engineering	WR	NSWC, Activities:Not Specified	0.000	2.153	Oct 2011	4.858	Oct 2012	4.004	Oct 2013	-		4.004	0.000	11.015	
Primary Hardware Development	WR	EODTECHDIV:IH, MD	16.238	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	EODTECHDIV:IH, MD	11.026	0.236	Oct 2011	3.500	Oct 2012	2.893	Oct 2013	-		2.893	Continuing	Continuing	Continuing
		Subtotal	27.264	7.989		13.517		11.124		0.000		11.124			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Support	C/CPFF	ITT:ARLINGTON, VA	3.641	0.432	Oct 2011	0.450	Oct 2012	0.505	Oct 2013	-		0.505	Continuing	Continuing	Continuing
		Subtotal	3.641	0.432		0.450		0.505		0.000		0.505			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Multiple Activities:Not Specified	0.000	2.406	Oct 2011	3.700	Oct 2012	3.037	Oct 2013	-		3.037	0.000	9.143	
Operational Test & Evaluation	WR	NSWC, Activities:Not Specified	0.000	0.200	Oct 2011	0.900	Oct 2012	0.748	Oct 2013	-		0.748	0.000	1.848	
Developmental Test & Evaluation	WR	EODTECHDIV:IH, MD	6.646	0.200	Oct 2011	0.800	Oct 2012	0.617	Oct 2013	-		0.617	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	EODTECHDIV:IH, MD	1.424	0.000	Oct 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	8.070	2.806		5.400		4.402		0.000		4.402			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 4023: *VSW MCM/Force Protection UUV*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	EODTECHDIV:IH, MD	1.843	0.618	Oct 2011	0.555	Oct 2012	0.460	Oct 2013	-		0.460	Continuing	Continuing	Continuing
Miscellaneous	WR	NSWC, Activities:Not Specified	1.143	0.400	Oct 2011	0.533	Oct 2012	0.277	Oct 2013	-		0.277	Continuing	Continuing	Continuing
DAWDF	Various	Not Specified:Not Specified	0.018	0.000		0.000		0.000		-		0.000	0.000	0.018	
		Subtotal	3.004	1.018		1.088		0.737		0.000		0.737			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	41.979	12.245		20.455		16.768		0.000		16.768			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603654N: *JT Service Explosive Ordn Dev*	**PROJECT** 4023: *VSW MCM/Force Protection UUV*

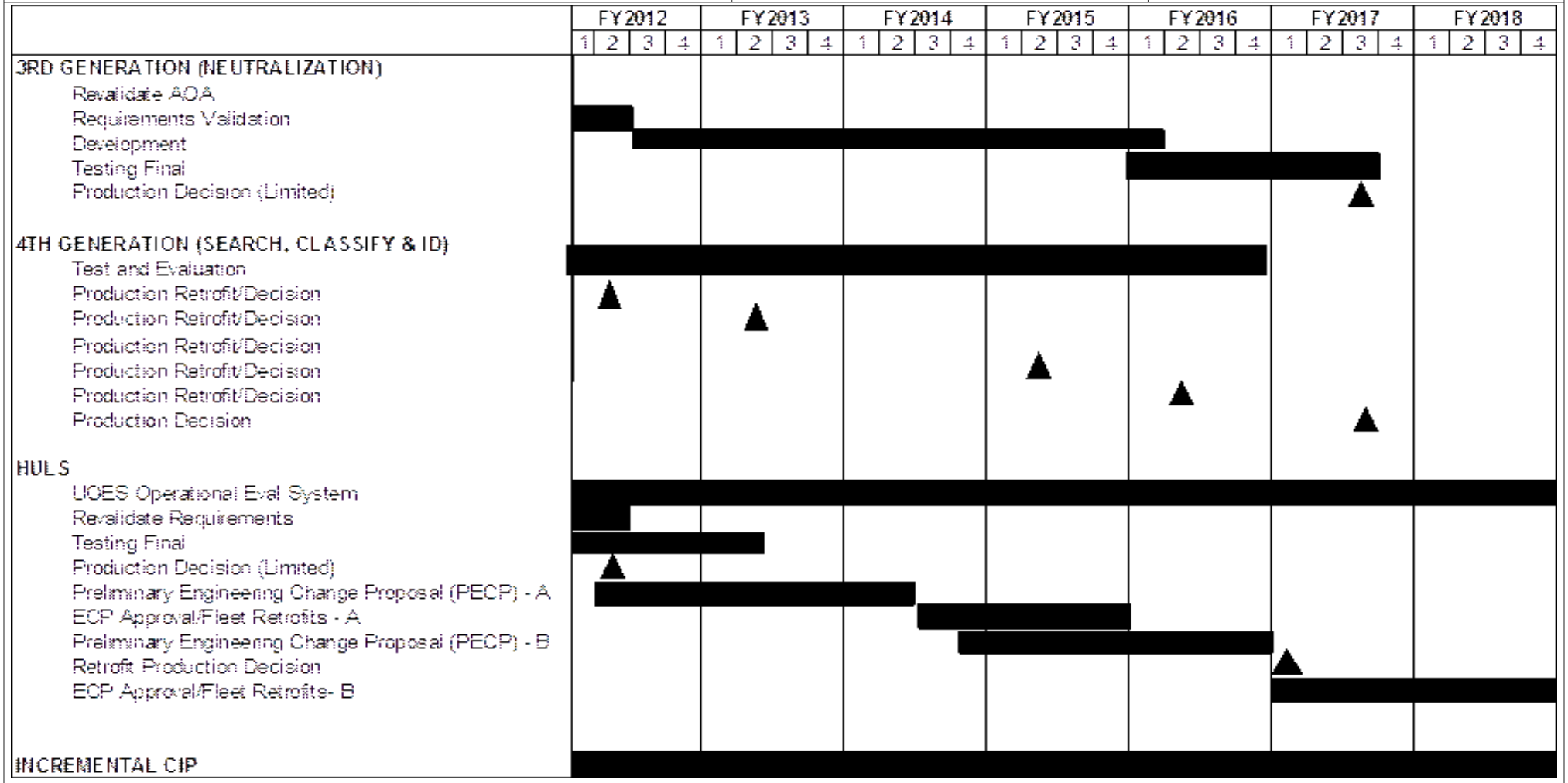


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603654N: *JT Service Explosive Ordn Dev*	**PROJECT** 4023: *VSW MCM/Force Protection UUV*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4023				
3RD GENERATION (NEUTRALIZATION)	1	2012	3	2017
Requirements Validation	1	2012	2	2012
Development	3	2012	1	2016
Testing Final 1	1	2016	3	2017
Production Decision (Limited) 1	3	2017	3	2017
Title: 4th GENERATION (SEARCH-CLASSIFY & ID)	1	2012	3	2017
Test & Evaluation	1	2012	4	2016
Production/Retrofit Decision1	2	2012	2	2012
Production/Retrofit Decision2	2	2013	2	2013
Production/Retrofit Decision4	2	2015	2	2015
Production/Retrofit Decision5	2	2016	2	2016
Production Decision	3	2017	3	2017
Title: HULS	1	2012	4	2017
UOES Operational Eval System	1	2012	4	2017
Revalidate Requirements	1	2012	2	2012
Testing Final	1	2012	2	2013
Production Decision (Limited)	2	2012	2	2012
Preliminary Engineering Change Proposal (PECP) - A	2	2012	2	2014
ECP Approval/Fleet Retrofits - A	3	2014	4	2015
Preliminary Engineering Change Proposal (PECP) - B	4	2014	4	2016
Retrofit Production Decision	1	2017	1	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603654N: *JT Service Explosive Ordn Dev*	PROJECT 4023: *VSW MCM/Force Protection UUV*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ECP Approval/Fleet Retrofits - B	1	2017	4	2017
INCREMENTAL CIP	1	2012	4	2017

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	329.287	54.422	56.512	69.312	-	69.312	66.001	87.766	77.204	78.532	Continuing	Continuing
2039: *COOP Engagement*	329.287	54.422	56.512	69.312	-	69.312	66.001	87.766	77.204	78.532	Continuing	Continuing
MDAP/MAIS Code(s): 582												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Cooperative Engagement Capability (CEC) significantly improves Battle Force Anti-Air Warfare (AAW) capability by coordinating all Battle Force AAW sensors into a single, real-time, composite track picture capable of fire control quality. CEC distributes sensor data from each ship and aircraft, or cooperating unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate gridlocking between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a fire control quality track picture which is the same for all CUs. CEC data is presented as a superset of the best AAW sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system. CEC significantly improves our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC provides critical connectivity and integration of over-land air defense systems capable of countering emerging air threats, including land attack cruise missiles, in a complex littoral environment.

CEC consists of the Data Distribution System (DDS), the Cooperative Engagement Processor (CEP), and interface with Combat Systems and sensors. The DDS encodes and distributes own-ship sensor and engagement data and is a high capacity, jam resistant, directive system providing a precision gridlocking and high throughput of data. The CEP is a high capacity distributed processor that processes force levels of data in near real-time. The data is passed to the ship's combat system as high quality data for which the ship can cue its onboard sensors or use the data to engage targets without actually tracking them. CEC incorporates Advanced Capability Build-12 (ACB-12) into the CEC baseline for FY09 - FY13.

The Navy implemented a Signal Data Processor (SDP) approach to modify the current equipment to meet reduced size, weight, cost, power and cooling objectives. This SDP approach also supports continuity for interoperability improvements and program protection, as well as supporting open architecture initiatives, and comms independence. The SDP will provide hardware which complies with Category 3 Open Architecture Computing Environment (OACE) standards with rehosted existing software, which will be fielded fleet-wide to allow affordable replacement of obsolete computing system components and eliminate dependencies on "closed" equipment, operating systems, and middleware.

Additionally, CEC is working with the Army to engineer a Joint Track Management (JTM) and sensor measurement fusion capability, which will be implemented in their respective programs to achieve interoperability across the battle space.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*

COMOPTEVFOR found the AN/USG-3 (E-2C Airborne CEC) Operationally Effective, but not Operationally Suitable. Reliability and availability issues are addressed by the replacement of four Weapons replaceable Assemblies (WRAs) with the new SDP-S. Backfit of the SDP-S in the E-2C will resolve suitability issues and satisfy National Security Agency (NSA) directed Crypto Modernization requirements. The SDP-S will also be used in E-2D.

A family of antennas approach will be used to satisfy CEC requirements with lower life cycle costs (procurement, installation, and maintenance) and reduced weight (on mast and below deck). These antennas enable future capability as well as providing a solution extensible to additional platforms. This effort for Common Array Block (CAB) antennas will be competed and awarded to a single Design Agent in FY12 and a competitive award for production is planned for FY14.

Large Nets respond to emergent needs of operational forces and missions, provides an extensible foundation for capability growth, provides interoperability with legacy units in Global Mode. This will provide an increase in DDS network size. This is needed to improve multiple battle group operations. Applicable ships and systems include all CEC deployed units and future fielding to include CG/DDG Modernization, and its Pathfinder Programs. Data Distribution System (DDS) must increase nodes to support the increasing number of fielded CEC assets.

In support of Interoperability, CEC will continue to work collaboratively with other Combat Systems programs (AWS, E-2C, E-2D, SSDS, CDLMS, C2P, and SGS/AC) to develop the software and implement design corrections and system changes. CEC will analyze the interactions of interoperability issues and impacts and provide collaboration for development of CEC and other system changes. Develop the long term solutions, including the engineering process to validate small parts of developmental software ideas, and utilize M&S to validate design approaches in the systems engineering realm.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	54.783	56.512	71.776	-	71.776
Current President's Budget	54.422	56.512	69.312	-	69.312
Total Adjustments	-0.361	0.000	-2.464	-	-2.464
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.000	0.000			
• SBIR/STTR Transfer	-1.361	0.000			
• Program Adjustments	0.000	0.000	-1.984	-	-1.984
• Rate/Misc Adjustments	0.000	0.000	-0.480	-	-0.480

Change Summary Explanation

Reduced FY14 funding to properly phase program requirements in accordance with expenditures.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2039: *COOP Engagement*	329.287	54.422	56.512	69.312	-	69.312	66.001	87.766	77.204	78.532	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Cooperative Engagement Capability (CEC) significantly improves Battle Force Anti-Air Warfare (AAW) capability by coordinating all Battle Force AAW sensors into a single, real-time, composite track picture capable of fire control quality. CEC distributes sensor data from each ship and aircraft, or cooperating unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate gridlocking between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a fire control quality track picture which is the same for all CUs. CEC data is presented as a superset of the best AAW sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system. CEC significantly improves our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC provides critical connectivity and integration of over-land air defense systems capable of countering emerging air threats, including land attack cruise missiles, in a complex littoral environment.

CEC consists of the Data Distribution System (DDS), the Cooperative Engagement Processor (CEP), and interface with Combat Systems and sensors. The DDS encodes and distributes own-ship sensor and engagement data and is a high capacity, jam resistant, directive system providing a precision gridlocking and high throughput of data. The CEP is a high capacity distributed processor that processes force levels of data in near real-time. The data is passed to the ship's combat system as high quality data for which the ship can cue its onboard sensors or use the data to engage targets without actually tracking them. CEC incorporates Advanced Capability Build-12 (ACB-12) into the CEC baseline for FY09 - FY13.

The Navy implemented a Signal Data Processor (SDP) approach to modify the current equipment to meet reduced size, weight, cost, power and cooling objectives. This SDP approach also supports continuity for interoperability improvements and program protection, as well as supporting open architecture initiatives, and comms independence. The SDP will provide hardware which complies with Category 3 Open Architecture Computing Environment (OACE) standards with rehosted existing software, which will be fielded fleet-wide to allow affordable replacement of obsolete computing system components and eliminate dependencies on "closed" equipment, operating systems, and middleware.

Additionally, CEC is working with the Army to engineer a Joint Track Management (JTM) and sensor measurement fusion capability, which will be implemented in their respective programs to achieve interoperability across the battle space.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*

COMOPTEVFOR found the AN/USG-3 (E-2C Airborne CEC) Operationally Effective, but not Operationally Suitable. Reliability and availability issues are addressed by the replacement of four Weapons replaceable Assemblies (WRAs) with the new SDP. Backfit of the SDP in the E-2C will resolve suitability issues and satisfy National Security Agency (NSA) directed Crypto Modernization requirements. The SDP will also be used in E-2D.

A family of antennas approach will be used to satisfy CEC requirements with lower life cycle costs (procurement, installation, and maintenance) and reduced weight (on mast and below deck). These antennas enable future capability as well as providing a solution extensible to additional platforms. This effort for Common Array Block (CAB) antennas will be competed and awarded to a single Design Agent in FY12 and a competitive award for production is planned for FY14.

Large Nets respond to emergent needs of operational forces and missions, provides an extensible foundation for capability growth, provides interoperability with legacy units in Global Mode. This will provide an increase in DDS network size. This is needed to improve multiple battle group operations. Applicable ships and systems include all CEC deployed units and future fielding to include CG/DDG Modernization, and its Pathfinder Programs. Data Distribution System (DDS) must increase nodes to support the increasing number of fielded CEC assets.

In support of Interoperability, CEC will continue to work collaboratively with other Combat Systems programs (AWS, E-2C, E-2D, SSDS, CDLMS, C2P, and SGS/AC) to develop the software and implement design corrections and system changes. CEC will analyze the interactions of interoperability issues and impacts and provide collaboration for development of CEC and other system changes. Develop the long term solutions, including the engineering process to validate small parts of developmental software ideas, and utilize M&S to validate design approaches in the systems engineering realm.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: E-2D	3.310	1.000	1.000
Articles:	0	0	0
FY 2012 Accomplishments: Commenced preparation for the E-2D and AN/USG-3B initial operational test and provided technical support to that event. Supported NIFC-CA integration and demonstration preparation events. Provided analysis, debug and fixes. ***FY 2013 Plans:*** Support NIFC-CA execution events with analysis, debug and fixes. ***FY 2014 Plans:*** Support NIFC-CA execution events with analysis, debug and fixes.			
Title: B/L 2.1 INTEGRATION AND FOT&E TESTING	7.900	6.700	8.900
Articles:	0	0	0
FY 2012 Accomplishments: Continued development, integration and testing of computer program Baseline 2.1 for AEGIS and SSDS platforms. Performed Operational Testing (OT) of AN/USG-3B on E-2D, Engineering and Developmental testing of AN/USG-2B with AEGIS ACB12			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Engineering and Developmental testing of CEC as part of NIFC-CA. Performed Operational Testing (OT) of AN/USG-2A on DDG-51 class. Supported developmental testing of Mid-term interoperability enterprise upgrade. ***FY 2013 Plans:*** Support demonstration and OT testing of NIFC-CA. Perform Operational Testing (OT) of AN/USG-2B with AEGIS ACB12. Support operational testing of Mid-term interoperability enterprise upgrade. ***FY 2014 Plans:*** Support demonstration and OT testing of NIFC-CA. Perform Operational Testing (OT) of AN/USG-2B with AEGIS ACB12. Support operational testing of Mid-term interoperability enterprise upgrade.			
Title: NIFC-CA	3.390	2.730	2.000
Articles:	0	0	0
FY 2012 Accomplishments: Supported NIFC-CA FTS SoS SE. Provided CEC test support, model updates, post test analysis, debug and fix. Established CEC capability at White Sands Missile Range Desert Ship in support of NIFC-CA. ***FY 2013 Plans:*** Support NIFC-CA FTS SoS SE leading to FY13 live fire testing at WSMR and At Sea. Provide CEC test support, model updates, post test analysis, debug and fix leading to deployable CEC baseline with NIFC-CA capability. ***FY 2014 Plans:*** Support NIFC-CA FTS SoS SE leading to FY14 live fire testing at WSMR and At Sea. Provide CEC test support, model updates, post test analysis, debug and fix leading to deployable CEC baseline with NIFC-CA capability.			
Title: SYSTEM IMPROVEMENTS	20.082	14.100	15.536
Articles:	0	0	0
FY 2012 Accomplishments: Continued CEC system improvements including enhanced communications, expansion of networking capability, development of system protection, Cryptologic Modernization, design agent and engineering services. ***FY 2013 Plans:*** Continue CEC system improvements with large network development, and netted surface tracking, program protection and DDS breakup. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue CEC system improvements with large network development, and netted surface tracking, program protection and DDS breakup. Continue Joint Track Management Capability (JTMC) development planning.			
Title: NETWORK ENABLED ELECTRONIC DEFENSE SYSTEM (NEEDS) ***Articles:*** ***FY 2013 Plans:*** Commence concept exploration, technology assessment, system trade studies, event data collection for NEEDS capability to respond to emergent operational needs to provide improved surveillance, tracking , ID, and engagement capabilities. Commence development of NEEDS requirements, algorithms, Modeling & Simulation (M&S) capability to model both threats and NEEDS, and support for Technical Interchange Meetings (TIM). ***FY 2014 Plans:*** Continue development of NEEDs requirements, algorithms, and M&S capabilities to respond to emergent operational needs to provide improved surveillance, tracking, ID, and engagement capabilities. Commence analysis, definition and development of NEEDS capability, system architecture and design, external interface requirements, development of prototype implementations, evaluation of real time processing load, development of WASP capabilities, development of recorded data playback capability, and support for TIM, Interface Control Working Groups (ICWG) and In-Process Review (IPR).	0.000 0	6.160 0	9.137 0
Title: FIELD ACTIVITIES ***Articles:*** ***FY 2012 Accomplishments:*** Continued field activity support of CEC development and fielding efforts (i.e. SE/IA, Technical Direction Agent, In-Service Engineering, Integrated Logistics Support Planning) and program management support. ***FY 2013 Plans:*** Continue field activity support of CEC development and fielding efforts (i.e. SE/IA, Technical Direction Agent, In-Service Engineering, Integrated Logistics Support Planning) and program management support. ***FY 2014 Plans:*** Continue field activity support of CEC development and fielding efforts (i.e. SE/IA, Technical Direction Agent, In-Service Engineering, Integrated Logistics Support Planning) and program management support.	8.200 0	8.294 0	8.300 0
Title: COMMON ARRAY BLOCK (CAB) ANTENNA ***Articles:*** ***FY 2012 Accomplishments:***	5.400 0	10.600 0	5.300 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continued development of a lower cost and modular family of antennas approach called CAB. ***FY 2013 Plans:*** Continue development of the CAB-S antenna. ***FY 2014 Plans:*** Continue development of the CAB-S antenna.			
Title: LINK 16/INTEROPERABILITY	6.140	3.390	2.800
Articles:	0	0	0
FY 2012 Accomplishments: Collaborated Link 16/interoperability efforts with other Combat Systems programs (AWS, E-2C, E-2D, SSDS, CDLMS, C2P, and SGS/AC). Developed and analyzed impacts of software and implement foundational changes, design corrections, and other system changes. Participated in testing of the resulting Mid-term interoperability changes aboard USN fleet during Trident Warrior 12. ***FY 2013 Plans:*** Test, debug, certify and field the Mid-term interoperability upgrade. ***FY 2014 Plans:*** Test, debug, certify and field the Mid-term interoperability upgrade.			
Title: AIR AND MISSILE DEFENSE RADAR (AMDR)	0.000	0.500	5.500
Articles:		0	0
FY 2013 Plans: Commence development of CEC/AMDR Interface Requirements Specification (IRS), AMDR/CEP Interface Design Description (IDD) outline; identify and resolve AMDR/CEC integration engineering issues, support Technical Interchange Meetings (TIM), Interface Control Working Groups (ICWG), and CEC/AMDR In-Process Review (IPR) #1. ***FY 2014 Plans:*** Continue development of updated IRS and commence development of full CEC/AMDR IDD, development and analysis of integration adaptive layer algorithms Ballistic Missile Defense (BMD) functionality, design of CEC adaptive layer code, initial development of CEC Wrap Around Simulator Processor (WASP) capability, support TIM, ICWG and CEC/AMDR IPR #2.			
Title: E-2C BACKFIT	0.000	3.038	10.839
Articles:		0	0
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Commence Non-Recurring Engineering (NRE) efforts to backfit the SDP-S in E-2C to support NSA mandated crypto requirements. Support includes conduct of Technical Interchange Meetings (TIM) to develop requirements to integrate design with the E-2C aircraft. ***FY 2014 Plans:*** Continue NRE efforts to include test planning and support, porting of CEC software from AN/USG-3 to SDP-S based architecture, design hardware installation including structural attachment and power, cooling, wiring of SDP-S with legacy Radio Frequency components; update and approve applicable drawings, conduct TIMs and Systems Engineering Technical Reviews (i.e.; PDR/ CDR).			
Accomplishments/Planned Programs Subtotals	54.422	56.512	69.312

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• SCN: *Navy, SCN*	11.880	23.872	6.500		6.500	11.400	19.000	18.322	11.600	0.000	356.853
• APN/0204152N: *Navy, APN*	15.595	15.863	16.144		16.144	16.435	20.077	27.251	27.741	0.000	313.540
• OPN/2606: *CEC*	19.332	27.881	34.692		34.692	38.105	29.370	34.691	35.273	0.000	908.495
• OPN/0960: *CG Mod*	15.284	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	46.921
• OPN/0900: *DDG Mod*	0.000	11.107	0.000		0.000	0.000	0.000	0.000	0.000	0.000	62.918
• OPN/0206313M: *USMC*	3.845	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	50.924
• RDT&E/0206313M: *USMC*	5.606	2.383	7.266		7.266	4.664	1.180	0.571	0.335	0.000	29.829
• RDT&E,A/0102419A: *JLENS*	5.606	2.370	0.000		0.000	0.000	0.000	0.000	0.000	0.000	41.842
• O&M,N/0206626M: *USMC*	0.963	1.000	2.200		2.200	1.300	1.300	1.300	1.300	0.000	9.363

Remarks

D. Acquisition Strategy

CEC Acquisition Strategy (AS) was approved by OSD (AT&L) on 19 January 2010. CEC Acquistion Plan (AP) dated August 2012 is currently being routed for signature to reflect revised competition efforts/dates.

Contracts:
SDP-S Contract Awarded - Q1 FY12.
Common Array Block (CAB) antenna - New Contract will be competitively awarded in FY13.
CEC Production - New Contract will be competitively awarded in FY14.
DA/ES - New contract will be competitively awarded in FY15.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*

E. Performance Metrics

- Complete the adaptive layer development for the E-2D aircraft. Provide technical support for installation and integration in the Northrop Grumman Systems Integration Laboratory, on board the test aircraft and support the Developmental testing.
- Continue AEGIS Advance Capability Builds CEC integration and demonstration efforts.
- Continue Naval Integrated Fire Control - Counter Air (NIFC-CA) CEC integration and demonstration efforts.
- Continue E-2D Advanced Hawkeye aircraft CEC integration efforts.
- Continue Crypto Modernization Tech Refresh efforts.
- Award contract to develop Common Array Block (CAB).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/USG-2/3 Design Agent/Engineering Services	C/CPFF	Raytheon:St. Petersburg, FL	75.759	9.270	Feb 2012	7.500	Dec 2012	8.900	Dec 2013	-		8.900	Continuing	Continuing	Continuing
AN/USG-2/3 Development/ TDA	C/CPFF	JHU/APL:Laurel, MD	40.446	8.102	Feb 2012	8.051	Nov 2012	9.443	Nov 2013	-		9.443	Continuing	Continuing	Continuing
SI/DA	C/CPAF	General Dynamics:Fairfax, VA	23.979	0.000		0.000		0.000		-		0.000	0.000	23.979	
SI/DA	C/CPAF	Award Fees:Not Specified	2.903	0.000		0.000		0.000		-		0.000	0.000	2.903	
DDG 1000	C/CPAF	Raytheon:Massachusetts	10.983	0.000		0.000		0.000		-		0.000	0.000	10.983	
DDG 1000	C/CPAF	Award Fees:Not Specified	0.447	0.000		0.000		0.000		-		0.000	0.000	0.447	
NIFC-CA Integration	TBD	Various:Not Specified	33.639	3.390	Dec 2011	2.730	Dec 2012	2.000	Nov 2013	-		2.000	Continuing	Continuing	Continuing
In-Service Engineering Activity	WR	NSWC:Port Hueneme, CA	0.857	0.250	Nov 2011	0.250	Nov 2012	0.250	Nov 2013	-		0.250	Continuing	Continuing	Continuing
Software Support Activity/ SEIA	WR	NSWC:Dahlgren, VA	11.338	0.449	Nov 2011	0.449	Nov 2012	0.446	Nov 2013	-		0.446	Continuing	Continuing	Continuing
Production Engineering Activity	WR	NSWC:Crane, IN	5.094	0.600	Nov 2011	0.250	Nov 2012	0.300	Nov 2013	-		0.300	Continuing	Continuing	Continuing
JTRS	TBD	Various:Not Specified	8.500	0.000		0.000		0.000		-		0.000	0.000	8.500	
Various	TBD	Miscellaneous:Not Specified	15.832	13.301	Feb 2012	9.022	Dec 2012	13.836	Nov 2013	-		13.836	Continuing	Continuing	Continuing
NAVSSI	WR	SPAWAR:San Diego, CA	0.368	0.000		0.000		0.000		-		0.000	0.000	0.368	
Certification	MIPR	NSA:Fort Meade, MD	0.850	0.250	Feb 2012	0.100	Nov 2012	0.100	Nov 2013	-		0.100	Continuing	Continuing	Continuing
Certification	WR	SPAWAR:Charleston, SC	0.930	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Joint Exercises	WR	Various:Not Specified	3.744	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
LBTS Testing	WR	CDSA Damneck:Virginia Beach, VA	5.070	0.500	Nov 2011	0.500	Nov 2012	0.500	Nov 2013	-		0.500	Continuing	Continuing	Continuing
LBTS Testing	Reqn	SCSC:Wallops Island, VA	3.930	0.700	Nov 2011	1.700	Nov 2012	1.700	Nov 2013	-		1.700	Continuing	Continuing	Continuing
E-2D Integration	TBD	Various:Not Specified	36.948	3.310	Nov 2011	1.000	Nov 2012	1.000	Nov 2013	-		1.000	Continuing	Continuing	Continuing
MSI/NCCT	MIPR	Wright Patterson AFB:Dayton, OH	1.228	0.000		0.000		0.000		-		0.000	0.000	1.228	
Common Array Block Development	C/CPFF	TBD:Not Specified	0.000	5.400	Dec 2011	10.600	Jan 2013	5.300	Jan 2014	-		5.300	0.000	21.300	
NEEDS	TBD	Various:Not Specified	0.000	0.000		6.160	Dec 2012	9.137	Dec 2013	-		9.137	0.000	15.297	
AMDR	TBD	Various:Not Specified	0.000	0.000		0.500	Dec 2012	5.500	Dec 2013	-		5.500	0.000	6.000	
JTMC	TBD	Various:Not Specified	0.000	0.000		0.000		1.000	Dec 2013	-		1.000	0.000	1.000	
		Subtotal	282.845	45.522		48.812		59.412		0.000		59.412			

Remarks

Explanations for the use of "WR, MP, and Reqn" in the Contract method & type" column are as follows:
- When using "MIPR", these documents are issued to DOD activities that are outside of the Department of the Navy.
- When using "Reqn" for Wallops Island, this document is used because this is the only document we can provide to the activity to accomplish taskings for the CEC program.
- When using "WR", these documents are sent to Navy activities who obligate funding on their vehicles to accomplish tasking for CEC. These activities are the only ones who can accomplish these tasks for the program.
- E-2D Integration/NIFC-CA "Various/TBDs" are for classified programs and several document types.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test/ACB Support	C/CPFF	Raytheon:St. Petersburg, FL	1.334	1.563	Nov 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test/ACB Support	C/CPFF	JHU/APL:Laurel, MD	0.198	0.261	Nov 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test Support	WR	NRL:Washington, DC	0.313	0.000		0.000		0.000		-		0.000	0.000	0.313	
Test/ACB Support	WR	NSWC:Port Hueneme, CA	15.608	1.436	Nov 2011	1.836	Nov 2012	2.437	Nov 2013	-		2.437	Continuing	Continuing	Continuing
Air Operations Test Support	WR	NAVAIR (PMA207):Patuxent River, MD	6.461	1.700	Nov 2011	0.800	Nov 2012	1.460	Nov 2013	-		1.460	Continuing	Continuing	Continuing
Test Data Reduction Analysis	WR	NWAS:Corona, CA	10.821	0.300	Nov 2011	0.900	Nov 2012	1.196	Nov 2013	-		1.196	Continuing	Continuing	Continuing
Test Support	WR	COMOPTEVFOR:Norfolk, VA	6.277	2.500	Nov 2011	0.300	Nov 2012	3.807	Nov 2013	-		3.807	Continuing	Continuing	Continuing
Test/ACB Support	WR	NSWC:Dahlgren, VA	1.000	0.140	Nov 2011	0.144	Nov 2012	0.000	Nov 2013	-		0.000	0.000	1.284	
Test/ACB Support	C/CPFF	TBD:Not Specified	0.000	0.000		2.720	Dec 2012	0.000		-		0.000	0.000	2.720	
		Subtotal	42.012	7.900		6.700		8.900		0.000		8.900			

Remarks

Explanation for the use of "WR" in the "Contract method & type" column are as follows:

When using "WR", these documents are sent to Navy activities who obligate funding on their vehicles to accomplish tasking for CEC. These activities are the only ones who can accomplish these tasks for the program.

Test support also includes ACB the following funding:
FY12 - $1.0M
FY13 - $3.0M
FY14 - $3.0M

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/FFP	Booz Allen & Hamilton:Washington, DC	4.190	0.880	Dec 2011	0.880	Dec 2012	0.880	Dec 2013	-		0.880	Continuing	Continuing	Continuing
Program Management Support	C/FFP	Tech Marine Business:Washington, DC	0.240	0.120	Dec 2011	0.120	Dec 2012	0.120	Dec 2013	-		0.120	Continuing	Continuing	Continuing
		Subtotal	4.430	1.000		1.000		1.000		0.000		1.000			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	329.287	54.422		56.512		69.312		0.000		69.312			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*

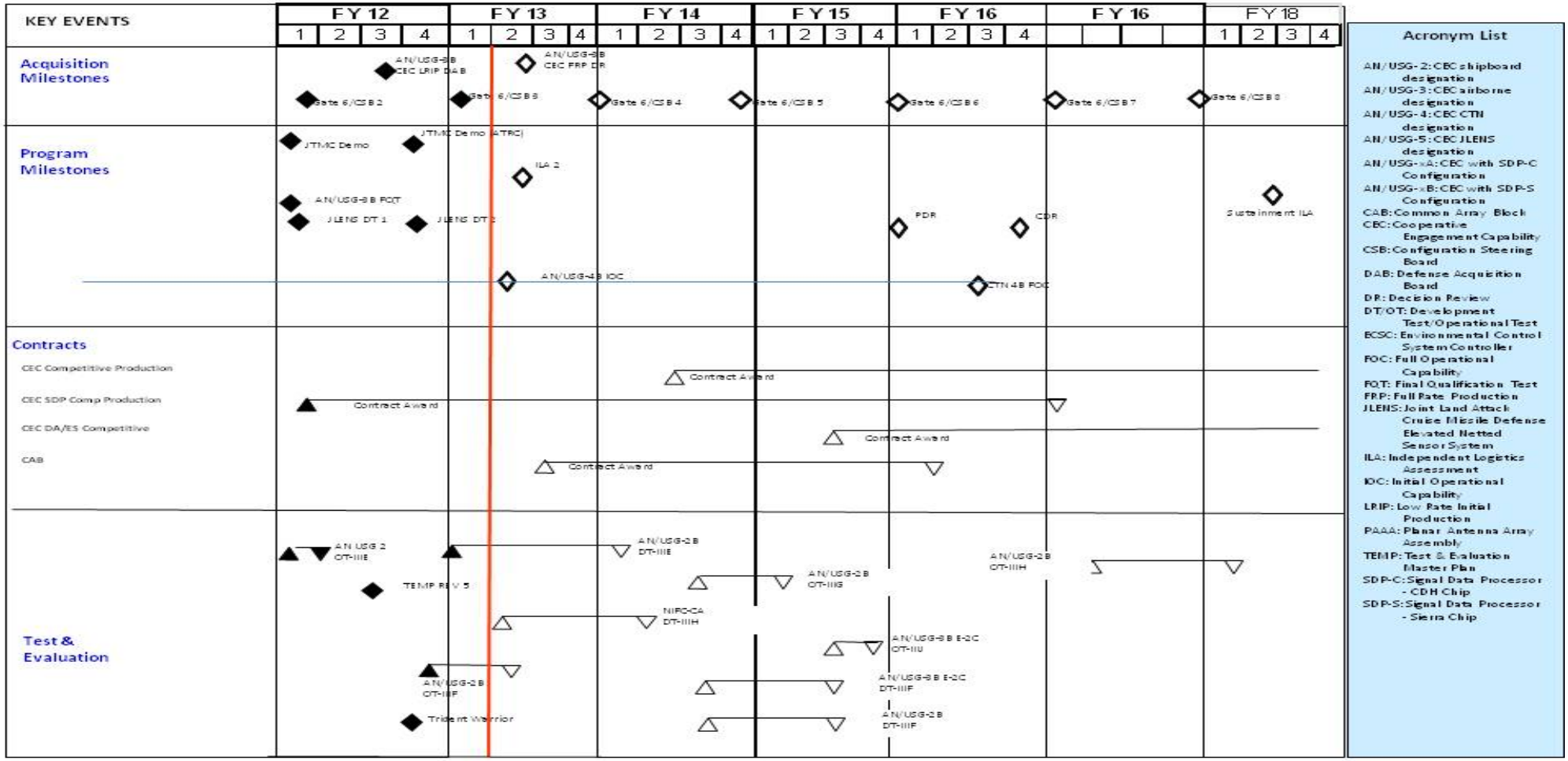


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*

Schedule Details

	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
Proj 2039				
Gate 6/CSB 1	1	2012	1	2012
AN/USG-3B CEC LRIP DAB	3	2012	3	2012
Gate 6/CSB 2	1	2013	1	2013
AN/USG-3B CEC FRB DR	3	2013	3	2013
Gate 6/CSB 3	1	2014	1	2014
Gate 6/CSB 4	1	2015	1	2015
Gate 6/CSB 5	1	2016	1	2016
Gate 6/CSB 6	1	2017	1	2017
Gate 6/CSB 7	1	2018	1	2018
JTMC Demo	1	2012	1	2012
JTMC Demo (ATRC)	4	2012	4	2012
ILA	3	2013	3	2013
AN/USG 4B IOC	2	2013	2	2013
Sustainment ILA	3	2018	3	2018
AN/USG-3B FQT	1	2012	1	2012
JLENS DT 1	1	2012	2	2012
JLENS DT 2	4	2012	4	2012
PDR	1	2016	1	2016
CDR	4	2016	4	2016
CTN 4B FOC	3	2016	3	2016
CEC Competitive Production	3	2014	2	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603658N: *Cooperative Engagement*	PROJECT 2039: *COOP Engagement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CEC SDP Comp Production	1	2012	1	2016
CEC DA/ES Competitive	3	2015	1	2018
CAB	3	2013	2	2016
AN/USG-2 OT-IIIE	1	2012	2	2012
AN/USG-2B OT-IIIF	1	2013	2	2013
AN/USG-2B DT-IIIE	1	2013	2	2014
TEMP Rev 5	3	2012	3	2012
AN/USG-2B OT-IIIE	4	2014	2	2015
NIFC-CA/DT-IIIH	2	2013	2	2014
AN/USG-3B/E-2C DT-IIIG	4	2014	3	2015
AN/USG-3B/E-2C OT-IIIJ	3	2015	4	2015
AN/USG-2B/OT-IIIH	4	2014	3	2015
AN/USG-2B/DT-IIIF	1	2016	4	2016
Trident Warrior	4	2012	4	2012

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	91.840	9.802	7.029	9.196	-	9.196	9.887	10.120	7.546	7.684	Continuing	Continuing
0099: *Deep Submergence Bio Med Dev*	18.944	3.438	3.538	3.106	-	3.106	4.003	3.965	3.824	3.893	Continuing	Continuing
0394: *Shallow Depth Diving EQ*	72.896	6.364	3.491	6.090	-	6.090	5.884	6.155	3.722	3.791	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Developments in this program will enable the U.S. Navy to overcome deficiencies that constrain underwater operations in the areas of search, location, rescue, recovery, salvage, construction, and protection of offshore assets. This program develops medical technology, diver life support equipment, and the vehicles, systems, tools, and procedures to permit manned underwater operations.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	9.996	7.029	7.198	-	7.198
Current President's Budget	9.802	7.029	9.196	-	9.196
Total Adjustments	-0.194	0.000	1.998	-	1.998
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.194	0.000			
• Program Adjustments	0.000	0.000	2.001	-	2.001
• Rate/Misc Adjustments	0.000	0.000	-0.003	-	-0.003

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0099: *Deep Submergence Bio Med Dev*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0099: *Deep Submergence Bio Med Dev*	18.944	3.438	3.538	3.106	-	3.106	4.003	3.965	3.824	3.893	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project:
1) Develops advanced biomedical and bioengineering technology for enhancing medical and life support for submarine escape and rescue;
2) Conducts research for diver health, safety and effectiveness; and
3) Supports deeper, longer, and more flexible dives.

Deliverables for DISSUB (disabled submarine) include: medical procedures for submarine escape and rescue (including new Submarine Rescue Diving and Recompression System (SRDRS)), life support parameters, medical procedures for life support, exposure guidance for atmospheric contaminants, non-chemical CO2 scrubbing, prevention and treatment of decompression illness, and senior survivor expert decision system.
Deliverables for diver enhancement include: exposure guidance for diver underwater continuous noise, impulse noise, and underwater blast, exposure guidance for oxygen breathing, collection of operational diving depth/time profiles to predict decompression risk, enhanced underwater swimming efficiency, enhanced diver thermal protection, and real-time decompression guidance.
Requirements: NAPDD #587-873, Deep Submergence Biomedical Development, 23 November 1999.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Deep Submergence Bio Med Dev - Diver Health and Safety	1.719	1.769	1.553
Articles:	0	0	0
Description: Diver Health and Safety Research: Pulmonary oxygen toxicity exposure limits. Procedures for assessing and mitigating risk for diving in contaminated water. Procedure to determine remaining CO2 scrubber duration. Development of advanced insulation garments for diver thermal protection. Develop guidance for optimizing thermal control during decompression. Continue collection of operational dive profiles for advanced modeling. Novel methods for diver thermal protection. Improve resistance to O2 toxicity. Diver anthropometry. Chemical hardening of diving equipment. Predictive index of visual and auditory O2 toxicity. Guidelines for flying after diving. Guidelines for infra- and ultra-sound diver exposure. Develop an advanced diver thermal model. Electronic collection of operational dive data. Diver sound monitor. Investigation of diver in-water maladies, develop/improve real-time decompression guidance and dive planning.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0099: *Deep Submergence Bio Med Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: Successful development of topside decompression monitor for real time decompression guidance for surface supplied air diving. Identified a very significant effect of breathing air versus oxygen while at rest, in repeat and prolong dives, on diver fatigue and exercise capability. Continue human performance and pulmonary oxygen toxicity investigation and guidance for repeated long duration dives. Continue enhanced thermal protection efforts for divers. Continue probabilistic and deterministic decompression modeling. Continue real-time decompression guidance and planning efforts. ***FY 2013 Plans:*** Evaluate the effects of CO2 retention on diver cognition. Evaluation of drugs to mitigate Central Nervous System Oxygen toxicity. Continued evaluation of susceptibility to immersion pulmonary edema. Continue human performance and pulmonary oxygen toxicity investigation and guidance for repeated long duration dives. Continue enhanced thermal protection efforts for divers. Continue probabilistic and deterministic decompression modeling. Continue real-time decompression guidance and planning efforts. Other projects to be approved in August 2012. ***FY 2014 Plans:*** To be determined based on projects selected in late FY 2012 and FY 2013.			
Title: Deep Submergence Bio Med Dev - Submarine Rescue	1.719	1.769	1.553
Articles:	0	0	0
Description: Submarine Rescue: Decompression procedures for pressurized SRDRS operators. Use of perfluorocarbons to accelerate decompression in submarine rescue. Adjunctive therapies for treating DISSUB survivors. Guidance for food, water, clothing, medical supplies to enhance survival of submarine crews awaiting rescue. Flexible computer generated decompression schedules for wide range of conditions in a DISSUB. Develop DISSUB triage procedures. DISSUB survival trial. Develop oxygen metabolizer for closed vehicles. Treatment guidance for decompression sickness and arterial gas embolism in submarine escape and rescue. Interventions for toxicological problems with rescued submariners. Minimizing decompression sickness and arterial gas embolism with Submarine Escape and Immersion Suit (SEIS) training. Use of pharmacologic agents to reduce decompression risk in submarine rescuees. Development of toxic gas analyzer for use in pressurized DISSUB. ***FY 2012 Accomplishments:*** Completed testing of the O2 monitoring system for the rebreather used for submarine rescue. Completed evaluation of an improved hyperbaric toxic gas analyzers for submarine and DISSUB use. Evaluated the suitability of the SEIE suit for small stature submarines escapees.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0099: *Deep Submergence Bio Med Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue prediction improvement for DISSUB Rescue using 70kg swine dropout decompression from 30-50 fsw. Continue decompression enhancement using combined animal models for depths too risky for human subject testing. Continue negative pressure breathing to enhance nitrogen elimination during pressurized DISSUB rescue. ***FY 2013 Plans:*** Evaluation of prescribed drugs to decrease the incidence of oxygen convulsions when breathing high levels of oxygen during DISSUB survivor decompression. Evaluation of a survival-prolonging drug on rates of decompression illness in DISSUB survivors. Other projects to be approved August 2012. ***FY 2014 Plans:*** To be determined based on projects selected in late FY 2012 and FY 2013.			
Accomplishments/Planned Programs Subtotals	3.438	3.538	3.106

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Integrated thrust area teams (e.g., decompression research) are established with university, commercial, and in-house Navy labs to jointly execute biomedical R&D. Peer review of research proposals accomplished by independent Technical Advisory Board. Annual review of progress by Executive Review Board (CNO/NAVSEA/ONR/BUMED). Program management by 0-6 Undersea Medical Officer. Contracting by competitive process using BAA and leveraging ONR capabilities.

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0099: *Deep Submergence Bio Med Dev*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	NEDU:Panama City, FL	13.833	1.951	Oct 2011	2.040	Oct 2012	1.781	Oct 2013	-		1.781	Continuing	Continuing	Continuing
Development Test & Evaluation	WR	NMRC:Silver Spring, MD	4.644	1.347	Oct 2011	1.358	Oct 2012	1.185	Oct 2013	-		1.185	Continuing	Continuing	Continuing
		Subtotal	18.477	3.298		3.398		2.966		0.000		2.966			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	NEDU:Panama City	0.086	0.070	Oct 2011	0.070	Oct 2012	0.070	Oct 2013	-		0.070	Continuing	Continuing	Continuing
Travel	Various	Various:Various	0.183	0.070	Oct 2011	0.070	Oct 2012	0.070	Oct 2013	-		0.070	Continuing	Continuing	Continuing
*SBIR Assessment	Various	Various:Various	0.182	0.000	Oct 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Acquisition Workforce	Various	Various:Various	0.016	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.467	0.140		0.140		0.140		0.000		0.140			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	18.944	3.438		3.538		3.106		0.000		3.106			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603713N: *Ocean Engineering Tech Dev*	**PROJECT** 0099: *Deep Submergence Bio Med Dev*

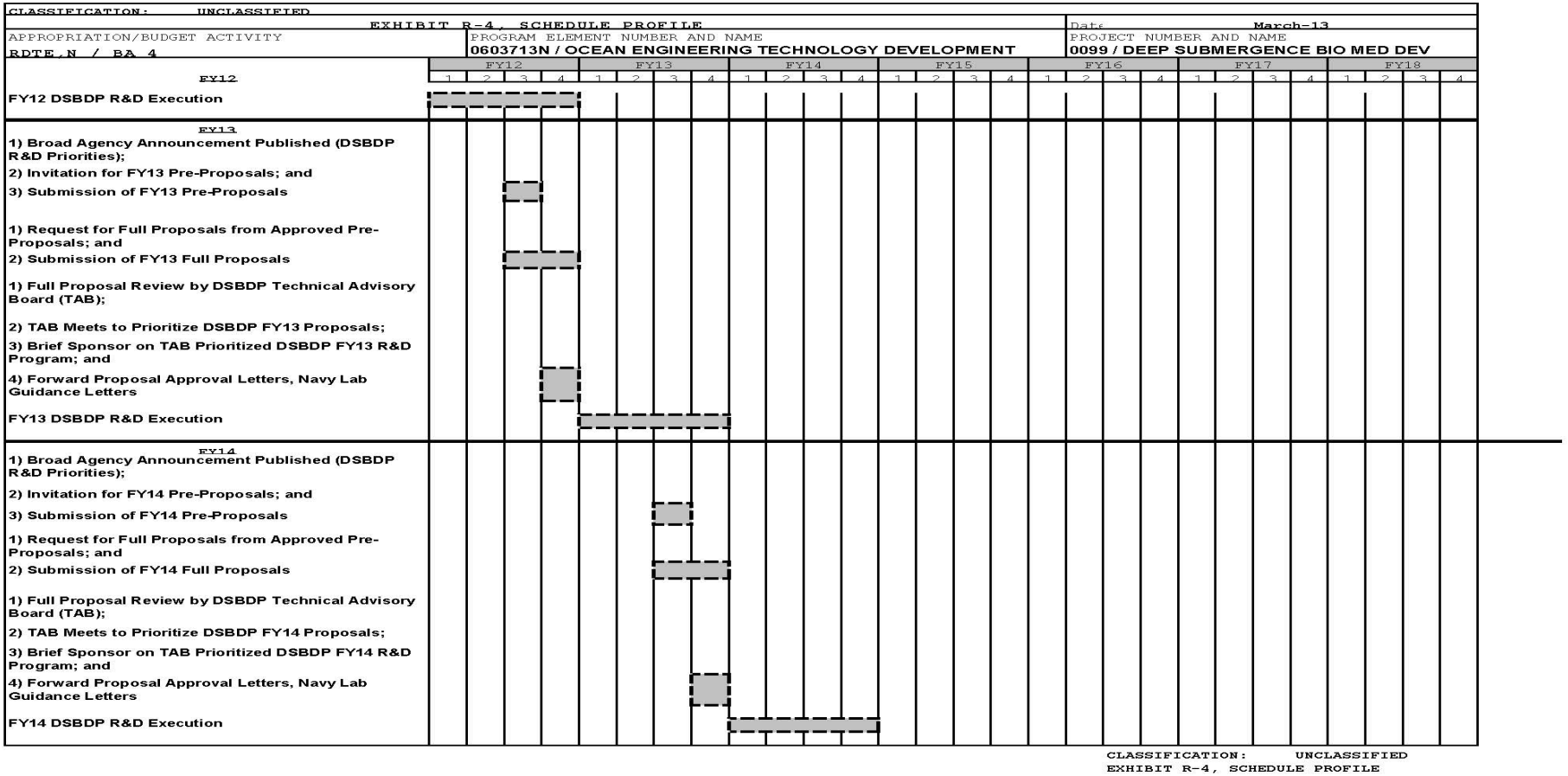


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0099: *Deep Submergence Bio Med Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0099				
FY12 DSBDP R&D Execution	1	2012	4	2012
FY13 Broad Agency Announcement Published (DSBDP R&D Priorities)	3	2012	3	2012
Invitation for FY13 Pre-Proposals	3	2012	3	2012
Submission of FY13 Pre-Proposals	3	2012	3	2012
Request for Full Proposals from Approved FY13 Pre-Proposals	3	2012	4	2012
Submission of FY13 Full Proposals	3	2012	4	2012
Full FY13 Proposal Review by DSBDP Technical Advisory Board (TAB)	4	2012	4	2012
TAB Meets to Prioritize DSBDP FY13 Proposals	4	2012	4	2012
Brief Sponsor on TAB Prioritized DSBDP FY13 R&D Program	4	2012	4	2012
Forward FY13 Proposal Approval Letters, Navy Lab Guidance Letters	4	2012	4	2012
FY13 DSBDP R&D Execution	1	2013	4	2013
FY14 Broad Agency Announcement Published (DSBDP R&D Priorities)	3	2013	3	2013
Invitation for FY14 Pre-Proposals	3	2013	3	2013
Submission of FY14 Pre-Proposals	3	2013	4	2013
Request for Full Proposals from Approved FY14 Pre-Proposals	3	2013	4	2013
Submission of FY14 Full Proposals	3	2013	4	2013
Full FY14 Proposal Review by DSBDP Technical Advisory Board (TAB)	4	2013	4	2013
TAB Meets to Prioritize DSBDP FY14 Proposals	4	2013	4	2013
Brief Sponsor on TAB Prioritized DSBDP FY14 R&D Program	4	2013	4	2013
Forward FY14 Proposal Approval Letters, Navy Lab Guidance Letters	4	2013	4	2013
FY14 DSBDP R&D Execution	1	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0394: *Shallow Depth Diving EQ*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0394: *Shallow Depth Diving EQ*	72.896	6.364	3.491	6.090	-	6.090	5.884	6.155	3.722	3.791	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project is to develop systems to support submarine escape, survivability, rescue missions, and conventional diver operations. Diver operations include ship husbandry, salvage/recovery, and submarine rescue operations to support national, as well as Navy, needs around the world. Modern certifiable diving systems that ensure diver safety and allow maximum work efficiency will replace currently antiquated systems. Efforts through FY15 focus on the Submarine Rescue Diving and Recompression System (SRDRS) to provide a new rapidly deployed emergency submarine rescue capability. SRDRS provides a new capability of pressurized transportation of rescuees from a stricken submarine directly to the decompression system replacing the Deep Submergence Rescue Vehicles and Mother Submarines. SRDRS includes an air transportable rapid Assessment/Underwater Work System (AUWS), a Pressurized Rescue Module (PRM) or Rescue Capable System (RCS), and a Submarine Decompression System (SDS). The AUWS is a manned system that provides intervention system capability. To reduce operational risk, an initiative is in process to transition from AUWS to an unmanned Remote Operated Vehicle (ROV). Intervention assets support clearing disabled submarine seating surfaces, delivery of emergency life support stores, and disabled submarine assessment. The Submarine Rescue System-Rescue Capable System (SRS-RCS) completed OPEVAL in FY08 and is rescue ready. The Submarine Rescue System-Submarine Decompression System (SRS-SDS) is scheduled for IOC in FY15. SRDRS Full Operational Capability (FOC) is scheduled for FY15. The SRDRS will provide a global rapid response capability to support submarine rescue missions with an increase in capability at a fraction of the cost of the currently available systems.

Shallow Depth Diving Equipment managed under SEA00C - This project develops systems to support submarine escape and rescue missions, and conventional diver operations. Diver operations include ship husbandry, salvage/recovery, and submarine rescue operations to support national, as well as Navy, needs around the world. Modern certifiable diving systems that ensure diver safety and allow maximum work efficiency will replace currently antiquated systems. R&D will be performed in the areas of contaminated water diving, diver thermal protection, and diver sound protection.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Shallow Depth Diving EQ - SRDRS	5.285	2.268	4.691
Articles:	0	0	0
Description: Continue design, fabrication, and acceptance testing of the prototype Submarine Decompression System and support equipment. Continue integration of all SRDRS components.			
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0394: *Shallow Depth Diving EQ*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue design/development/fabrication of Submarine Decompression Chambers 1 and 2 repairs and modifications. Continue design/development/fabrication of Submarine Decompression System Primary Elements including: Pressurized Flexible Manways 1, 2, and 3; Deck Transfer Lock; Mission and Auxiliary Support Equipment; Submarine Decompression System Ship Interface Templates; Modified Transfer Locks 1 and 2 Mods and Base Ship Interface Templates; and Pressurized Rescue Module System 6 atmospheres absolute (6ata) efforts. Plan to continue SDS Element Developmental Testing. Plan to begin Element Integration Testing at Oceaneering. ***FY 2013 Plans:*** Plan to complete Submarine Decompression Chambers 1 and 2 repairs and modifications. Plan to complete design/development/fabrication of Submarine Decompression System Primary Elements including: Pressurized Flexible Manways 1, 2, and 3; Deck Transfer Lock; Mission and Auxiliary Support Equipment, Submarine Decompression System Ship Interface Templates; Modified Transfer Lock 1 and 2 Mods and Base Ship Interface Templates; and Pressurized Rescue Module System 6ata efforts. Plan to complete material audits for: Submarine Decompression Chambers 1 and 2; Morgan Breathing System 2000; Pressurized Flexible Manways 1, 2, and 3; Deck Transfer Lock; and Pressurized Rescue Module System to 6ata. Plan to complete System Integration Audit for the Submarine Decompression System. Plan to complete Development Testing for Deck Transfer Lock; Pressurized Flexible Manways 1, 2, and 3; Submarine Decompression Chambers 1 and 2; and the Ship Interface Template Sets. Plan to complete Element Integration Testing at Oceaneering and Deliver Submarine Decompression System to Undersea Rescue Command to begin integration with the Submarine Rescue System. ***FY 2014 Plans:*** Plan to complete integration with the Submarine Rescue System, Manned Testing, Unmanned Testing and Sea Trials. Achieve Submarine Rescue System, Transfer Under Pressure Certification and begin Operational Testing and Post Delivery Shakedown efforts.			
Title: Shallow Depth Diving EQ - Diving	1.079	1.223	1.399
Articles:	0	0	0
Description: Continue research on contaminated water diving and research on diver thermal protection and CO2 monitors, and diver sound protection.			
FY 2012 Accomplishments: Continue research on contaminated water diving and research on diver thermal protection and CO2 monitors, and diver sound protection.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0394: *Shallow Depth Diving EQ*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
To be determined based on projects selected in late FY 2012. ***FY 2014 Plans:*** To be determined based on projects selected in late FY 2012 and FY 2013.			
Accomplishments/Planned Programs Subtotals	6.364	3.491	6.090

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Submarine Rescue system (SRS) segment of the SRDRS is largely based on the use of Commercial-Off-the-Shelf (COTS) technology and maximum use of Non-Developmental Items (NDI). The SRS segment is being procured using performance based specifications. Many of the SRS contracts were awarded competitively and were based on technical capability and cost considerations (best value). Program management of SRDRS is accomplished through the use of Program Executive Officer, Submarines (PEO SUB) leadership. This change was enacted in February 2003 realigning the responsibility from SEA00C to PEOSUB. The Prototype system provides full operational capability and no additional procurement is planned. The system is designed to be Government Owned/Commercially Operated/Commercially Maintained (GO/CO/CM).

E. Performance Metrics

Quarterly Program Reviews and Critical Design Reviews.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0394: *Shallow Depth Diving EQ*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Pressurized Rescue Module System (PRMS)	C/CPIF	Oceanworks:Ontario, Canada	23.824	0.000		0.000		0.000		-		0.000	0.000	23.824	
PRMS	C/FFP	Oceanworks:Ontario, Canada	4.150	0.000		0.000		0.000		-		0.000	0.000	4.150	
Systems Engineering - Design, Integration	C/CPAF	Oceaneering:Hanover, MD	21.155	0.424	Oct 2011	0.427	Oct 2012	1.605	Oct 2013	-		1.605	Continuing	Continuing	Continuing
Systems Engineering - Technical	Various	Various:Various	0.537	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering - Design, Integration	C/CPAF	Oceaneering:Hanover, MD	1.986	2.764	Feb 2012	0.184	Jan 2013	0.688	Jan 2014	-		0.688	0.000	5.622	
Systems Engineering - Design, Integration	C/CPAF	Oceaneering:Hanover, MD	2.145	0.000	Apr 2012	0.140	Apr 2013	0.721	Apr 2014	-		0.721	0.000	3.006	
Systems Engineering - Design & Integration	C/CPAF	Oceaneering:Hanover, MD	0.635	0.697	Jul 2012	0.052	Sep 2013	0.259	Sep 2014	-		0.259	0.000	1.643	
Diving Equipment Product Management (00C)	Various	Various:Various	0.000	0.999	Oct 2011	1.143	Oct 2012	1.319	Oct 2013	-		1.319	0.000	3.461	
		Subtotal	54.432	4.884		1.946		4.592		0.000		4.592			

Remarks

1. Oceaneering is the prime for SRDRS Transfer Under Pressure (TUP) capability scheduled for IOC in FY15. FY14 funding increase supports post delivery shakedown and initial spares.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support (00C)	Various	Various:Various	4.806	0.000	Oct 2011	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support	Various	Various:Various	0.841	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Configuration Management	C/CPAF	Oceaneering:Hanover, MD	0.489	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0394: *Shallow Depth Diving EQ*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	6.136	0.000		0.000		0.000		0.000		0.000			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various:Various	3.187	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR:Norfolk, VA	0.575	0.000		0.080	Oct 2012	0.150	Oct 2013	-		0.150	Continuing	Continuing	Continuing
		Subtotal	3.762	0.000		0.080		0.150		0.000		0.150			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	QBS/ Various:Richmond BC, Canada/Various	0.074	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Government Engineering Support	WR	NFESC:Port Hueneme, CA	0.197	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Government Engineering Support	WR	PSNSY/ Various:Bremerton, WA/Various	2.197	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Government Engineering Support	Various	Various:Various	1.859	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Management Support	Various	Perot:Washington, DC	2.110	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Travel (Submarine Rescue)	Various	NAVSEA:Washington, DC	0.589	0.120	Oct 2011	0.100	Oct 2012	0.150	Oct 2013	-		0.150	Continuing	Continuing	Continuing
Travel (00C)	C/BA	NAVSEA:Washington, DC	0.000	0.050	Oct 2011	0.050	Oct 2012	0.050	Oct 2013	-		0.050	0.000	0.150	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0394: *Shallow Depth Diving EQ*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR Assessment	Various	Various:Various	0.443	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Acquisition Workforce	Various	Various:Various	0.021	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Management Support	Various	Various:Various	0.430	0.000		0.244	Oct 2012	0.200	Oct 2013	-		0.200	0.000	0.874	
Program Management Support	Various	Various:Various	0.269	0.568	Jan 2012	0.244	Jan 2013	0.189	Jan 2014	-		0.189	0.000	1.270	
Program Management Support	Various	Various:Various	0.377	0.400	Apr 2012	0.383	Apr 2013	0.306	Apr 2014	-		0.306	0.000	1.466	
Government Engineering Support	WR	PNSY:Portsmouth, NH	0.000	0.312	Oct 2011	0.414	Oct 2012	0.423	Oct 2013	-		0.423	0.000	1.149	
Program Management Support (00C)	Various	NEDU:Panama City, FL	0.000	0.030	Oct 2011	0.030	Oct 2012	0.030	Oct 2013	-		0.030	0.000	0.090	
		Subtotal	8.566	1.480		1.465		1.348		0.000		1.348			

Remarks

Items citing various are due to contract competitions in process. Submarine Rescue travel increase in FY14 is related to Transfer Under Pressure integration testing and Operational Evaluation events scheduled at Undersea Rescue Command, San Diego during FY14.

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	72.896	6.364		3.491		6.090		0.000		6.090			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0394: *Shallow Depth Diving EQ*

SRDRS Acquisition
Transfer Under Pressure

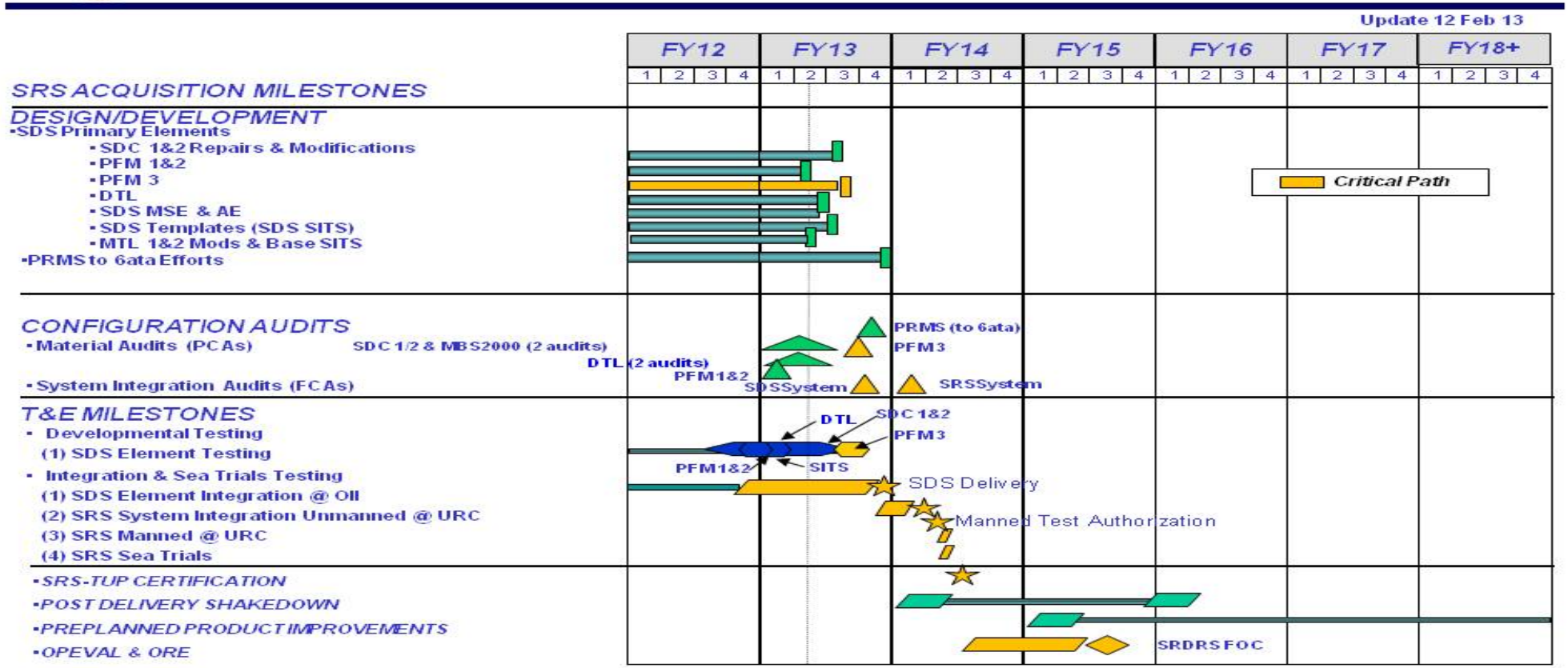


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603713N: *Ocean Engineering Tech Dev*	**PROJECT** 0394: *Shallow Depth Diving EQ*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0394				
Acquisition Milestones	1	2012	4	2018
Design & Development-SDS Primary Elements	1	2012	3	2013
SDC 1 & 2 Repairs & Modifications	1	2012	3	2013
PFM 1 & 2	1	2012	2	2013
PFM 3	1	2012	3	2013
DTL	1	2012	2	2013
SDS MSE & AE	1	2012	2	2013
SDS Templates (SDS SITS)	1	2012	3	2013
MTL 1 & 2 Mods & Base SITS	1	2012	2	2013
Design & Development PRMS to 6ata Efforts	1	2012	4	2013
Configuration Audits	1	2013	1	2014
Material Audits (PCAs)	1	2013	4	2013
System Integration Audits (FCAs)	3	2013	1	2014
T&E Milestones	1	2012	2	2014
Developmental Testing (SDS Element Testing)	1	2012	4	2013
Integration & Sea Trials Testing	1	2012	2	2014
SDS Element Integration @ OII	1	2012	4	2013
SDS Delivery	4	2013	4	2013
SRS System Integration Unmanned @ URC	4	2013	2	2014
Manned Test Authorization	2	2014	2	2014
SRS Manned @ URC	2	2014	2	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603713N: *Ocean Engineering Tech Dev*	PROJECT 0394: *Shallow Depth Diving EQ*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SRS Sea Trials	2	2014	2	2014
SRS TUP Certification	3	2014	3	2014
Post Delivery Shakedown	1	2014	2	2016
Preplanned Product Improvements (RCS & TUP)	1	2015	4	2018
OPEVAL& ORE	3	2014	2	2015
SRDRS FOC	3	2015	3	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	362.616	21.407	21.080	18.850	-	18.850	22.710	22.531	22.367	22.680	Continuing	Continuing
0401: *Shipboard Waste Mgmt*	314.925	7.556	7.596	7.736	-	7.736	7.752	7.556	7.731	7.834	Continuing	Continuing
0817: *Environmental Sustainability Development (NESDI)*	21.225	5.845	5.889	4.516	-	4.516	7.004	6.878	6.407	6.499	Continuing	Continuing
9204: *Marine Mammal Research*	26.466	8.006	7.595	6.598	-	6.598	7.954	8.097	8.229	8.347	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Many environmental laws, regulations, and policies impose restrictions on Navy vessels, aircraft, and facilities that interfere with operations and/or increase the cost of operations. The Navy must be able to conduct its national security mission in compliance with applicable environmental requirements in the U.S. and abroad without compromising
performance, safety, or health, while simultaneously minimizing the cost of compliance. This program develops and evaluates processes, hardware, systems, and operational procedures that will allow the Navy to operate in U.S., foreign, and international waters, air, space, and land areas while complying with environmental laws, regulations,
Executive Orders, policies and international agreements. The projects for this program element support the Navy's compliance with the (a) Clean Water Act, (b) Act to Prevent Pollution from Ships, (c) International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), (d) DoD 4715.6 R1, Regulations on Vessels Owned or Operated by the
Department of Defense, (e) OPNAVINST 5090.1C, Environmental and Natural Resources Program Manual, (f) 40 CFR Part 9 and Chapter VII (Uniform National Discharge Standards [UNDS] Phase I Standard), (g) Executive Order (EO) 13148, Greening the Government Through Leadership in Environmental Management, (h) Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, (i) National Invasive Species Act of 1996, (j) 33 CFR 151 Subpart D-Ballast Water Management for Control of Nonindigenous Species in Waters of the United States, (k) Clean Air Act, (l) Federal Insecticide, Fungicide, and Rodenticide Act, (m) Executive Order (EO) 13423 Strengthening Federal Environmental, Energy, and Transportation Management of 24 January, 2007. References (a) through (m) establish Level I environmental protection requirements for Navy shipboard systems, operations, and discharges in the areas of liquid wastes, hazardous materials, solid wastes, and other significant afloat environmental concerns. Project 0401 supports RDT&E efforts that enable Navy ships and submarines to comply with laws, regulations, and policies in six major areas: (1) Liquid Wastes, (2) UNDS Rulemaking, (3) Hazardous Materials and Pollution Prevention, (4) Hull Antifouling Paints, (5) Technical Authority, and (6) Ballast Water Exchange Improvements. Project 0817 supports RDT&E to develop and validate technologies to enable Navy facilities to comply with environmental laws, regulations, and policies in a cost-effective manner. Project 9204 supports RDT&E to develop planning and monitoring tools for minimizing Fleet contacts with and potential harassment (physiological and behavior) of marine animals including threatened and endangered species in response to Federal laws and regulations and public scrutiny.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	21.714	21.080	21.615	-	21.615
Current President's Budget	21.407	21.080	18.850	-	18.850
Total Adjustments	-0.307	0.000	-2.765	-	-2.765
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.307	0.000			
• Program Adjustments	0.000	0.000	-0.040	-	-0.040
• Rate/Misc Adjustments	0.000	0.000	-2.725	-	-2.725

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0401: *Shipboard Waste Mgmt*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0401: *Shipboard Waste Mgmt*	314.925	7.556	7.596	7.736	-	7.736	7.752	7.556	7.731	7.834	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Navy ships and submarines must routinely operate in U.S., international, and foreign waters, and visit numerous U.S. and foreign ports. No body of water is without environmental restrictions that impact the movements and operations of Navy vessels. Environmental requirements tend to be most restrictive in port and in coastal waters, where the Navy's increasing littoral presence places ships and submarines in discharge-restricted waters for longer periods of time. Growing international cooperation in addressing global environmental concerns is resulting in expanding areas of ocean considered environmentally susceptible, where special prohibitions on ship discharges and operations are imposed. Navy vessels must comply with applicable environmental legal requirements while maintaining continued access to all waters for operations, exercises, training, and port access. The large crews and limited on-board space of Navy ships and submarines severely constrain their ability to hold wastes for return to port for shore side disposal. The Shipboard Waste Management RDT&E project evaluates and develops shipboard environmental equipment, systems, technologies, processes, and practices to comply with environmental laws, regulations, Executive Orders, international agreements, foreign-country requirements, and DoD and Navy policies. The project focuses on providing engineering criteria, design guidance, and performance specifications for selecting, procuring, installing, integrating, and operating environmental equipment and systems on Navy ships and submarines, and on defining and developing processes, procedures and logistics support requirements. Environmental equipment, systems, processes and practices must meet legal environmental requirements and be reliable, maintainable and achievable at sea, and impose no or low manning burden. Environmental equipment and systems must meet Navy-unique shipboard requirements (performance, space, weight, shock, vibration, electromagnetic compatibility, manning, automation, etc.), incorporate integrated logistics support, minimize life-cycle cost, and include validated acquisition, design, installation, and operating documentation. Shipboard processes and practices must be feasible and must be compatible with ship and submarine operational, maintenance, manning, habitability, health, and safety requirements. It also addresses afloat environmental issues other than shipboard wastes, e.g., access to environmental data for planning Fleet operations and exercises. The Shipboard Environmental Protection Branch (SEA 05P5) is the designated Technical Warrant Holder for Environmental Systems & Materials Engineering, with responsibility and accountability for ensuring that ships and submarines are designed and upgraded, and can be operated, in compliance with existing and anticipated environmental requirements while minimizing total ownership cost and manning. This responsibility encompasses legacy platforms and new vessel designs, as well as Fleet operations exercises, and training.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Technical Authority	2.230	2.280	2.261
Articles:	0	0	0
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0401: *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue developing environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities. ***FY 2013 Plans:*** Continue developing environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities. ***FY 2014 Plans:*** Continue developing environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities.			
Title: Integrated Liquid Wastes	3.026	3.087	3.135
Articles:	0	0	0
FY 2012 Accomplishments: Continue to support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems. ***FY 2013 Plans:*** Continue to support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems. ***FY 2014 Plans:*** Continue to support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems.			
Title: Hazardous and Other Major Ship Wastes	1.100	1.216	1.307
Articles:	0	0	0
FY 2012 Accomplishments: Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. ***FY 2013 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0401: *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. ***FY 2014 Plans:*** Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines.			
Title: Ballast Water Exchange	1.000	1.013	1.033
Articles:	0	0	0
FY 2012 Accomplishments: Continue ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships. ***FY 2013 Plans:*** Continue ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships. ***FY 2014 Plans:*** Continue ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships.			
Title: Common Systems Assessment, Evaluation and Specification	0.200	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: Conduct testing of commercial off-the-shelf (COTS) equipment to gain additional information in support of new acquisition program decisions and equipment replacement programs for in-service ships. Candidate systems will be evaluated at two stages. The first stage is a written assessment of the ability to meet life cycle cost goals and technical, operational, and performance standards based on design drawings and manufacturer provided performance data. The second stage is laboratory testing of candidate systems down-selected from the first stage.			
Accomplishments/Planned Programs Subtotals	7.556	7.596	7.736

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0401: *Shipboard Waste Mgmt*

D. Acquisition Strategy

RDT&E Contracts are Competitive Procurements.

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0401: *Shipboard Waste Mgmt*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ancillary Hardware Development	Various	Misc. Contracts:Not Specified	19.149	0.000		0.000		0.000		-		0.000	0.000	19.149	Continuing
Primary Hardware Development	C/CPFF	Oceaneering:Not Specified	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	Continuing
Systems Engineering	C/CPFF	John J. McMullen & Son:Not Specified	4.487	0.000		0.000		0.000		-		0.000	0.000	4.487	Continuing
		Subtotal	24.636	0.000		0.000		0.000		0.000		0.000	0.000	24.636	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	SPAWAR:Charleston, SC	10.838	0.000		0.000		0.000		-		0.000	0.000	10.838	Continuing
		Subtotal	10.838	0.000		0.000		0.000		0.000		0.000	0.000	10.838	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MIPR	US Army Corps of Engineers:Norfolk, VA	0.687	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWCCD, Bethesda, MD:Bethesda, MD	174.528	6.816	Nov 2011	6.816	Nov 2012	7.066	Nov 2013	-		7.066	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWCIHD:Indian Head, MD	0.000	0.453	Aug 2012	0.647	Feb 2013	0.525	Feb 2014	-		0.525	0.000	1.625	
Developmental Test & Evaluation	WR	NRL,Wash,DC:Wash,DC	30.661	0.000		0.000		0.000		-		0.000	0.000	30.661	
Developmental Test & Evaluation	WR	SPAWARSYSCEN:SD,CA	11.952	0.113	Nov 2011	0.113	Nov 2012	0.125	Nov 2013	-		0.125	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0401: *Shipboard Waste Mgmt*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Misc. Govt Labs:TBD	22.975	0.000		0.000		0.000		-		0.000	0.000	22.975	
Developmental Test & Evaluation	C/CPFF	SAIC:San Diego, CA	15.570	0.000		0.000		0.000		-		0.000	0.000	15.570	
Developmental Test & Evaluation	C/CPFF	Misc. Contracts:TBD	13.103	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Process Control Engineering	C/CPFF	M. Rosenblatt & Sons:Arlington, VA	6.547	0.000		0.000		0.000		-		0.000	0.000	6.547	Continuing
Developmental Test & Evaluation	C/CPFF	ONR:Arlington, VA	0.400	0.000		0.000		0.000		-		0.000	0.000	0.400	Continuing
Developmental Test & Evaluation	WR	Naval Postgraduate School:Monterey, CA	1.800	0.000		0.000		0.000		-		0.000	0.000	1.800	Continuing
Process Control Engineering	MIPR	EPA, Hdqtrs:Washington, DC	0.840	0.000		0.000		0.000		-		0.000	0.000	0.840	Continuing
		Subtotal	279.063	7.382		7.576		7.716		0.000		7.716			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	NAVSEA HQ:Washington, DC	0.310	0.025	Nov 2011	0.020	Nov 2012	0.020	Nov 2013	-		0.020	Continuing	Continuing	Continuing
SBIR Assessment	TBD	Not Specified:Not Specified	0.078	0.149	Feb 2012	0.000		0.000		-		0.000	0.000	0.227	Continuing
		Subtotal	0.388	0.174		0.020		0.020		0.000		0.020			

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	314.925	7.556		7.596		7.736		0.000		7.736			

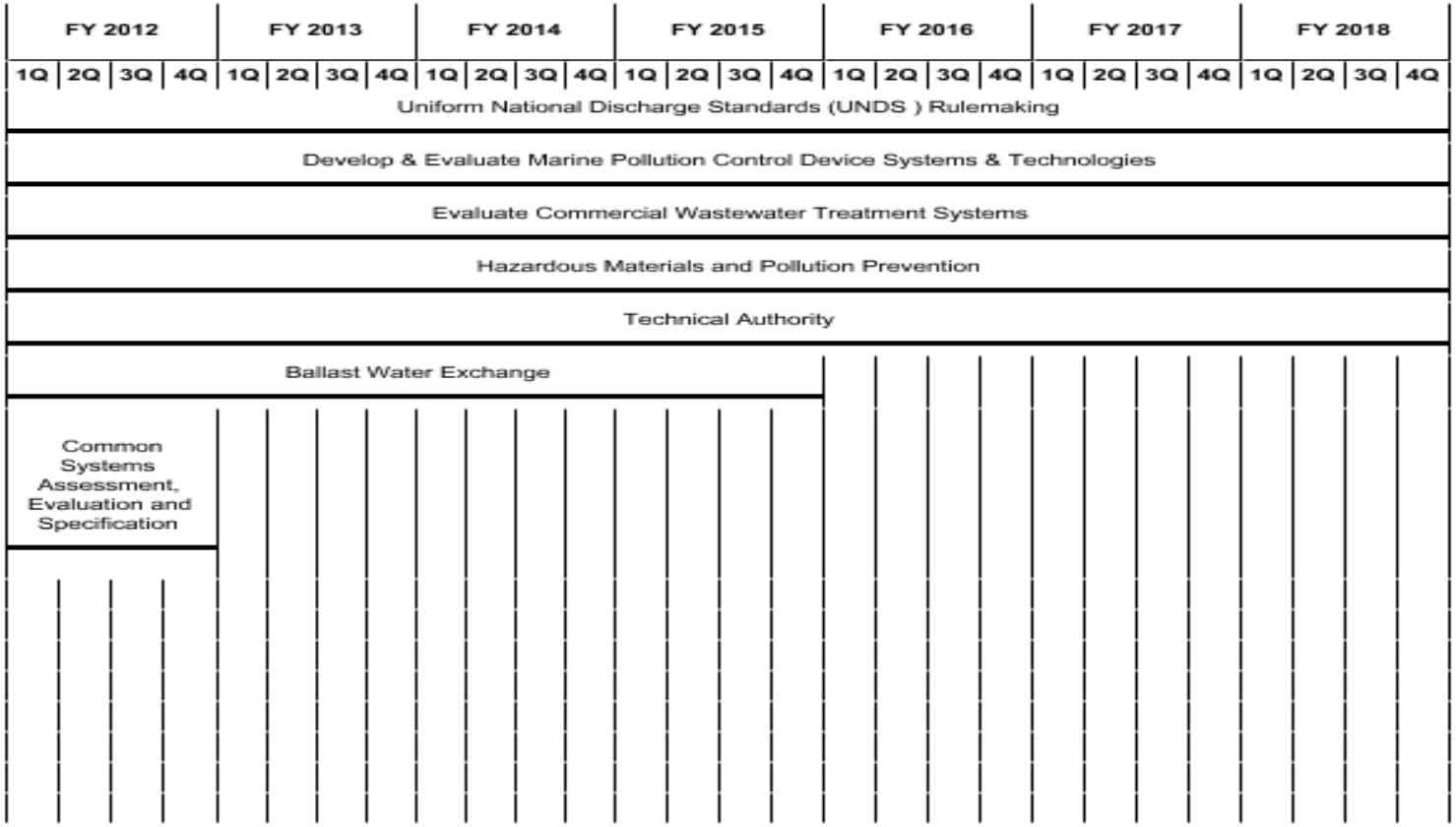
Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0401: *Shipboard Waste Mgmt*	

	All Prior Years	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0401: *Shipboard Waste Mgmt*

SHIPBOARD WASTE MANAGEMENT



2014DON - 0603721N - 0401

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603721N: *Environmental Protection*	**PROJECT** 0401: *Shipboard Waste Mgmt*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SHIPBOARD WASTE MANAGEMENT				
Uniform National Discharge Standards (UNDS) Rulemaking	1	2012	4	2018
Develop & Evaluate Marine Pollution Control Device Systems & Technologies	1	2012	4	2018
Evaluate Commercial Wastewater Treatment Systems	1	2012	4	2018
Hazardous Materials and Pollution Prevention	1	2012	4	2018
Technical Authority	1	2012	4	2018
Ballast Water Exchange	1	2012	4	2015
Common Systems Assessment, Evaluation and Specification	1	2012	4	2012

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0817: *Environmental Sustainability Development (NESDI)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0817: *Environmental Sustainability Development (NESDI)*	21.225	5.845	5.889	4.516	-	4.516	7.004	6.878	6.407	6.499	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Inherent to the realization of the vision outlined in Sea Power 21 are certain environmental consequences that will, to a lesser or greater degree, be an impact on the Navy's ability to fully achieve the strategy outlined in the Navy Capability Pillars (NCP) SEA SHIELD, SEA STRIKE, SEA BASING and FORCEnet and the supporting initiatives of SEA WARRIOR, SEA TRIAL and SEA ENTERPRISE. Readiness and training are primary considerations for determining whether any fighting force is at its peak proficiency. The ability to train our forces in a realistic environment is paramount. Today's reality requires training and operating within environmental constraints (national and international laws and agreements), and searching for alternatives to comply with and alleviate those constraints. Moreover, as we develop new systems and technologies in support of Sea Power 21, the Navy must anticipate potential environmental regulations which, while not currently an issue, could in the future adversely impact our ability to protect and sustain our forces at home and abroad.

This program identifies pervasive Navy shore side environmental requirements and develops and validates information, new processes, and technologies that address requirements that pose significant impact on Naval shore activities in complying with environmental laws, regulations, orders, and policies. The goal of the program is to maximize opportunities for significant cost savings while minimizing personnel liabilities, operational costs, and regulatory oversight and preserving or enhancing the ability of Naval shore activities to accomplish their required missions and functions in support of the Navy's transformational strategy.

EEC-2 MAXIMIZE TRAINING AND TESTING RANGE REQUIREMENTS WITHIN ENVIRONMENTAL CONSTRAINTS: This capability addresses environmental impacts and restrictions at Navy land and sea ranges, including munitions testing and manufacturing, to ensure Navy ranges are available to conduct required training and testing operations for the Fleet. Investments in EEC-2 provide validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test ranges to maximize the availability and utilization of the ranges. The results support operational readiness by providing the tools and technologies necessary for sustaining and managing Navy land and sea ranges related to unexploded ordnance (UXO) and munitions, encroachment, air quality, airborne noise, water quality, and wetlands. Capabilities gained include the ability to assess and determine the risks from underwater UXO, the evaluation and prioritization of ordnance contaminated sites for evaluation in environmental programs, and the implementation of range specific best management practices by evaluating and modeling available process, procedures, and technologies.

EEC-3 PLATFORM MAINTENANCE AND REPAIR WITH MINIMAL ENVIRONMENTAL FOOTPRINT: This capability focuses on minimizing or eliminating environmental impact related to Navy and Marine Corps weapon system repair and maintenance operations. Investments in EEC-3 provide valid knowledge, models,

processes, and technologies to minimize regulated emissions, discharges and hazardous material usage during the repair and maintenance of ships, submarines, and surface/sub-surface vehicles and aircraft and air vehicles. The program supports Fleet operational readiness and Navy acquisition communities by investing in information to understand emerging environmental requirements and to develop innovative processes and technologies that result in savings while reducing the fleet environmental constraints related to platform maintenance. Capabilities and benefits gained include, but are not limited to, the reduction in the usage of heavy metals used in metal finishing (chromium and cadmium), reduced hazardous air pollutant (HAP) emissions, and the development of best management practices and tools to minimize the use of hazardous materials and the generation of hazardous wastes associated with maintaining and repairing ships, submarines and aircraft and unmanned vehicles. Results of program investments will be leveraged across weapon system and platform acquisition to ensure continued reduction in lifecycle costs and long-term environmental compliance burdens to the Fleet.

EEC-4. SUPPORT SHORE READINESS WITHIN ENVIRONMENTAL CONSTRAINTS: Naval shore establishment requires the capability to operate and maintain facilities and provide waterfront and airfield services to the fleet while complying with applicable environmental regulations and minimizing environmental impacts and costs. The program invests in knowledge and innovative processes and technologies that minimize infrastructure and operational costs, regulated emissions, while minimizing discharges and hazardous material usage from ship (waterfront) and aviation operations. Capabilities and benefits gained under EEC-4 include reduced costs associated with wastewater treatment, elimination/reduction in the use of HAPs, ozone depleting substances (ODSs), and volatile organic compounds (VOCs), and the associated reporting requirements, reduced hazardous waste and disposal costs, and improved storm water management.

EEC-5. COST-EFFECTIVE MANAGEMENT OF ENVIRONMENTAL REGULATORY REQUIREMENTS: The environmental compliance regulations require base managers to permit, monitor and report on many processes associated with weapon system and platform operations. Naval shore environmental managers require the capability to efficiently and cost effectively manage these compliance requirements. Under EEC-5, the program invests in improved data collection, methods, and models to assess environmental impacts and ecological risk assessments of Naval Operations on harbors, U.S. waterways, and surrounding communities. Benefits include gaining standardized technical environmental management improvements/techniques related to source control, assessment, and monitoring. EEC-5 also provides validated knowledge, models, processes and technologies to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Maximize Training & Testing Requirements Within Environmental Constraints	1.913	1.370	0.650
Articles:	0	0	0

FY 2012 Accomplishments:
Completed the laboratory analysis of the long term disposition of seafloor cables, which identifies cable impacts to the marine environment aiding the sustainment and management of Navy underwater ranges and supports new underwater surveillance systems that require the laying of seafloor hardware and cables. In addition, the analysis of the environmental effects of lasers on biota in the marine environment was completed. The culmination of this work provided the Navy environmental planning offices with the tools necessary to technically defend EISs as they relate to the use of lasers in the marine environment. In addition, the validation of forensic approaches to per-chlorate source identification at Navy ranges was completed. Implemented best management practice DEM/VAL for mitigation of environmental impacts from venting of full scale practice bombs at Navy ranges.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0817: *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Accomplishments include conducting a field study for long term disposition of seafloor communication cables. Initiated site analysis for the detection and classification of MEC in shallow highly-dynamic underwater environments. ***FY 2013 Plans:*** Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test ranges to maximize the availability and utilization of the ranges. Continuation of the risk assessment associated with military expendable material used in underwater ranges. Finalize process to determine background perchlorate sources at Navy ranges. Conduct one-year post survey for cable pull field study to determine long term effects and site recovery of a cable removal in the near-shore environment. Complete assessment of alternative tank target. Continue demonstration of passive samplers for assessing environmentally realistic concentrations of munitions constituents at Underwater Unexploded Ordnance sites and the detection and classification of munitions and explosives of concern in shallow highly dynamic underwater environments. Complete the validation of forensic approaches to perchlorate natural and anthropogenic source identification at Navy ranges. Initiate Transportable Field Melter for Recycling of Bombing Range MPPEH, Innovative Cutting Process to Vent Full Scale Non-Explosive Practice Munitions ***FY 2014 Plans:*** Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges. Continue transportable Field Melter for Recycling of Bombing Range MPPEH, Innovative Cutting Process to Vent Full Scale Non-Explosive Practice Munitions			
Title: Maintenance	0.900	1.080	0.860
Articles:	0	0	0
FY 2012 Accomplishments: Completed aircraft sustainment related projects such as non-chromated post treatment, and low temperature powder coating. Completed Alternative solvent demonstrations for ship maintenance operations and identification of alternatives for NAVSEA targeted chemicals continued, resulting in the development and issuance of a new HAP-free/low-VOC cleaner specification. Completed demonstration of the use of plastic blast media and removed coke deposits from the F404 engine shaft, thereby eliminating the use of a hazardous cleaning compound from this maintenance procedure. ***FY 2013 Plans:*** Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of ships, submarines, and aircraft. Complete aircraft sustainment related projects. Develop dry dock best management practices and decision selection tool assisting Naval Shipyards, stations and bases in meeting the copper discharge standards. Alternative solvents demonstrations for ship maintenance operations and identification of alternatives for NAVSEA targeted chemicals continue. The development of hazardous material allocation information for ship maintenance continues. Continue Mobile Pier and Facility Waste Water Treatment System. Initiate Replacement of Film			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0817: *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Radiography with Computed Radiography, Demonstrate/Validate Alternatives to Methylene Chloride-based Chemical Paint Strippers, and Qualification of Proposed MIL-P-85891 Type 8 Plastic Media Blast (PMB) as a Replacement for Chemical-based Strippers and Existing Type 5/7 PMB. ***FY 2014 Plans:*** Continue all aviation sustainment related projects related to chrome alternatives and cadmium reductions, continue the elimination of overspray in shipbuilding and facilities maintenance operations. Initiate projects on cyanide waste reduction of electroplating and stripping process, lead-free electric primers for medium caliber ammunition, and mobile pier and facility waste water treatment system.			
Title: Support Shore Readiness within Environmental Constraints	2.432	1.250	1.169
Articles:	0	0	0
FY 2012 Accomplishments: Demonstrated and validated a hull maintenance shroud that captures waste streams during repair and painting operations and validated a mobile surface cleaning technology for critical cleaning of shore side surfaces to remove contaminants. Completed final demonstration for the Motion Assisted Environmental Enclosure (MAEE) for overspray containment and completed the vertical launch missile tube demonstration. ***FY 2013 Plans:*** Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support such as the hull maintenance shroud, dry dock surface cleaning, and transition of MAEE. Continue development of a methodology to assess essential fish habitat for Navy coastal properties. Initiate oil boom biofouling control by mechanical iIntervention and material technologies. ***FY 2014 Plans:*** Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, aviation support, and other base operations. Continue select demonstrations of alternative solvents for industrial operations.			
Title: Cost-Effective Management of Environmental Regulatory Requirements	0.600	2.189	1.837
Articles:	0	0	0
FY 2012 Accomplishments: Completed the Predictive Trajectory Model for oil spills for Navy harbors. Completed an assessment strategy for vapor intrusion and prepared a technical report that identifies existing best practices, knowledge and data gaps. This report also identifies future research in vapor intrusion assessment strategies.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0817: *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Completed pollutant source tracking effort; the real-time drinking water quality monitoring system; sustainable naval facilities; and use of biodiesel for ground tactical vehicles. ***FY 2013 Plans:*** Continue providing validated knowledge, models, processes and systems to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. Reduce Contaminant Transport Associated with Storm water Runoff. Continue efforts such as electrochemical detection and load reduction of copper and zinc in storm water runoff. Optimization of the storm water dual media filtration system at the NRRC in San Diego; modeling tool for Navy facilities to quantify sources, loads & mitigation actions of metals in storm water discharges; compliance with the emerging requirements of the Stage II disinfectant and disinfection byproduct rule; methodology for identifying and quantifying metal pollutant sources in storm water runoff; and Navy-wide expansion of the Programmatic Environmental, Safety and Health Evaluation document authoring tool. Continue with leveraged efforts Smart Water Conservation Systems for Irrigated Landscapes; water conservation: treatment and recycling of waste water; demonstration and validation of sediment ecotoxicity assessment ring technology for assessment of ecological exposure; demonstration and validation of delivery and stability of reactive amendments for the in situ treatment of contaminated sediments in Navy harbors. Initiate work in the separation, detection, and removal of MEC/UXO from contaminated groundwater plumes, validation of a low tech storm water procedural best management practice, dynamic mixing zone modeling for NPDES permits, and toxicity associated with poly-aromatic hydrocarbons used in clay targets. Complete DEM/VAL of Automated Condition Assessment of Coral Reefs at Guam Apra Harbor. Initiate Controlling Opacity During Submarine Hull Cutting & Demolition, Alternative Metal Hot Cutting Operations For Opacity, Remove Copper and Other Heavy Metals from Oily Water Treatment System (OWTS) Discharge for Compliance with NPDES Discharge Standards, Improving Non-Hazardous Solid Waste Diversion, A Quantitative Decision Framework for Assessing Navy VI Sites. ***FY 2014 Plans:*** Continue providing validate knowledge, models, processes and systems to improve environmental monitoring and reporting, and reduce the cost to compliance with regulations applicable to coastal contamination and contaminated sediments.			
Accomplishments/Planned Programs Subtotals	5.845	5.889	4.516

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0817: *Environmental Sustainability Development (NESDI)*

D. Acquisition Strategy

This project is categorized as Non-ACAT (Non Acquisition). The project delivers a broad spectrum of products that require a variety of acquisition processes to implement. Equipment products for naval stations and other mission funded activities are often procured directly through the base operating budget. Equipment products for Shipyards and other Navy Working Capital Fund (NWCF) activities costing over $250K are procured through their Capital Investment Program (CIP). For both types of activities, equipment products costing less than $250K, and process changes not requiring the purchase of new equipment such as consumable material or product substitutions, are funded through the activity's operating budgets. Occasionally there is a technology that must be implemented as a specialized facility. These are acquired through the Military Construction (MCON) Program. All these acquisition processes are pursued using a common strategy that satisfies the needs of all the critical stakeholders: 1) Fleet end user; 2) Funding sponsor for the Navy end user; 3) Other stakeholders with cognizance over the Navy process or operation being changed, 4) Cognizant environmental federal, state, and local regulators; and 5) The private or government organization that will produce the product.

E. Performance Metrics

Quarterly Budget Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0817: *Environmental Sustainability Development (NESDI)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EEC 2	Various	EXWC:PT HUENEME, CA	2.424	1.361	Oct 2011	0.302	Oct 2012	0.613	Oct 2013	-		0.613	0.000	4.700	Continuing
EEC 2	Various	SSC:SAN DIEGO, CA	2.871	1.231	Aug 2012	0.764	Mar 2013	0.425	Mar 2014	-		0.425	0.000	5.291	Continuing
EEC 2	Various	NSWC:BETHESDA, MD	0.717	0.008	Dec 2011	0.000		0.000		-		0.000	0.000	0.725	Continuing
EEC 3	Various	NAWC:PATUXENT RIVER, MD	0.819	0.202	Feb 2012	0.300	Mar 2013	0.260	Mar 2014	-		0.260	0.000	1.581	Continuing
EEC 3	Various	NSWC:BETHESDA, MD	2.234	0.400	Aug 2012	0.400	Feb 2013	0.300	Feb 2014	-		0.300	0.000	3.334	Continuing
EEC 3a	Various	NSWC:BETHESDA, MD	1.019	0.000		0.000		0.000		-		0.000	0.000	1.019	Continuing
EEC 3b	Various	EXWC:PT HUENEME, CA	0.200	0.330	Feb 2012	0.267	May 2013	0.267	May 2014	-		0.267	0.000	1.064	Continuing
EEC 4	Various	EXWC:PT HUENEME, CA	5.143	0.228	Nov 2011	0.632	Aug 2013	0.537	Jun 2014	-		0.537	0.000	6.540	Continuing
EEC 4	Various	NSWC:BETHESDA, MD	1.511	0.293	Jan 2012	0.950	Oct 2012	0.418	Oct 2013	-		0.418	0.000	3.172	Continuing
EEC 4a	Various	SSC:SAN DIEGO, CA	1.710	0.422	Jul 2012	0.800	Apr 2013	0.409	Apr 2014	-		0.409	0.000	3.341	Continuing
EEC 5	Various	EXWC:PT HUENEME, CA	1.131	0.321	Mar 2012	0.300	Jul 2013	0.100	Jun 2014	-		0.100	Continuing	Continuing	Continuing
EEC 5	Various	SSC:SAN DIEGO, CA	0.705	0.000		0.000		0.000		-		0.000	0.000	0.705	Continuing
EEC 5	Various	NAWC:PATUXENT RIVER, MD	0.326	0.000		0.300	Jun 2013	0.200	Jun 2014	-		0.200	0.000	0.826	Continuing
EEC 5	Various	NSWC:BETHESDA, MD	0.415	0.192	Jun 2012	0.000	Jun 2013	0.326	Feb 2014	-		0.326	0.000	0.933	Continuing
EEC 5	Various	NAWCWD:CHINA LAKE, CA	0.000	0.031	Sep 2012	0.400	May 2013	0.287	Feb 2014	-		0.287	0.000	0.718	Continuing
EEC 5	Various	NAWC:LAKE HURST, NJ	0.000	0.098	Feb 2012	0.200	May 2013	0.174	Feb 2014	-		0.174	0.000	0.472	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0817: *Environmental Sustainability Development (NESDI)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EEC 5	Various	NSWC:INDIAN HEAD, MD	0.000	0.264	Aug 2012	0.274	Aug 2013	0.000		-		0.000	0.000	0.538	Continuing
EEC 3	Various	FRC - SE:JACKSONVILLE, FL	0.000	0.025	Apr 2012	0.000		0.200	Oct 2013	-		0.200	0.000	0.225	Continuing
EEC 3	Various	FRC - CE:Cherry Point, NC	0.000	0.050	Feb 2012	0.000		0.000		-		0.000	0.000	0.050	Continuing
EEC 2	Various	NSWC:San Diego, CA	0.000	0.173	Jun 2012	0.000		0.000		-		0.000	0.000	0.173	Continuing
EEC 3	Various	NSWC:San Diego, CA	0.000	0.216	Aug 2012	0.000		0.000		-		0.000	0.000	0.216	Continuing
		Subtotal	21.225	5.845		5.889		4.516		0.000		4.516			

Remarks

Performing Activities: Naval Surface Warfare Center, Carderock Division (NSWC/CD), Engineering and Expeditionary Warfare Center (EXWC/MD), Naval Surface Warfare Center, Indian Head Division (NSWC/Bethesda MD), Space and Warfare Systems Center, San Diego (SSC/SC), Naval Air Warfare Center (NAWC/PAX), Naval Air Warfare Center (NAWCWD/China Lake) Total Prior Years Cost: Subtotal does not include performing activities from prior years that are no longer performing activities. Award Dates: About 55% of the project is executed via contracts awarded by the performing activities.

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.225	5.845		5.889		4.516		0.000		4.516			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 0817: *Environmental Sustainability Development (NESDI)*

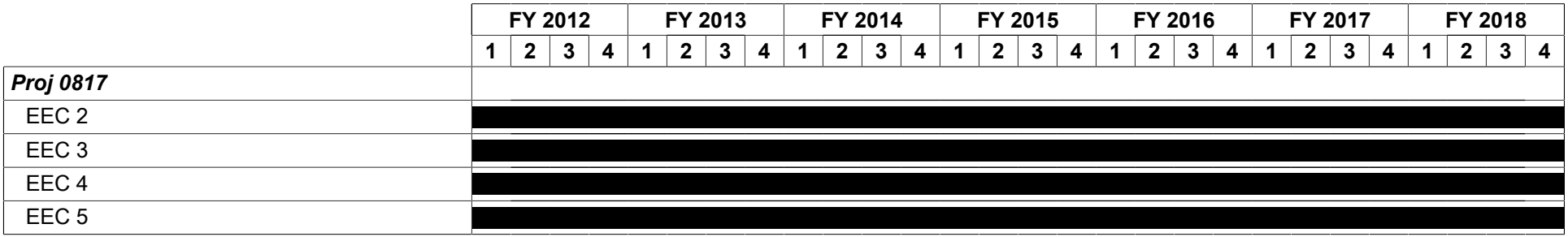


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603721N: *Environmental Protection*	**PROJECT** 0817: *Environmental Sustainability Development (NESDI)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0817				
EEC 2	1	2012	4	2018
EEC 3	1	2012	4	2018
EEC 4	1	2012	4	2018
EEC 5	1	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 9204: *Marine Mammal Research*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
9204: *Marine Mammal Research*	26.466	8.006	7.595	6.598	-	6.598	7.954	8.097	8.229	8.347	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Navy has been and will continue to be subject to litigation with regard to the potential injuring, killing or biologically significant disturbance of marine animals by the use of intense underwater sound. Since Fleet operation and training areas coincide with known or probable habitats, migration routes, or breeding areas of marine mammals and other protected marine species, the possibility exists that such incidents are likely to continue in the future. The increasing public interest and pressure has resulted in escalating Fleet costs. For example, Fleet and SYSCOM development activities have been interrupted; modified, or altogether cancelled and environmental regulations have, among other things, required new ship construction shock trials to obtain Federal permits and conduct extensive environmental planning that can take several years to complete. The incorporation of mitigation measures in Fleet training operations to minimize the potential adverse effects on protected marine animals can significantly reduce the realism of these operations. In addition, the testing, evaluation, and deployment of new sonar detection and monitoring systems that use active acoustics are under intense public scrutiny for their potential adverse effects on whales and other marine mammals. Navy needs scientific evidence to substantiate its claims of limited or inconsequential adverse effects to marine life from operations.

This project primarily focuses on the development of planning, monitoring, and mitigating tools to aid the Fleet in minimizing contact with and the potential harassment of protected marine animals during operations, exercises, training, and undersea surveillance and weapons testing. These new capabilities will encompass historical and newly acquired data and analytical models that together can predict marine animal habitats (where they are likely to be), and their natural and expected behavior (diving patterns, prey localization, calling activity, etc.). This project consists of three major areas that will help ensure Navy compliance with the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA).

These areas are (1) Marine Ecology and Population Dynamics determine the likelihood of the presence of marine mammals or other pretected species during observed and forecast oceanographic conditions by developing habitat and ecological models. Refine marine animal survey techniques to optimize the accuracy of abundance estimates in small ocean regions of Navy interest.

(2) Criteria, Thresholds, and Mitigation - Establish criteria and thresholds from which to measure potential impact on marine mammals and other marine species from Navy training operations. Determine the effectiveness and usefulness of various mitigation measures in relation to the potential impact of Navy operations on marine mammals; and (3) Passive Acoustic Monitoring - Conduct Passive Acoustic Monitoring of Marine Mammals, particularly on Navy undersea ranges. Several feasibility demonstrations reveal the potential of passive acoustic monitoring as a unique form of mitigation and a special tool to obtain critical information about normal marine mammal behavior. Any impact of Navy operations on marine mammals, particularly behavior modification, will be derived after normal variations in marine mammal behavior resulting from natural factors are determined. Several remaining unknowns must be addressed before passive acoustic monitoring techniques are developed as an institutionalized system available to the Fleet.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 9204: *Marine Mammal Research*

Accurate and timely monitoring and predicting the movement of whales and other protected marine animals plus an enhanced knowledge of how marine animals may react to Fleet activities (e.g., physiological and behavioral effects) will reduce Navy interaction with these animals; minimize the risk that legally-imposed monitoring and avoidance measures will adversely affect Fleet operations and exercises; minimize the substantial costs associated with operations, exercises, and tests that have to be modified or curtailed as a result of concerns about protected marine animals; and will reduce the likelihood of litigation related to actual or anticipated compliance problems with protected animals.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Marine Mammal Ecology and Population Dynamics	1.988	1.936	1.467
Articles:	0	0	0
FY 2012 Accomplishments: Completed the establishment of Marine Mammal Reseach (MMR) standard operating procedures, initiated development of MMR website, accomplished fiscal year program menagement transition process.			
FY 2013 Plans: Continue research on integrated ecosystems; sensor and tag development; marine mammal diving and stress physiology, and the population structure of beaked whales in the vicinity of Navy training ranges.			
FY 2014 Plans: Continue research on integrated ecosystems; sensor and tag development; marine mammal diving and stress physiology, and the population structure of beaked whales in the vicinity of Navy training ranges.			
Title: Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	4.030	3.723	3.654
Articles:	0	0	0
FY 2012 Accomplishments: Completed the establishment of MMR standard operating procedures, initiated development of MMR website, accomplished fiscal year program menagement transition process.			
FY 2013 Plans: Continue research to determine what constitutes biologically significant behavioral response to Navy-generated sound on individuals with respect to disruption of natural behavior patterns, ascertaining the short and long-term effects of such disruptions and documenting avoidance behaviors.			
FY 2014 Plans: Continue research to determine what constitutes biologically significant behavioral response to Navy-generated sound on individuals with respect to disruption of natural behavior patterns, ascertaining the short and long-term effects of such disruptions and documenting avoidance behaviors.			
Title: Mitigation Methodologies: Monitoring, New Technology, and Risk Assess	1.988	1.936	1.477

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 9204: *Marine Mammal Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0	0	0
FY 2012 Accomplishments: Completed the establishment of MMR standard operating procedures, initiated development of MMR website, accomplished fiscal year program menagement transition process.			
FY 2013 Plans: Continue research to determine the observation, detection and classification measures required to develop effective monitoring and mitigation procedures. Focus to improve marine mammal monitoring capabilities over current methods by developing new and adapting existing technology.			
FY 2014 Plans: Continue research to determine the observation, detection and classification measures required to develop effective monitoring and mitigation procedures. Focus to improve marine mammal monitoring capabilities over current methods by developing new and adapting existing technology.			
Accomplishments/Planned Programs Subtotals	8.006	7.595	6.598

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

(U) RDTEN Contracts are Competitive Procurements.

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 9204: *Marine Mammal Research*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	University of Hawaii:Hawaii	0.000	0.000		0.000		0.200	Dec 2013	-		0.200	0.000	0.200	
Need Item TextDevelopmental Test & Evaluation	WR	EXWC, Port Hueneme:Port Hueneme, CA	0.000	0.000		0.000		0.622	Nov 2013	-		0.622	0.000	0.622	
Developmental Test & Evaluation	WR	NUWC:Newport, RI	4.623	1.661	Mar 2012	1.632	Nov 2012	1.000	Nov 2013	-		1.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	SEA Inc:California	0.965	0.265	Mar 2012	0.265	Dec 2012	0.236	Feb 2014	-		0.236	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NPGS:Monterey, CA	2.395	0.530	Mar 2012	0.489	Dec 2012	0.300	Dec 2013	-		0.300	Continuing	Continuing	Continuing
Developmental Test & Evaluation	MIPR	NOAA Fish Science Center:California	2.000	0.630	Mar 2012	0.632	Dec 2012	0.632	Dec 2013	-		0.632	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	Scripps Institute:California	7.173	1.062	Apr 2012	1.049	Dec 2012	0.600	Jan 2014	-		0.600	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	Oregon State Univ.:Oregon	1.206	0.274	Apr 2012	0.222	Dec 2012	0.222	Jan 2014	-		0.222	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	Woods Hole Oceanographic Inst:Massachusettes	1.901	0.666	Apr 2012	0.563	Dec 2012	0.403	Jan 2014	-		0.403	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	SPAWAR:San Diego, CA	1.507	0.544	Jun 2012	0.515	Nov 2012	0.400	Nov 2013	-		0.400	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	Cascadia:Cascadia, WA	1.410	1.025	Apr 2012	0.950	Dec 2012	0.950	Jan 2014	-		0.950	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NOAA Fish Science Center:Massachusettes	0.400	0.326	Jun 2012	0.312	Dec 2012	0.312	Dec 2013	-		0.312	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	San Diego State Univ:San Diego, CA	1.301	0.486	Jun 2012	0.457	Dec 2012	0.457	Feb 2014	-		0.457	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	St. Andrews Univ.:Scotland	0.270	0.264	Sep 2012	0.245	Dec 2012	0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	CNAF:San Diego, CA	1.315	0.133	Apr 2012	0.133	Nov 2012	0.133	Nov 2013	-		0.133	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 9204: *Marine Mammal Research*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Bahamas Marine Mammal Research Organization (BMMRO:Bahamas	0.000	0.140	Sep 2012	0.131	Dec 2012	0.131	Dec 2013	-		0.131	Continuing	Continuing	Continuing
		Subtotal	26.466	8.006		7.595		6.598		0.000		6.598			

Remarks

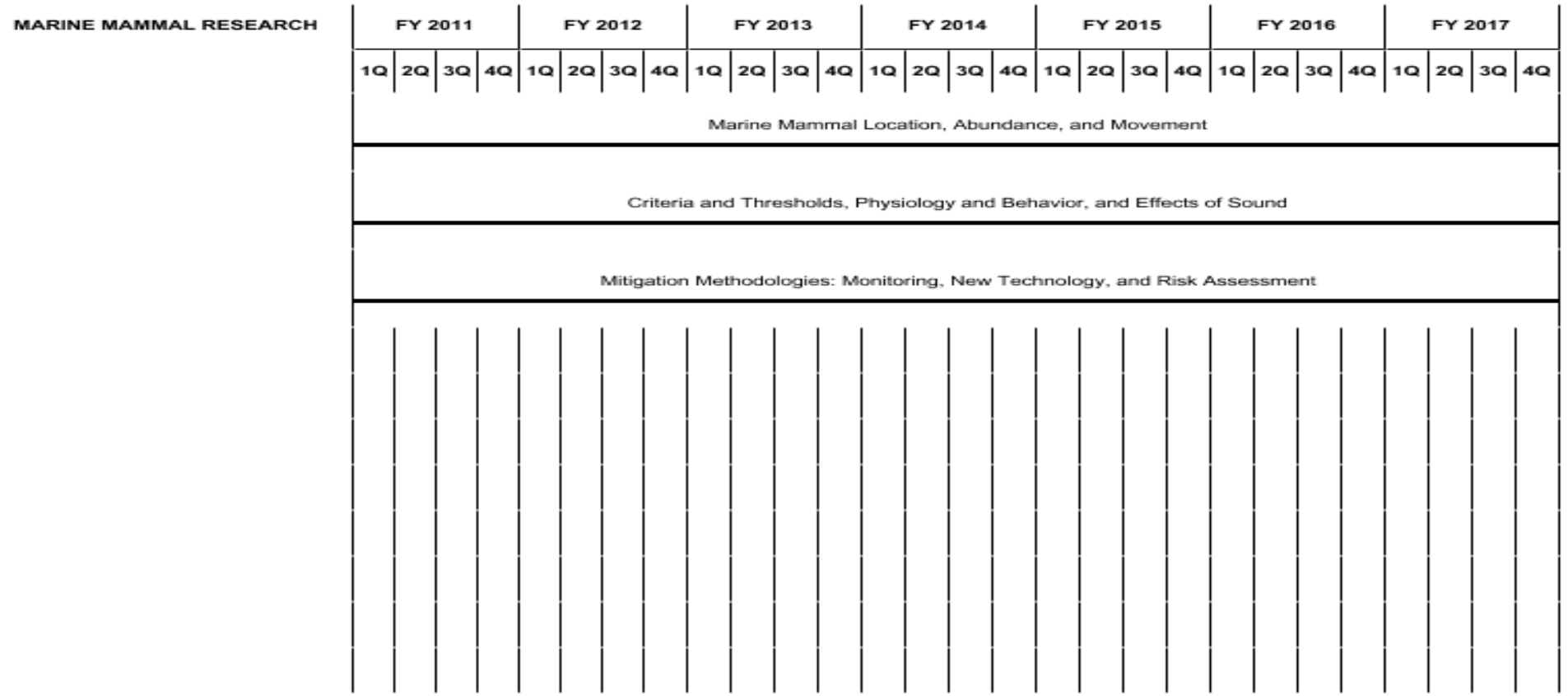
Major performers will develops techniques for passive acoustic, monitoring in the Southern California Offshore Range (SCOR) and other Navy Ranges Complexes, including the Hawaii Range Complex, Atlantic and gulf of Mexico training range complex, and orthers. Use those techniques for marine mammal density estimation and predictive modeling for marine mammal presence.

Naval Undersea Warfare Center; Newport, RI:
Executes marine mammal demographics, which determines the likelihood of the presence of marine mammal species through observed and forecasted oceanographic conditions by developing habitat and ecological models. Establish criteria and thresholds from which to measure potential impact on marine mammals from Navy training operations. Conduct passive acoustic monitoring of marine mammals, particularly on Navy undersea ranges.

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.466	8.006		7.595		6.598		0.000		6.598			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603721N: *Environmental Protection*	PROJECT 9204: *Marine Mammal Research*



2013OSD - 0603721N - 9204

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603721N: *Environmental Protection*	**PROJECT** 9204: *Marine Mammal Research*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MARINE MAMMAL RESEARCH				
Marine Mammal Ecology and Population Dynamics	1	2012	4	2018
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	1	2012	4	2018
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment	1	2012	4	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	53.241	69.844	55.324	45.618	-	45.618	93.836	60.857	53.013	53.913	Continuing	Continuing
0829.: *ENERGY CONSERVATION (ADV)*	14.108	17.069	8.770	7.695	-	7.695	14.011	14.831	13.795	14.043	Continuing	Continuing
0838: *Mobility Fuels (ADV)*	25.729	15.749	11.071	7.649	-	7.649	18.975	14.956	12.219	12.427	Continuing	Continuing
0928: *Directed Energy Research*	13.404	13.404	16.243	1.870	-	1.870	8.627	3.603	2.860	2.892	Continuing	Continuing
0996: *Aircraft Energy Conservation*	0.000	23.622	19.240	28.404	-	28.404	52.223	27.467	24.139	24.551	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

This program supports projects to evaluate, adapt, and demonstrate energy related technologies for Navy aircraft and ship operations to: (a) increase fuel-related weapons systems capabilities such as range and time on station; (b) reduce energy costs; (c) apply energy technologies that improve environmental compliance; (d) relax restrictive fuel specification requirements to reduce cost and increase availability worldwide; (e) provide guidance to fleet operators for the safe use of commercial grade or off-specification fuels when military specification fuels are unavailable or in short supply; and (f) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems. This program supports the achievement of legislated, White House, Department of Defense, and Navy Energy Management Goals. It also responds to direction from the Office of the Secretary of Defense, the Secretary of the Navy, and the Chief of Naval Operations to make up-front investment in technologies that reduce future cost of operation and ownership of the fleet and supporting infrastructure.

Project 0996 funding and efforts were realigned from project 0929 in FY 2012.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	70.538	55.324	80.467	-	80.467
Current President's Budget	69.844	55.324	45.618	-	45.618
Total Adjustments	-0.694	0.000	-34.849	-	-34.849
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.694	0.000			
• Program Adjustments	0.000	0.000	-12.523	-	-12.523
• Rate/Misc Adjustments	0.000	0.000	-22.326	-	-22.326

Change Summary Explanation

Technical: Not applicable.

Schedule:

0829 - Land Based Testing, Determine Fuel and Maintenance Saving, Shipboard Evaluation and Component Implementation schedules have all been delayed due to prototype development.

0838 - Generation 3 Protocol Development added to ensure incorporation of efforts on Office of Naval Research fuels science and technology program, for which a deliverable is development of advance tools to improve the alternative fuels test and certification process. Access to technology transition dates was unavailable during the last budget cycle. 50% Bio Derived Lab/Hardware Testing and 50% Bio Derived Ship/Aircraft Demonstrations will be extended because of FY14 budget cut. Hardware testing will be delayed into early FY15, and ship/aircraft demonstrations will be funded in FY15 and FY16.

0929- Air ENCON Program realigned to 0996 starting 1Qtr 2012- 4Qtr 2018. Air Vehicle Energy Efficiency realigned to 0996 starting 1Qtr 2012 - 4Qtr 2018. Engine Efficiency realigned to 0996 starting in 1Qtr 2012 - 4Qtr 2018. Mission Planning Module Upgrades realigned to 0996 starting in 1Qtr 2012 - 4Qtr 2016.

0996 - Aircraft Energy Conservation item deleted; it was over-arching and not representative of individual efforts. Aircraft Drag Reducing item deleted; testing completed in FY12. Completed microsmooth aircraft coating wind tunnel performance evaluations showed that, despite predictions and commercial data presented prior to testing, there was only a minimal benefit to reducing fuel burn and therefore the project will be terminated in FY12. F/A-18 Bring-Back Weight Study item deleted; additional analysis showed that this effort would not meet fuel reduction goals as previously projected during project inception and was therefore not cost-effective to continue.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0829.: *ENERGY CONSERVATION (ADV)*	14.108	17.069	8.770	7.695	-	7.695	14.011	14.831	13.795	14.043	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Energy Conservation Advanced Project is designed to develop and implement energy and maintenance saving improvements into existing Fleet assets. The aircraft energy conservation project identifies, evaluates, and implements energy savings initiatives for potential implementation into Naval aircraft. The objective of the project is to engage technical experts from across Naval aviation, industry, and academia to identify mature potential energy saving opportunities and determine the technical and fiscal viability of implementing them in existing aircraft platforms.

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Energy Conversation Advanced Project is designed to develop and implement energy and maintenance saving improvements into existing Fleet assets. This Fleet driven project, managed through NAVSEA 05Z, will identify mature potential energy saving and maintenance improvement areas, by involvement with Life-Cycle Managers (LCMs), NAVSEA Technical Warrant Holders, In-Service Engineering Agents (ISEAs), PEOs, TMA/TMI, Industry, and Academia. Potential technology target areas will include: Hull Hydrodynamics, Hull Husbandry, Heating, Ventilation & Air Conditioning (HVAC) Systems, Thermal Management, Propulsion Systems, Electrical Systems, and Power Generation and Storage systems. The project directly supports Fleet requirements to reduce energy consumption and lower maintenance costs. The project will focus on research and development across the following major areas: (U) Hull Hydrodynamic Sub Project - This project area will accomplish prototype development, modeling, laboratory and Fleet testing of ship modifications to propellers and/or hull appendages to determine overall mission and cost effectiveness of these improvements. (U) Hull Husbandry Sub Project - Project funds will be utilized to identify and evaluate new underwater hull coating systems and underwater hull cleaning and maintenance techniques both landbased and shipboard to reduce hydrodynamic drag on the hull and thereby increase fuel efficiency. (U) HVAC Sub Projects - Project funds will be utilized to accomplish prototype development, land and shipboard testing to determine overall mission and cost effectiveness of these improvements. (U) Thermal Management Sub Project - Project funds will be utilized to identify and evaluate potential uses for Thermal Management techniques designed to reduce overall shipboard heat generation and reduce the overall need for HVAC. (U) Propulsion Systems Sub Project - Project funds will be utilized to identify requirements and perform landbased and ship board testing of ship propulsion system improvements, on Gas Turbine, Steam, and Diesel Engine systems to reduce overall fuel consumption and lower maintenance costs and to develop a ship-wide monitoring system capable of conveying the power usage and operating conditions of numerous systems on the ship (U) Electrical Systems Project - Project funds will be utilized to identify requirements and perform landbased and ship board testing of ship electrical system improvements, to reduce overall fuel consumption and lower maintenance costs. (U) Power Generation & Storage System Project - This project area will accomplish prototype development, laboratory and Fleet testing to determine overall effectiveness of these improvements. (U) Smart Voyage Planning (SVPDA)/ Fleet Scheduler - Analytic software tools for shore-side planning (1) to design ship voyage routes that minimize fuel usage using ship fuel curves, local weather, and ocean-current data, and (2) allow Fleet schedulers to develop mission plans for movement of Ships using minimized fuel usage as a primary focus, while (3) accounting for personnel and ship safety.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Power Generation and Storage Project	2.119	1.854	0.925
Articles:	0	0	0
Description: Power Generation & Storage System Sub Project - This project area will accomplish prototype development, laboratory and Fleet testing to determine overall mission and cost effectiveness of these improvements. ***FY 2012 Accomplishments:*** Commenced Land Based testing of Energy Storage Module (ESM), developed test specs and procedures for shipboard installation of a 600KW Energy Storage Module (ESM) on a DDG 51 ship (hull to be determined (1-6 month evaluation)) to demonstrate Single Generator Operations. Continuing to identify new fuel saving technologies in Power Generation & Storage including technical assessment of more efficient operation of Ship Service Diesel Engine Generators (SSDGs). ***FY 2013 Plans:*** Continue land based testing and install ESM Proof of Concept on ship for demonstration. Remove shipboard ESM test unit from ship, analyze performance data, continue any additional land based testing required and prepare reports.. Continue to identify new fuel saving technologies in Power Generation & Storage for Gas Turbine, Diesel and Steam ships. Prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2014 Plans:*** Continue to identify new fuel saving technologies in Power Generation & Storage for Gas Turbine, Diesel and Steam ships. Prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption.			
Title: Hull Hydrodynamic Sub Project	2.800	1.000	1.725
Articles:	0	0	0
Description: (U) Hull Hydrodynamic Sub Project - This project area will accomplish prototype development, modeling, laboratory and Fleet testing of ship modifications to propellers and/or hull appendages to determine overall mission and cost effectiveness of these improvements. ***FY 2012 Accomplishments:*** Continued advance planning efforts for installation of fins on LHD 1 Class ship during Dry-docking availability, initiated material procurement and fabrication, install fins during scheduled availability (SEPT 2012). Initiated engineering development efforts to install a bow bulb on DDG 51 class ship for evaluation to reduce fuel consumption. Conducted model testing of bow bulb design and reviewing existing data available based on earlier designs. Identified additional fuel saving technologies in Hull Hydrodynamic			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
systems for all ship classes and prepared proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2013 Plans:*** Complete model testing on bow bulb design; identify ship, prepare drawings and Ship Change documents as required for installation of Proof of concept on a DDG Hull. Continue to identify additional fuel saving technologies in Hull Hydrodynamic systems and prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2014 Plans:*** Install bow bulb on selected DDG 51 class ship for test and evaluation, conduct pre and post sea trials to capture baseline and post performance data, prepare report of trial results. Continue to identify additional fuel saving technologies in Hull Hydrodynamic systems and prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption.			
Title: Hull Husbandry Sub Project ***Articles:*** ***Description:*** (U) Hull Husbandry Sub Project - Project funds will be utilized to identify and evaluate new underwater hull coating systems and underwater hull cleaning and maintenance techniques both land based and shipboard to reduce hydrodynamic drag on the hull and thereby increase fuel efficiency. ***FY 2012 Accomplishments:*** Continued to utilize Ship Powering Condition Monitor (SPCM) to evaluate coating performance and energy savings. Develop Business Case Analysis for easy release hull coating based on test results of coating applications and continue development, test and evaluation of new fuel savings initiatives identified. Continue to identify new fuel saving initiatives in Hull Husbandry. ***FY 2013 Plans:*** Develop approaches to monitor performance of hull and propeller coatings with focus on determining when ships are operating in a fuel penalty condition due to hull or propeller roughness conditions. Continue to identify new fuel saving initiatives in Hull Husbandry and prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2014 Plans:***	0.625 0	0.504 0	0.994 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Conduct model testing as required and ship installation for test and evaluation of identified hull/propeller modifications or monitoring approaches with objective to measure fuel savings. Continue to identify new fuel saving initiatives in Hull Husbandry and prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption.			
Title: Heating , Ventilation and Air Conditioning (HVAC) Sub Project	1.350	1.605	0.791
Articles:	0	0	0
Description: (U) HVAC Sub Project - Project funds will be utilized to accomplish prototype development, land and shipboard testing to determine overall mission and cost effectiveness of these improvements. ***FY 2012 Accomplishments:*** IAW NAVSEA PPD 802-8417916, continued design and fabrication of the HES-C prototype chiller. The fabrication of major compressor and motor castings was completed. Design and fabrication of the compressor impellers and variable geometry diffusers was completed. Chiller Operator Interface Terminal and Programmable Logic Controller were developed and testing/ debugging commenced. Commenced component level testing of the permanent magnet motor and magnetic bearings. Technical challenges with rotor position sensor laminations were successfully resolved but resulted in an 8-week project delay. Technology implementation on DDG51FLT-IIa; DDG51FLT-III; LPD-26/27 and OHIO Replacement continued. HES-C is the baseline for the DDG51FLT-III. Performance & acoustic testing as well as Electro-magnetic Interference (EMI) testing commenced. Continuing efforts to install centrally controlled HVAC system utilizing programmable digital thermostats on a DDG Class hull and preparing proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel. ***FY 2013 Plans:*** Continue installation, test and evaluation of new HVAC system on a DDG CI hull, monitor performance and prepare report of savings. Evaluate Heating Ventilation and Air Conditioning systems of other classes of ships for efficiencies and installation of new digital thermostats for test and evaluation aimed at reducing ships energy consumption. Continue to identify additional fuel saving technologies in HVAC Systems and prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel. ***FY 2014 Plans:*** Based on evaluation of other classes of ships in FY13 perform technical assessment to develop test and installation plan for appropriate ship classes for improvement to shipboard HVAC systems. Review Business Case Analyses and develop test and installation plans as appropriate to perform land based and shipboard evaluation. Continue to identify additional fuel saving technologies in HVAC Systems and prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel.			
Title: Thermal Management Sub Project	0.100	0.100	0.100
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Description: (U) Thermal Management Sub Project - Project funds will be utilized to identify and evaluate potential uses for Thermal Management techniques designed to reduce overall shipboard heat generation and reduce the overall need for HVAC. ***FY 2012 Accomplishments:*** Performed engineering analyses to identify potential Thermal Management energy saving technologies applicable to navy ships. ***FY 2013 Plans:*** Continue to identify additional fuel saving technologies in Thermal Management that may be applicable to navy ships. Examine potential improvements to thermal properties of topside and non-skid coatings with aim of increasing heat reflective properties and reducing ships internal space temperatures. Prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2014 Plans:*** Pursue lab and shipboard testing of identified thermal management technologies. Continue to identify additional fuel saving technologies in Thermal Management that may be applicable to navy ships. Prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption.			
Title: Propulsion Systems Sub Project	4.500	3.070	1.400
Articles:	0	0	0
Description: (U) Propulsion Systems Sub Project - Project funds will be utilized to identify requirements and perform land based and ship board testing of ship propulsion system improvements, on Gas Turbine, Steam, and Diesel Engine systems to reduce overall fuel consumption and lower maintenance costs and to develop a ship-wide monitoring system capable of conveying the fuel usage and operating conditions of numerous systems on the ship. ***FY 2012 Accomplishments:*** Continued to assess technical merits of improvements to Gas Turbine, Steam and Diesel engine systems and development of Shipboard Energy Dashboard (SED) that captures existing shipboard equipment information related to fuel and electric power consumption for viewing on-board ship. SED is installed on 6 DDG 51 Class hulls for test and evaluation and is capturing fuel consumption data for man engines with monthly energy reports prepared for each ship. ***FY 2013 Plans:*** Evaluate performance of SED for main engines and modify/expand information being captured and displayed based on feedback from ships and other stakeholders. Expand SED development to other classes of ships based on their configuration and examination of information available. Determine actions necessary to deploy an energy dashboard for these classes of ships based on data available or needed and prepare necessary documentation to conduct shipboard test and evaluation. Continue			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
to identify additional fuel saving technologies in Propulsion Systems and prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel. ***FY 2014 Plans:*** Based on engineering analyses in FY13 of SED and determination of actions for other classes of ships develop plan of action to test and evaluate SED on at least one ship of each identified class of ships. Develop necessary documentation for installation and test of SED based on ships' availability. Monitor performance and prepare reports to evaluate effectiveness in providing ships force with actionable data to operate ships in energy efficient manner based on mission requirements.			
Title: Electrical Systems SubProject ***Articles:*** ***Description:*** Electrical Systems Sub Project - Project funds will be utilized to identify and perform landbased and shipboard testing of ship electrical system improvements to reduce energy. ***FY 2012 Accomplishments:*** Procured material and replaced legacy incandescent and fluorescent lighting with Solid State Light Emitting Diode (LED) technology for evaluation on a DDG-51 Class hull. Conducting engineering analysis and design for using Variable Speed Drive (VSD) technology in the Collective Protection System (CPS) of a DDG Class hull for test and evaluation. Developed the electric plant portion of the Shipboard Energy Dashboard installed on 6 DDG 51 Class hulls for test and evaluation to capture and display for ship's force the ship's energy posture of electric plant use. Continued to identify new fuel saving technologies in Electrical Systems. ***FY 2013 Plans:*** Prepare necessary documentation for land and shipboard testing and evaluation of FY12 initiatives (VSD/CPS, SED). Install VSD/CPS on a DDG 51 class hull and monitor performance. Evaluate performance of SED for ship's electric plant data and modify/expand information being captured and displayed based on feedback from ships force and other stakeholders. Expand SED development to other classes of ships based on their configuration and examination of information available. As with propulsion data, determine actions necessary for to deploy an energy dashboard for these classes of ships based on electric plant data available or needed and prepare necessary documentation to conduct shipboard test and evaluation. Continue to identify additional fuel saving technologies in Electrical Systems and prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel. ***FY 2014 Plans:*** Monitor performance of installed electric plant initiatives, analyze data and prepare reports. Continue SED efforts to monitor and display energy consumption data to ship's force personnel for fossil fuel ships, identify additional fuel saving technologies in	2.175 0	0.637 0	1.760 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Electrical Systems and prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel.			
Title: Smart Voyage Planning Decision (SVPDA) ***Articles:*** ***Description:*** Provide tools to allow ship voyage planning. ***FY 2012 Accomplishments:*** Awarded contract for development of additional capability to shore-side ship routing process (1) develop and design ship voyage routes that maximize fuel efficiency by incorporating ship configuration and performance data, local weather, and ocean-current data, and (2) allow Fleet Weather Center ship routers to develop mission plans for movement of Ships adding fuel efficiency as a primary focus, while (3) accounting for ship, crew and navigational safety (including weather avoidance). System deployed during Fleet RIMPAC (Rim of the Pacific)exercises in July 12 for evaluation.	3.400 0	0.000	0.000
Accomplishments/Planned Programs Subtotals	17.069	8.770	7.695

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This is a non-acquisition program that develops, evaluates, and validates mature technologies in support of Fleet fuel and maintenance savings.
RDT&E Contracts are Competitive Procurements.

E. Performance Metrics

Actual performance of energy conservation initiatives are measured against initially projected fuel savings measured in barrels of fuel saved based on aircraft and ship demonstration testing.
Quarterly Program Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	WR	NSWC Carderock:Bethesda, MD	1.887	2.507	Oct 2011	1.200	Nov 2012	0.600	Nov 2013	-		0.600	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC Carderock:Bethesda, MD	1.439	1.756	Oct 2011	1.070	Nov 2012	0.896	Nov 2013	-		0.896	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC Carderock:Bethesda, MD	2.404	1.955	Nov 2011	1.200	Nov 2012	0.600	Nov 2013	-		0.600	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	NSWC Carderock:Bethesda, MD	2.575	2.198	May 2012	0.900	May 2013	0.510	May 2014	-		0.510	Continuing	Continuing	Continuing
Primary Hardware Development-SVPDA	WR	NSWC Carderock:Bethesda, MD	0.000	1.200	Oct 2011	0.000		0.000		-		0.000	0.000	1.200	
Systems Engineering-SVPDA	WR	NSWC Carderock:Bethesda, MD	0.000	0.600	Oct 2011	0.000		0.000		-		0.000	0.000	0.600	
Engineering Development-SVPDA	WR	NSWC Carderock:Bethesda, MD	0.000	0.110	Nov 2011	0.000		0.000		-		0.000	0.000	0.110	
Demonstration & Evaluation-SVPDA	WR	NSWC Carderock:Bethesda, MD	0.000	0.870	May 2012	0.000		0.000		-		0.000	0.000	0.870	
		Subtotal	8.305	11.196		4.370		2.606		0.000		2.606			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NSWC Carderock:Bethesda, MD	0.000	0.200	Dec 2011	0.200	Nov 2012	0.300	Nov 2013	-		0.300	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Support	WR	NSWC Carderock:Bethesda, MD	0.000	0.200	Dec 2011	0.100	Dec 2012	0.150	Dec 2013	-		0.150	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NSWC Carderock:Bethesda, MD	0.000	0.300	Dec 2011	0.200	May 2013	0.200	May 2014	-		0.200	Continuing	Continuing	Continuing
Study Anaylsis	WR	NSWC Carderock:Bethesda, MD	0.000	0.200	Apr 2012	0.200	Dec 2012	0.300	Dec 2013	-		0.300	Continuing	Continuing	Continuing
		Subtotal	0.000	0.900		0.700		0.950		0.000		0.950			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Carderock:Bethesda, MD	2.728	1.698	Nov 2011	1.450	Jan 2013	2.140	Dec 2013	-		2.140	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	NSWC Carderock:Bethesda, MD	1.280	1.748	Jan 2012	0.950	May 2013	0.800	Mar 2014	-		0.800	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	WR	NSWC Carderock:Bethesda, MD	0.382	0.000		0.000		0.000		-		0.000	0.000	0.382	
Developmental Test & Evaluation-SVPDA	WR	NSWC Carderock:Bethesda, MD	0.000	0.060	Nov 2011	0.000		0.000		-		0.000	0.000	0.060	
		Subtotal	4.390	3.506		2.400		2.940		0.000		2.940			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

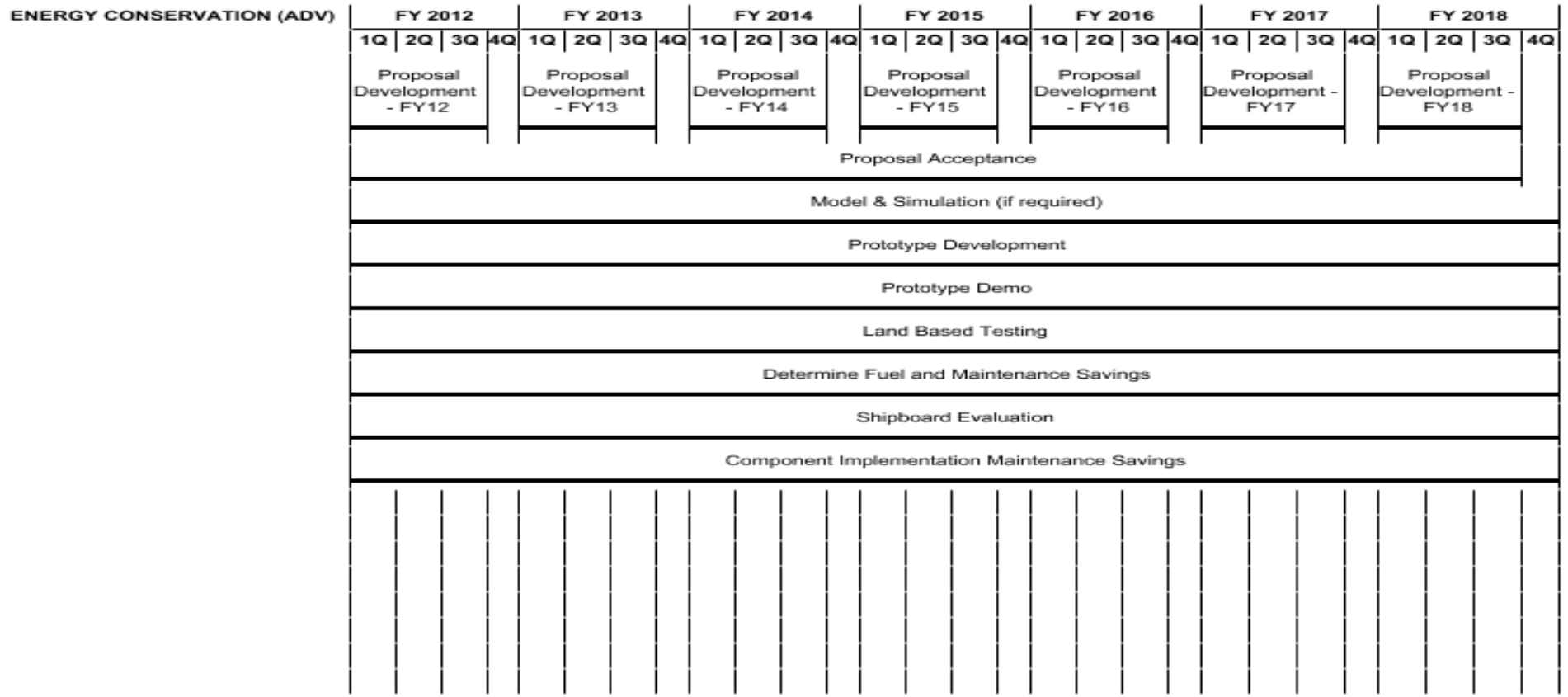
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NSWC Carderock:Bethesda, MD	1.042	0.900	Oct 2011	1.280	Oct 2012	1.194	Oct 2013	-		1.194	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA HQ:Washington, DC	0.119	0.015	Sep 2012	0.020	Nov 2012	0.005	Oct 2013	-		0.005	Continuing	Continuing	Continuing
Total Assets	WR	NSWC Carderock:Bethesda, MD	0.252	0.100	Mar 2012	0.000		0.000		-		0.000	0.000	0.352	
Program Management Support-SVPDA	WR	NSWC Carderock:Bethesda, MD	0.000	0.452	Oct 2011	0.000		0.000		-		0.000	0.000	0.452	
		Subtotal	1.413	1.467		1.300		1.199		0.000		1.199			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	14.108	17.069		8.770		7.695		0.000		7.695			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*



2014OSD - 0603724N - 0829.S24

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603724N: *Navy Energy Program*	**PROJECT** 0829.: *ENERGY CONSERVATION (ADV)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ENERGY CONSERVATION (ADV)				
Proposal Development - FY12	1	2012	3	2012
Proposal Development - FY13	1	2013	3	2013
Proposal Development - FY14	1	2014	3	2014
Proposal Development - FY15	1	2015	3	2015
Proposal Development - FY16	1	2016	3	2016
Proposal Development - FY17	1	2017	3	2017
Proposal Development - FY18	1	2018	3	2018
Proposal Acceptance	1	2012	3	2018
Model & Simulation (if required)	1	2012	4	2018
Prototype Development	1	2012	4	2018
Prototype Demo	1	2012	4	2018
Land Based Testing	1	2012	4	2018
Determine Fuel and Maintenance Savings	1	2012	4	2018
Shipboard Evaluation	1	2012	4	2018
Component Implementation Maintenance Savings	1	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0838: *Mobility Fuels (ADV)*	25.729	15.749	11.071	7.649	-	7.649	18.975	14.956	12.219	12.427	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project provides data through laboratory, component, engine, fuel system, and weapon system tests, which relate the effects of changes in the Navy fuel procurement specification properties and chemistries to the performance and reliability of Naval ship, aircraft, and fuel distribution systems. The information is required to: (a) develop, validate, and execute the test protocols necessary to approve fuels from non-petroleum feedstocks, (b) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide, (c) provide guidance to fleet operators for the safe use of off-specification or commercial grade fuels when military specifications are unavailable or in short supply, (d) technically justify changes to fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in fuel supply, and (e) improve capability to provide fuel quality surveillance in the field. Continued volatility and rapid escalation of the cost of fuel have placed additional pressures on Navy budgets responsible for maintaining and sustaining the Navy tactical fleet both now and in the future. These pressures have placed an added emphasis on the potential use of lower cost commercial fuels and/or fuels derived from non-petroleum sources as a potential means of stabilizing the current and anticipated price volatility. Recent problems with petroleum-based fuel quality have demonstrated the adverse effects that fuel-related problems can have on ship and aircraft system performance, reliability, and readiness. While the program impacts on readiness, additional maintenance costs, and the cost of lost equipment are often difficult to fully quantify, they are often many times the cost of this program. The potential risk of fuel-related problems over the next decade, given the unknown supply, feedstocks, environmental regulations, and the introduction of new theaters of operation, will continue to increase.

This project represents the Navy's only investment designed to maintain its capability to operate as a "smart" customer for fuels that cost over $4.0B per year for procurement, transport, storage, and consumption, and are essential to fleet operations. Additionally, it is the Navy's only investment in the approval of alternative fuels for tactical applications and directly supports the Navy's energy goals of increased energy security and environmental stewardship.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Naval Tactical Fuels	15.749	11.071	7.649
Articles:	0	0	0
Description: Perform development, test and evaluation work on Naval tactical fuels to: a) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide; b) provide guidance and approval to fleet operators for the safe use of military aircraft that include new additives or are derived from non-petroleum sources; c) make needed periodic changes to the fuel specifications to ensure fuel quality and avoid fleet operating			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
problems while accommodating evolutionary changes in the fuel supply industry and d) improve fleet methods to ensure fuel quality. ***FY 2012 Accomplishments:*** Complete propulsion and system testing of 50/50 bio-blend JP-5 and 50/50 bio-blend F-76. Initiate rig, laboratory and component testing on JP-5 and F-76 containing greater than 50% of bio-derived components. Revise aircraft, ship, and infrastructure alternative fuels protocols. ***FY 2013 Plans:*** Continue rig and propulsion system testing on aircraft and ship biofuels blends containing greater than 50% bio-derived components. Initiate ship and aircraft trials on biofuel blends containing greater than 50% bio-derived components. Initiate laboratory and rig testing on promising advanced biofuel production pathway fuels. ***FY 2014 Plans:*** Expand the list of qualified renewable sources/production pathways for inclusion into the JP-5 and F-76 specifications. Complete hardware testing on direct sugar-to-hydrocarbon and biomass-to-alcohol-to-jet production pathways. Continue laboratory and rig testing, and begin component testing on advanced biofuel production pathway. Evaluate impact of increased use of commercial shipboard propulsion fuel. Evaluate impact on Navy operations of government regulations requiring mandatory addition of fatty acid methyl ester into commercial diesel fuel.			
Accomplishments/Planned Programs Subtotals	15.749	11.071	7.649

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Alternative Fuel Efforts including testing and fuel procurement efforts will be competitively contracted, and performed under Cost Plus Fixed Fee and Firm Fixed Price contracts.

E. Performance Metrics

Program will develop Alternate Fuel test and certification protocols for 100% of all Naval aircraft and ships. Program will evaluate biofuels, biofuel chemistry and components tests as defined in test and certification protocols.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NRL:Washington, D.C.	1.025	0.481	Nov 2011	0.500	Nov 2012	0.350	Dec 2013	-		0.350	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD:Patuxent River, MD	5.182	2.500	Nov 2011	1.019	Nov 2012	0.400	Nov 2013	-		0.400	Continuing	Continuing	Continuing
Systems Engineering	WR	DLA-Energy:Ft. Belvoir, VA	0.000	0.010	Nov 2011	0.100	Nov 2012	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NAVSEA:Philadelphia, PA	0.000	0.425	Jan 2012	0.100	Nov 2012	0.100	Dec 2013	-		0.100	Continuing	Continuing	Continuing
Systems Engineering	C/FFP	L-3 Communications:Marlton, NJ	0.000	0.039	Jan 2012	0.000		0.000		-		0.000	0.000	0.039	0.039
Systems Engineering	C/FFP	FEV, Inc.:Auburn Hills, MI	0.000	2.785	Aug 2012	0.000		0.000		-		0.000	0.000	2.785	2.785
Engineering Development	C/CPFF	Various:Various	2.201	0.000		0.000		0.000		-		0.000	0.000	2.201	2.201
		Subtotal	8.408	6.240		1.719		0.850		0.000		0.850			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/CPFF	Various:Various	7.511	0.000		0.000		0.000		-		0.000	0.000	7.511	7.511
Developmental Test & Evaluation	MIPR	Army Tank/ Arm:Warren, MN	0.228	0.000		0.000		0.000		-		0.000	0.000	0.228	0.228
Developmental Test & Evaluation	C/CPFF	Life Cycle Engineering:Charleston, SC	3.000	2.926	Nov 2012	0.000		0.000		-		0.000	0.000	5.926	5.926
Test Fuel	C/FFP	TBD:TBD	0.000	2.255	Aug 2012	1.720	Jan 2013	1.000	Mar 2014	-		1.000	0.000	4.975	4.975
Hardware Testing	WR	NSWC:Panama City, FL	0.000	0.040	Nov 2011	0.000		0.000		-		0.000	0.000	0.040	
Hardware Testing	SS/CPFF	General Electric:Lynn, MA	0.000	2.200	Aug 2012	0.700	Mar 2013	0.700	Apr 2014	-		0.700	0.000	3.600	3.600

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Testing	SS/CPFF	Rolls Royce:Indianapolis, IN	0.000	0.000		0.700	Mar 2013	0.700	Mar 2014	-		0.700	0.000	1.400	1.400
Hardware Testing	C/CPFF	TBD:TBD	0.000	0.159	Aug 2012	2.000	May 2013	1.850	Mar 2014	-		1.850	0.000	4.009	4.009
Hardware Testing	WR	NAWCAD:Patuxent River, MD	0.000	1.000	Nov 2011	2.000	Jan 2013	1.000	Dec 2013	-		1.000	Continuing	Continuing	Continuing
Hardware Testing	C/CPFF	Life Cycle Engineering:Charleston, SC	0.000	0.000		1.552	Jan 2013	1.200	Mar 2014	-		1.200	0.000	2.752	2.752
Hardware Testing	C/FFP	Hughes Associates:Baltimore, MD	0.000	0.040	Mar 2012	0.000		0.000		-		0.000	0.000	0.040	0.040
Hardware Testing	WR	NSWC Carderock:Bethesda, MD	0.000	0.104	Mar 2012	0.000		0.000		-		0.000	0.000	0.104	
Hardware Testing	WR	Naval Shipyard:Puget Sound, WA	0.000	0.011	Mar 2012	0.000		0.000		-		0.000	0.000	0.011	
Hardware Testing	C/FFP	AMSEC, LLC:Virginia Beach, VA	0.000	0.147	Apr 2012	0.000		0.000		-		0.000	0.000	0.147	0.147
Hardware Testing	WR	NSWC:Philadelphia, PA	0.000	0.080	Aug 2012	0.000		0.000		-		0.000	0.000	0.080	
		Subtotal	10.739	8.962		8.672		6.450		0.000		6.450			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	Various:Various	5.690	0.000		0.000		0.000		-		0.000	0.000	5.690	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*

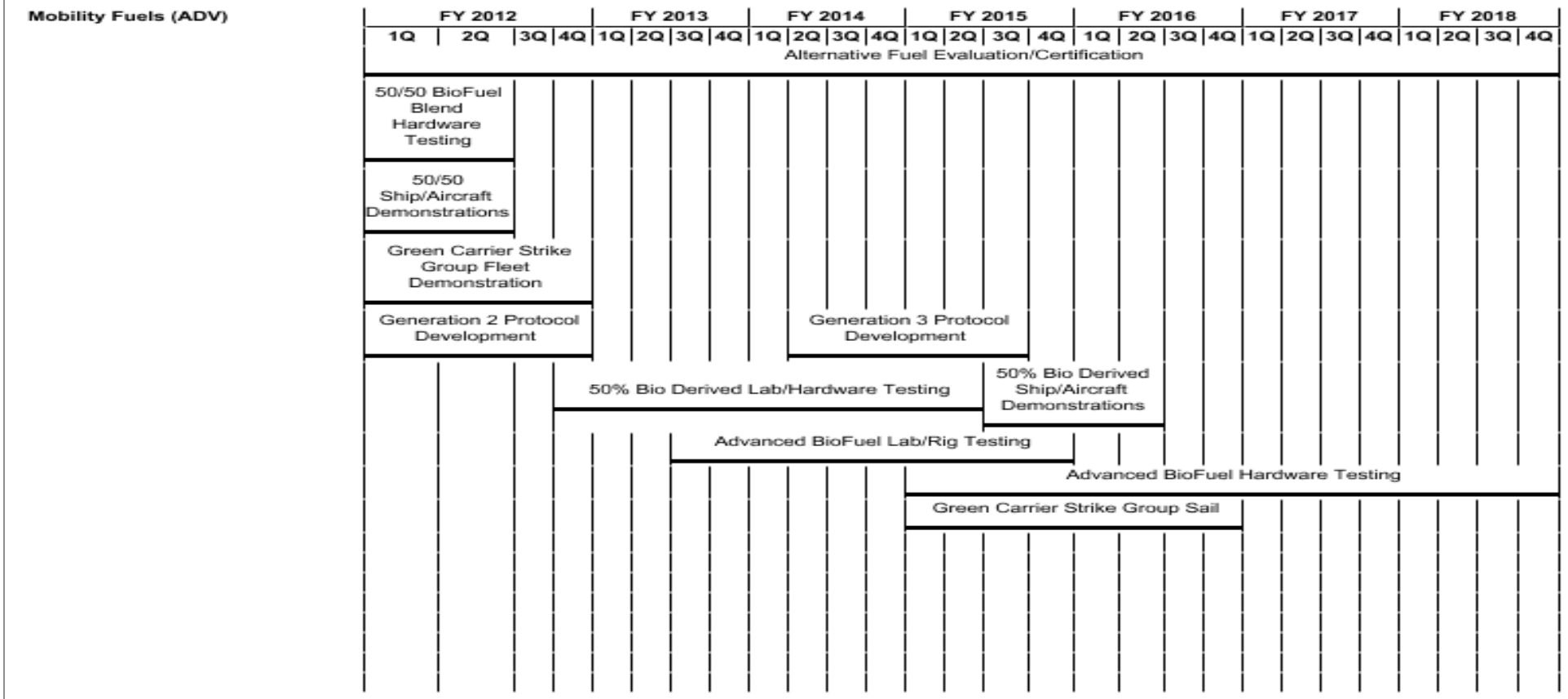
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	MIPR	SRI:San Antonio, TX	0.696	0.000		0.000		0.000		-		0.000	0.000	0.696	0.696
Program Management Support	WR	NAVSEA:Washington, DC	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	
Program Management Support	WR	NSWC:Philadelphia, PA	0.088	0.000		0.000		0.050	Dec 2013	-		0.050	0.000	0.138	
Program Management Support	WR	NAWCAD:Patuxent River, MD	0.000	0.539	Nov 2011	0.680	Nov 2012	0.249	Nov 2013	-		0.249	Continuing	Continuing	Continuing
Program Management Support	WR	NAVSUP:San Diego, CA	0.000	0.008	Dec 2011	0.000		0.050	Oct 2013	-		0.050	0.000	0.058	
DAWDF Realignment Issue 74408	TBD	Not Specified:Not Specified	0.008	0.000		0.000		0.000		-		0.000	0.000	0.008	
		Subtotal	6.582	0.547		0.680		0.349		0.000		0.349			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	25.729	15.749		11.071		7.649		0.000		7.649			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*



2014OSD - 0603724N - 0838

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603724N: *Navy Energy Program*	**PROJECT** 0838: *Mobility Fuels (ADV)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Mobility Fuels (ADV)				
Alternative Fuel Evaluation/Certification	1	2012	4	2018
50/50 BioFuel Blend Hardware Testing	1	2012	2	2012
50/50 Ship/Aircraft Demonstrations	1	2012	2	2012
Green Carrier Strike Group Fleet Demonstration	1	2012	4	2012
Generation 2 Protocol Development	1	2012	4	2012
Generation 3 Protocol Development	2	2014	3	2015
50% Bio Derived Lab/Hardware Testing	4	2012	2	2015
50% Bio Derived Ship/Aircraft Demonstrations	3	2015	2	2016
Advanced BioFuel Lab/Rig Testing	3	2013	4	2015
Advanced BioFuel Hardware Testing	1	2015	4	2018
Green Carrier Strike Group Sail	1	2015	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0928: *Directed Energy Research*	13.404	13.404	16.243	1.870	-	1.870	8.627	3.603	2.860	2.892	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Legislation, Executive Orders (EO), and SECNAV Guidance direct DoN to reduce fossil fuel use and increase renewable energy use. This guidance includes the Energy Policy Act of 2005, which directs agencies to reduce energy intensity 30% by 2015, the National Defense Authorization Act of 2010, which directs DOD to source 25% of its energy from renewable sources by 2025, EO13514, which directs DOD to reduce greenhouse gas emissions by 2020, and SECNAV energy goals, which direct that 50% of DoN's energy come from alternative sources by 2020. Further, studies by the Defense Science Board and others have stressed the dangerous reliance of DOD on vulnerable grid power and unreliable imported oil. Currently, the Navy has limited options for producing energy from renewable sources. Private industry and other federal agencies are developing and testing new technologies. Renewable energy from the ocean such as wave, sea water air conditioning, tidal energy, outer continental shelf wind development, ammonia production and utilization, vortex induced vibration marine hydrokinetic, and compressed air storage for ocean energy, among other technologies have potential to alleviate current Navy island installation dependence on fossil fuel, at comparable costs to projected fossil energy sources. Also, advanced energy management systems have potential to increase installation energy security and enable broader use of renewable energy sources. Because of unique mission and aggressive time frames, testing and demonstration under Navy oversight would facilitate deployment throughout the DoN more quickly than a purely passive approach.

This Energy RDT&E Project will test, evaluate, and validate components as well as demonstrate cost-effective and technical viability of energy efficiency and renewable energy prototypes. All efforts will be coordinated across DOD and with other agencies as appropriate. Specifically, this project aims to pursue three areas of development, testing and evaluation: (A) Renewable Energy to support feasibility evaluation, modeling and possible prototype testing of new energy sources for use at Naval installations with potential for widespread applicability to energy security and renewable energy requirements. Other renewable sources for evaluation, modeling and possible prototype testing may include energy storage (dead-ended fuel cell, zinc air battery, etc.), facility level concentrating solar power, next generation solar heat reflective film, plasma lighting for high wattage applications, micro-inverters for photo-voltaic storage, building level micro-grid, new generation waste heat capture, and other technologies; (B) It will support demonstration and validation of advanced electric grid management systems, known as "Smart Grid" technology, for use at Naval installations to enable improved energy security; (C) Demonstration and Validation of Alternative Energy, Energy Efficiency, Sustainable Building Features, Alternative Fuel Vehicles, and Smart Energy Management Technology: This project will support the testing, demonstration, validation, and application of innovative facility energy efficiency and alternative energy technology.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Directed Energy Research	13.404	16.243	1.870
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: Initiated component and prototype planning and development for alternative energy and advanced grid management technology at Naval Installations as follows: - Initiated evaluation of environmental impacts of ocean wave, sea water air conditioning and other ocean energy generation prototypes - Initiated planning and development of advanced wave energy generation prototypes - Initiated planning and development of advanced grid management technology at Naval installations - Initiated demonstration, testing, deployment, and evaluation of energy efficient and alternative energy technology innovations			
FY 2013 Plans: Perform component testing and prototype development and deployment for alternative energy and advanced grid management technology at Naval installations as follows: - Evaluation of environmental impacts of ocean renewable energy generation systems - Developing, evaluating, and begin installation of supporting equipment for validation of ocean renewable energy generation components and prototypes - Evaluation, and planning for outer continental shelf wind, photovoltaic, ocean compressed air storage and other promising technologies - Demonstration, testing, deployment, and evaluation of smart energy management technology, - Demonstration and validation of mature technologies to be transitioned such as advanced, sustainable building technologies, solar PV collection technologies, alternative fuel vehicles, and improved energy storage systems at Naval installations			
FY 2014 Plans: Perform component testing and prototype development and deployment for alternative energy and advanced lighting grid management technology at Naval installations as follows: - Evaluation of environmental impacts of ocean renewable energy generation systems - Evaluating and testing Wave Energy Systems - Begin development of technical specifications and acquisition strategies for wave energy systems - Evaluation, and planning for outer continental shelf wind, photovoltaic, ocean compressed air storage and other promising technologies - Demonstration, testing, deployment, and evaluation of smart energy management technology, and begin development of technical specifications			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Demonstration and validation of mature technologies to be transitioned such as advanced lighting, sustainable building technologies, solar PV collection technologies, alternative fuel vehicles, and improved energy storage systems at Naval installations			
Accomplishments/Planned Programs Subtotals	13.404	16.243	1.870

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Demonstration and validation are conducted for maximum transfer and interaction with industry such as to influence the industry COTS with the results of this demonstration and prototype validation. Acquisition is based on performance specifications enabled by this project.

E. Performance Metrics

The program will be coordinated across DOD and with other agencies as appropriate to achieve 30% Energy Intensity Reduction by FY2015 and 25% Renewable Energy Increase by 2025.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Renewable Energy	Various	EXWC:Port Hueneme, CA	11.854	11.854	Sep 2012	15.243	Jul 2013	1.215	Mar 2014	-		1.215	Continuing	Continuing	Continuing
Smart Energy	Various	EXWC:Port Hueneme, CA	0.550	0.550	Sep 2012	0.000		0.468	Apr 2014	-		0.468	Continuing	Continuing	Continuing
Demonstration/Validation	Various	EXWC:Port Hueneme, CA	1.000	1.000	Sep 2012	1.000	Apr 2013	0.187	Apr 2014	-		0.187	Continuing	Continuing	Continuing
		Subtotal	13.404	13.404		16.243		1.870		0.000		1.870			

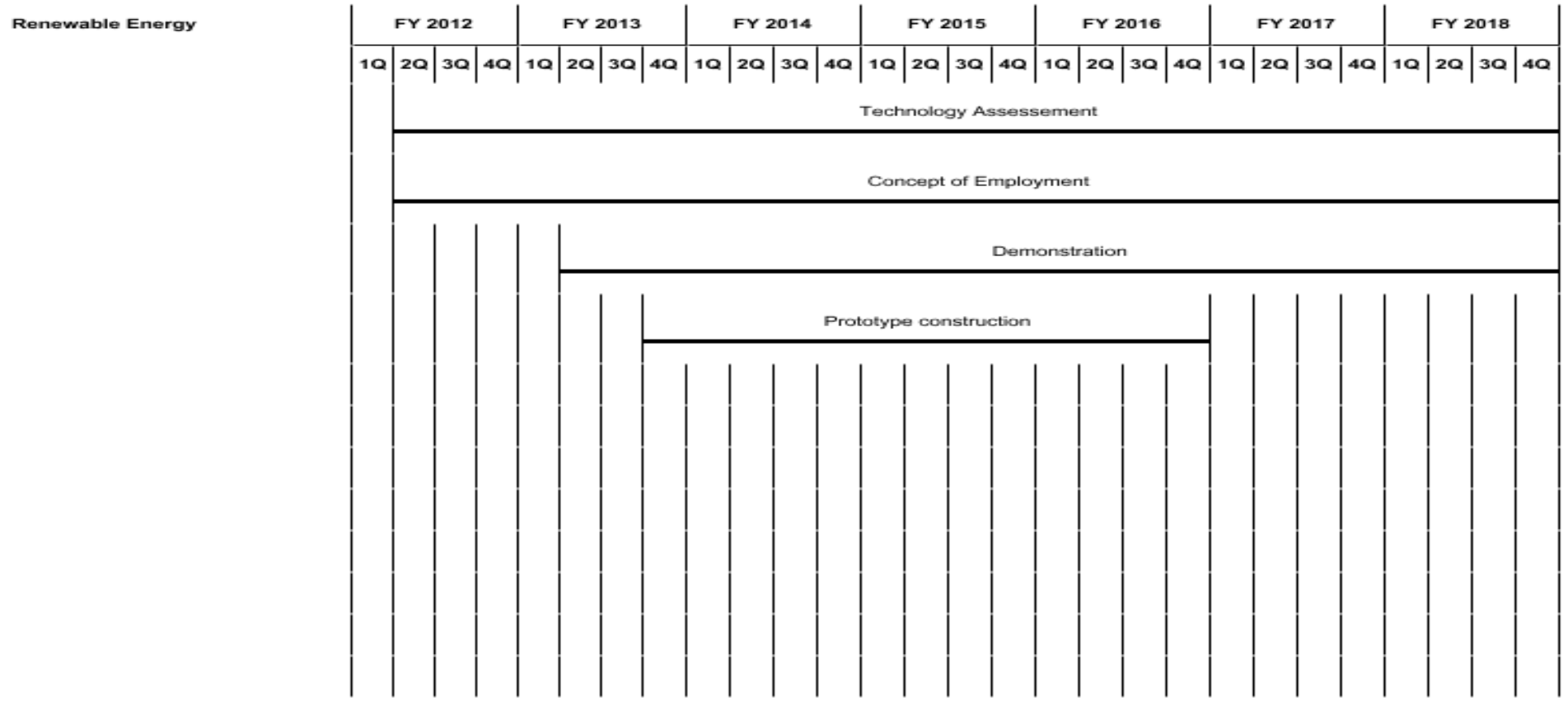
Remarks

(FY2014) The Navy Energy Program will be assessing multiple technologies for energy efficiency and energy reduction. This technology assessment continues throughout the program life. As these technologies are assessed, they will be incorporated individually into the shore installation by a variety of acquisition strategies including Energy Savings Performance Contract vehicles, and globally by changes to design and construction criteria coordinated across the services. These, too, will continue throughout the program life. For Smart Energy, and select other technologies, there will be a requirement for component testing and validation. In FY14, wave energy systems will include operation and demonstration through FY15/FY16 timeframe, resulting in development of test and evaluation results and lessons learned by the end of FY16. At the end of the demonstration and evaluation phase, it is expected that feasibility determinations larger, commercial scale plants, including the recommended acquisition strategies to acquire the power, will be provided as part of the final deliverable. This will be followed by criteria development to transition the technical aspects required to acquire a full scale system targeted to support one of several Naval Bases throughout the testing and evaluation period, deliverables will be required at the end of each FY for component test results, validated components, and pilot prototype design and testing.

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.404	13.404		16.243		1.870		0.000		1.870			

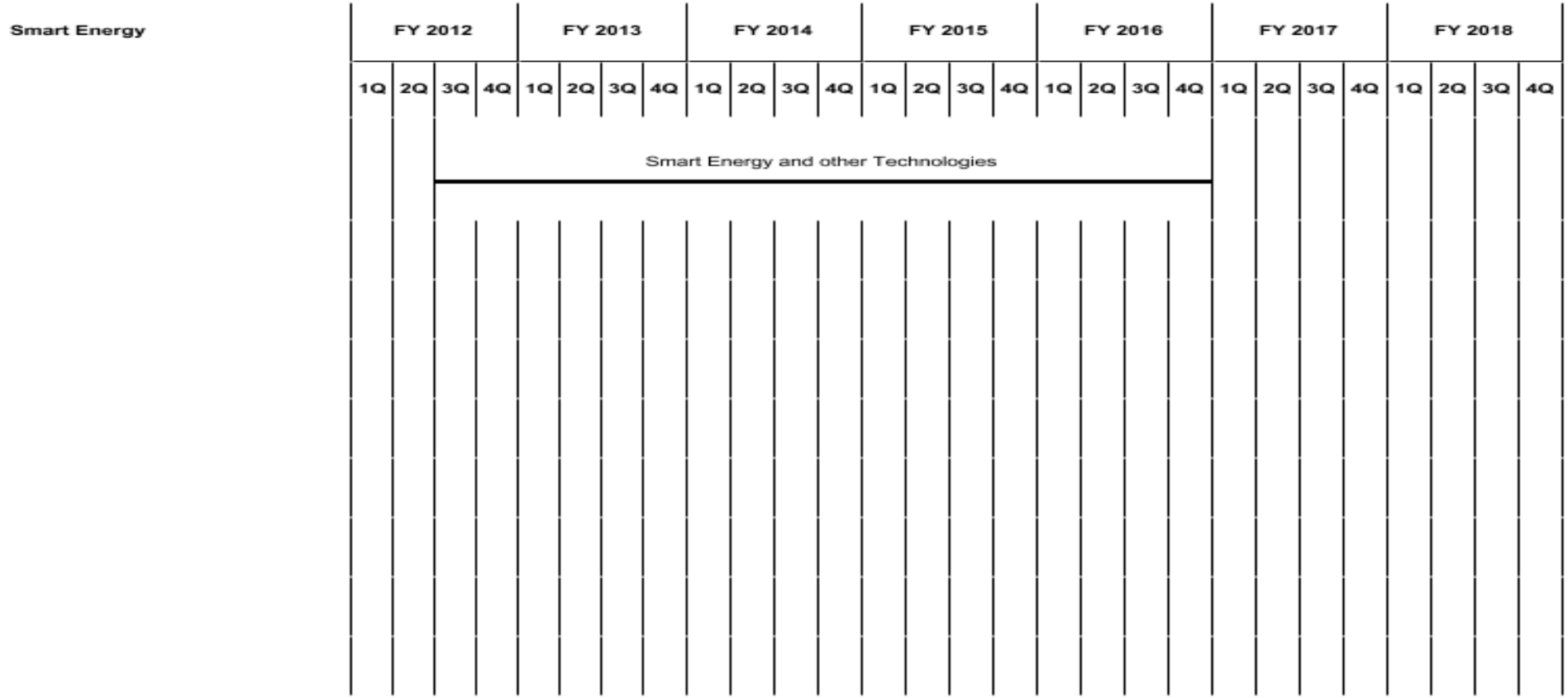
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*



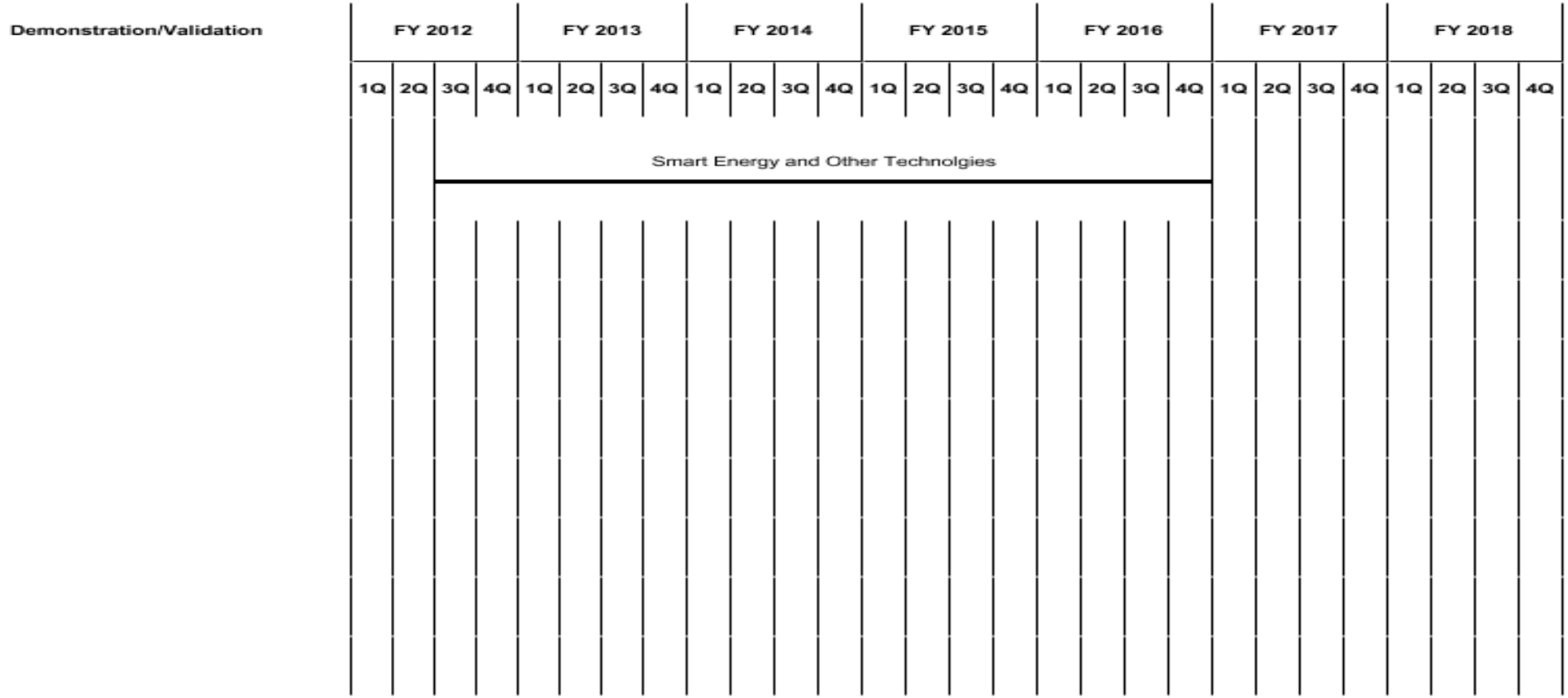
2014OSD - 0603724N - 0928

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*



2014OSD - 0603724N - 0928

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*



2014OSD - 0603724N - 0928

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603724N: *Navy Energy Program*	**PROJECT** 0928: *Directed Energy Research*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Renewable Energy				
Technology Assessement	2	2012	4	2018
Concept of Employment	2	2012	4	2018
Prototype Construction	2	2013	4	2018
Demonstration	4	2013	4	2016
Smart Energy				
Technology Evaluation	3	2012	4	2016
Demonstration/Validation				
Smart Energy and Other Technologies	3	2012	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0996: *Aircraft Energy Conservation*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0996: *Aircraft Energy Conservation*	0.000	23.622	19.240	28.404	-	28.404	52.223	27.467	24.139	24.551	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

Project 0996 funding and efforts were realigned from project 0929 in FY 2012.

A. Mission Description and Budget Item Justification

The Aircraft Energy Conservation program is designed to develop and implement energy and maintenance saving improvements into existing fleet assets. The program identifies, evaluates, and implements energy savings initiatives for potential implementation into Naval aircraft. The objective of the program is to engage technical experts from across Naval aviation, industry, and academia to identify mature potential energy saving opportunities and determine the technical and fiscal viability of implementing them in existing aircraft platforms.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Aircraft Energy Conservation	23.622	19.240	28.404
Articles:	0	0	0
FY 2012 Accomplishments: Complete F/A 18 bring-back weight study. Conduct advanced engine efficiency technology demonstration. Conduct field trial of drag resistant aircraft coatings. Implement fleet i-ENCON (Energy Conservation) program. Complete air vehicle energy savings technology study.			
FY 2013 Plans: Continue fleet energy conservation program. Continue drag-resistant aircraft coating trial. Develop F135 engine efficiency technology. Initiate F-35 air vehicle energy efficiency technology development program.			
FY 2014 Plans: Conduct preliminary design for F135 engine fuel burn reduction demonstration. Implement AIR-ENCON full program launch. Conduct evaluation/assessment of advanced mission planning and navigation technologies. Conduct assessment of aircraft subsystem energy efficiency technologies.			
Accomplishments/Planned Programs Subtotals	23.622	19.240	28.404

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0996: *Aircraft Energy Conservation*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This is a non-acquisition program that develops, evaluates, and validates mature technologies in support of fleet fuel and maintenance savings.

E. Performance Metrics

Actual performance of energy conservation initiatives are measured against initially projected fuel savings measured in barrels of fuel saved based on aircraft demonstration testing.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0996: *Aircraft Energy Conservation*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD:Patuxent River, MD	0.000	2.000	Feb 2012	1.540	Nov 2012	3.000	Dec 2013	-		3.000	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Lockheed Martin:Fort Worth, TX	0.000	0.000		1.000	Mar 2013	2.700	Feb 2014	-		2.700	0.000	3.700	3.700
Systems Engineering	C/FFP	SAIC:McLean, VA	0.000	0.207	Apr 2012	0.000		0.000		-		0.000	0.000	0.207	0.207
Systems Engineering	C/CPFF	Various:Various	0.000	0.000		1.190	Mar 2013	1.200	Mar 2014	-		1.200	0.000	2.390	2.390
Systems Engineering	WR	NAWCWD:Point Mugu, CA	0.000	0.091	Jun 2012	0.000		0.000		-		0.000	0.000	0.091	0.091
Systems Engineering	WR	Army Redstone Arsenal:Huntsville, AL	0.000	0.006	Feb 2012	0.000		0.000		-		0.000	0.000	0.006	0.006
		Subtotal	0.000	2.304		3.730		6.900		0.000		6.900			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Testing	C/CPFF	PWA:Hartford, CT	0.000	20.025	Nov 2012	13.400	Mar 2013	18.900	Jan 2014	-		18.900	0.000	52.325	52.325
Hardware Testing	WR	NAWCAD:Patuxent River, MD	0.000	0.000		0.600	Jan 2013	0.000		-		0.000	Continuing	Continuing	Continuing
Hardware Testing	C/CPFF	Various:Various	0.000	0.000		1.000	May 2013	0.900	Mar 2014	-		0.900	0.000	1.900	1.900
		Subtotal	0.000	20.025		15.000		19.800		0.000		19.800			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Patuxent River, MD	0.000	0.061	Feb 2012	0.510	Nov 2012	0.204	Dec 2013	-		0.204	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0996: *Aircraft Energy Conservation*

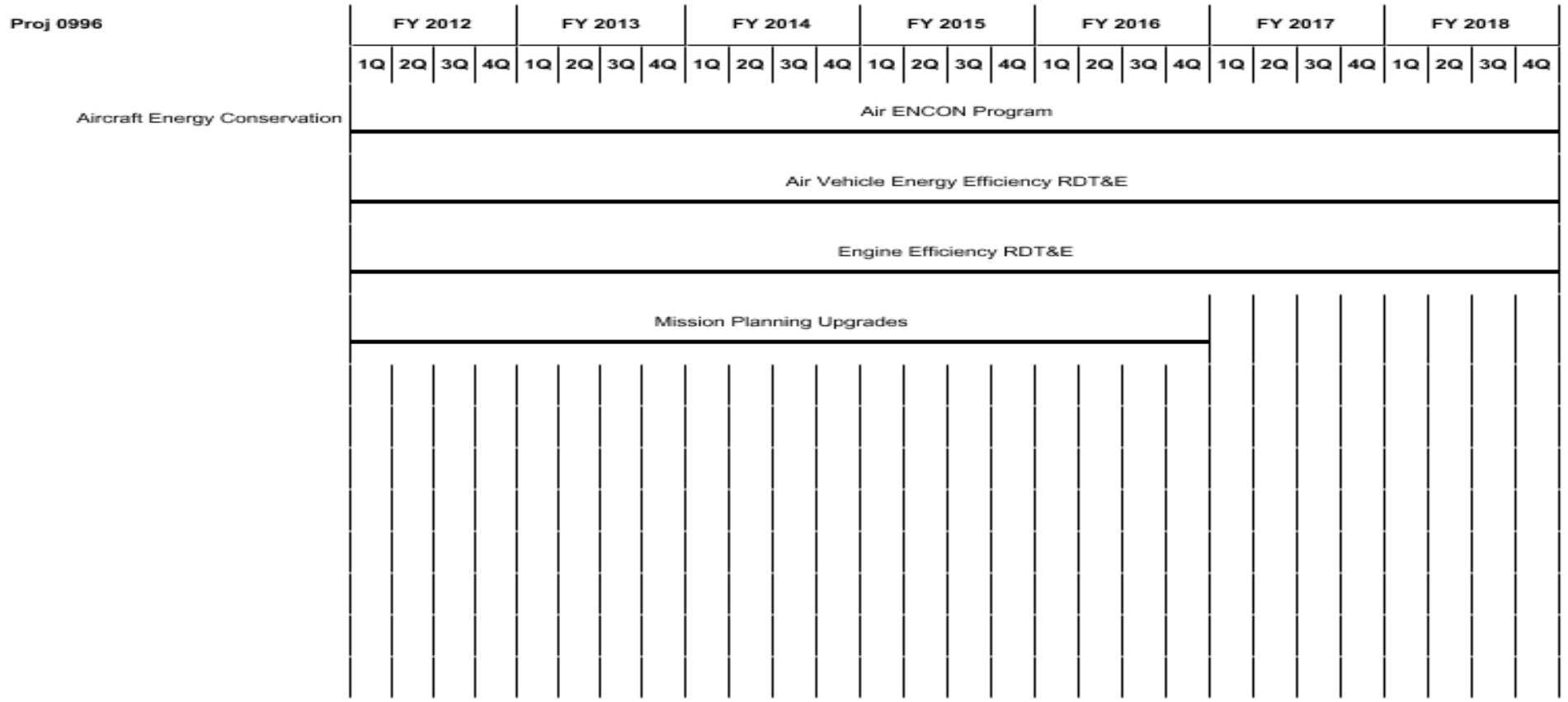
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/FFP	L3 Communications:Marlton, NJ	0.000	1.232	Jun 2012	0.000		0.000		-		0.000	0.000	1.232	1.232
Program Management Support	C/FFP	TBD:TBD	0.000	0.000		0.000		1.500	Dec 2013	-		1.500	0.000	1.500	1.500
		Subtotal	0.000	1.293		0.510		1.704		0.000		1.704			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	23.622		19.240		28.404		0.000		28.404			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0996: *Aircraft Energy Conservation*



2014OSD - 0603724N - 0996

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0996: *Aircraft Energy Conservation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0996				
Aircraft Energy Conservation: Air ENCON Program	1	2012	4	2018
Aircraft Energy Conservation: Air Vehicle Energy Efficiency RDT&E	1	2012	4	2018
Aircraft Energy Conservation: Engine Efficiency RDT&E	1	2012	4	2018
Aircraft Energy Conservation: Mission Planning Upgrades	1	2012	4	2016

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	13.367	3.754	3.401	3.019	-	3.019	3.446	3.482	3.976	4.033	Continuing	Continuing
0995: *Naval Facilities System*	6.864	1.772	1.409	1.387	-	1.387	1.411	1.424	1.882	1.909	Continuing	Continuing
3155: *Force Protection Ashore*	6.503	1.982	1.992	1.632	-	1.632	2.035	2.058	2.094	2.124	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Mission Description and Budget Item Justification:
This program provides for capabilities to: a) overcome performance limitations and reduce the life cycle cost of shore facilities and, b) provide protection against terrorist attacks for shore installations and their operations. The program focuses on technical and operational issues of specific Navy interest, where there are no unbiased test validated Commercial Off the Shelf (COTS) solutions available, and where timely capabilities may not materialize without specific demonstration or validation by the Navy. Additionally, the program completes the development of technologies originating from Navy, DOD and other sources of Science and Technology programs, including the National Science Foundation (NSF), the National Institute of Standards and Technology (NIST) and Department of Energy (DOE). Validated technologies are implemented in the Navy's Military Construction (MILCON) and Facilities, Sustainment Restoration and Modernization (FSRM) program, and Antiterrorism and Force Protection (ATFP) Other Procurement, Navy (OP,N) program.

Project 0995 addresses the following Navy facilities requirements during FY 2012 through FY 2018: Advance Technology for Waterfront Facilities Repair and Enhancements, Facilities Technologies to Reduce the Cost of Facilities Sustainment, Restoration and Modernization for reducing the total ownership cost (TOC) of future and existing Facilities and addressing natural and catastrophic risk of critical Naval Waterfront Facilities. This project is consistent with recommendations of two National Academy of Sciences Reports: "The Role of Federal Agencies in Fostering New Technology and Innovation in Building" and "Federal Policies to Foster Innovation and Improvement in Constructed Facilities."

Started in FY2006 the Force Protection Ashore Project 3155 addresses selective topics in modeling, and material technologies to reduce the vulnerability of installations; and reduce the acquisition and operating costs of protective technologies. The demonstrations and validations provide the independent, technical and operational test data for the development of competitive performance specifications to acquire the required capabilities. The ATFP project is coordinated with other DOD programs.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	3.754	3.401	3.435	-	3.435
Current President's Budget	3.754	3.401	3.019	-	3.019
Total Adjustments	0.000	0.000	-0.416	-	-0.416
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	-0.416	-	-0.416

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 0995: *Naval Facilities System*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0995: *Naval Facilities System*	6.864	1.772	1.409	1.387	-	1.387	1.411	1.424	1.882	1.909	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program provides the Navy with new engineering capabilities that are required to overcome specific performance limitations of Naval shore facilities while reducing the cost of sustaining the Naval shore infrastructure. The program focuses available RDT&E resources on satisfying facility requirements where the Navy is a major stakeholder or where there are no test validated Commercial Off the Shelf (COTS) solutions available, and a timely solution will not emerge without a Navy sponsored demonstration and validation. The program completes the development and validation of facility technologies originating in Navy science and technology programs, plus a variety of other sources which includes the National Science Foundation (NSF) and the National Institute of Standards and Technology (NIST). Validated technologies are implemented in the Navy's Military Construction (MILCON) and Facilities Sustainment Restoration and Modernization Programs (FSRM). The Duncan Hunter National Defense Authorization Act of 2009 laid down very specific guidelines for the correction of corrosion deficiencies in DoD shore facilities which is estimated to be $1.9B (DOD Annual Cost of Corrosion for the Department of Defense Facilities and Infrastructure July 2010).

Project 0995 addresses two Navy facilities requirements: 1) waterfront facilities repair, upgrade and service life extension; and, 2) validation testing/performance monitoring of high temperature airfield pavements, testing and evaluation of the performance of alternative materials, and surfacing concepts, and, methods and corrosion technologies to reduce the cost of Sustainment, Restoration and Modernization (SRM).

Waterfront facilities, repair, upgrade and service life extension:
An urgent requirement exists for early identification of strategies and solution recommendations for seismic risk at Naval Facilities, and especially nuclear capable waterfront facilities. Recent pacific rim earthquakes have heightened anxiety levels on perceived huge risks to Navy waterfront facilities in the region. The sub-project will provide analysis and solution recommendations for facilities impacted by seismic risk. Waterfront facilities repair and upgrade: About 75% of the Navy's waterfront facilities are over 45 years old. They were designed for a service life of 25 years which was to satisfy the mission requirements existing at that time. The over aged reinforced concrete requires costly and repetitive repairs. Beside providing more pier side ship maintenance and thus reduce dry dock costs, these piers must be strengthened to support concentrated crane loads up to 140 tons when piers were originally not designed for concentrated loads. Piers were proviously designed to service one or possibly two particular ship classes. Berthing flexibility is now limited by mooring and utility arrangements. This sub-project addresses new material design methods, and retrofit methods which extends the service life of existing waterfront facilities by an additional 15 or more years. The project also addresses updating the mission based service, environmental, and protection loading requirements imposed by changes in platforms, operations and threats. Other initiatives include: leveraging Building Information Modeling (BIM) technology to provide for enhanced facilities management processes and waterfront utilities service enhancements using models to achieve flexible berthing arrangements consistent with current and future platform mooring configurations and hotel service requirements including Facilities and Infrastructure Integrated Product Support for Acquisition Category (ACAT) Programs.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 0995: *Naval Facilities System*

Technologies to reduce the cost of Sustainment, Restoration and Modernization (SRM):
Technologies to reduce the cost of SRM issues of high operational significance are addressed on a priority basis. The Navy portion of corrosion deficiencies at DoD shore facilities is estimated to be $433M (DOD Annual Cost of Corrosion for the Department of Defense Facilities and Infrastructure July 2010). This effort will demonstrate and validate the cost and reliability of advanced corrosion technologies in order to assure their acceptance and implementation in traditionally conservative public works and construction industries. These facility corrosion technologies will accelerate the validation, commercialization, and wide-spread implementation required to reduce the cost of correcting, the deficiencies in the Navy SRM backlog. The sub-projects include the continuing effort to validate, test and conduct performance monitoring of high temperature pavements and supporting materials for vertical take-off and landing (VTOL) pads for JSF (F-35B).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Naval Facilities System	1.772	1.409	1.387
Articles:	0	0	0

FY 2012 Accomplishments:
Waterfront facilities, repair, upgrade and service life extension:
Completed phase 2 of developing methodology and protocols of dry-dock and waterfront seismic analysis and standard seismic risk mitigation procedures for a Carrier Vessel Nuclear (CVN) capable dry-dock (requiring analysis to meet NAVSEA MILSTD 1625: Safety Certification Program (SCP) for Drydocking Facilities requirements and broader risk issues caused by recent pacific rim seismic events and tsunami evaluation of Japanese ports that accommodate CVN and submarines.

Provided for the standardization, utilization and sustainment of facilities data sets from planning to facility design and demolition, consistent with Building Information Management (BIM) and modeling processes and establish data interoperability with business processes to ensure that efficiencies are realized between NAVFAC Business Lines Leaders (BLL) in support of the Fleet, CNIC and other NAVFAC supported commanders. Data sets and models were evaluated for ship berthing and shore interfaces for several new and legacy platforms. Issues affecting berthing and utility service connections were identified and provided to affected stakeholders. Continue to leverage BIM best practices for reduction of Total Ownership Cost (TOC) on shore infrastructure in support of Acquisition Category (ACAT) and Intergrated Power Systems/Independent Logistic Assessments (IPS/ILA) programs.

Sustainment, Restoration & Modernization:
Continued validation testing/performance monitoring of vertical take-off and landing (VTOL) pads for JSF (F-35B). The results, findings and lessons learned are utilized to provide the basis for engineering technical letter and design specifications. Tested and evaluated performance of alternative materials, and surfacing concepts and methods. Conducted field (validation) testing of high temperature resistant pavement joint sealants. Completed Corrosion Prevention & Control projects for Point of Load (POL) systems, assessment and testing of thermal and corrosion protected wrappings for industrial piping systems. Continued

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 0995: *Naval Facilities System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
evaluation of solutions to develop associated design and construction criteria to support the transition of new technologies into the shore facilities infrastructure. ***FY 2013 Plans:*** Waterfront facilities, repair, upgrade and service life extension: Continue analysis and solution set development for a CVN capable dry-dock and waterfront seismic analysis and standard seismic risk mitigation procedures. Transition approved methodology for analysis and assessment of remaining Navy dry docks to incorporate into Navy policies and procedures. Complete first generation waterfront BIM and integrate into corporate standards and specifications. Initiate identification of operational and maintenance issues of waterfront facilities associated with supporting the new class of ships, submarines and the Ford Class Carrier. Develop modeling and simulation of pier, dry dock, wharf and waterfront facility configurations with new ship and submarine platforms and associated systems. Initiate investigation of natural and catastrophic events on critical waterfront facilities. Sustainment, Restoration & Modernization: Continue validation testing/performance monitoring of vertical take-off and landing (VTOL) pads for JSF (F-35B). Continue transition performance of alternative materials, and surfacing concepts and methods. Continue field (validation) testing of high temperature resistant pavement joint sealants. Initiate new Corrosion Prevention & Control projects, emphasing sustainable design and improved lifecycle cost reductions. Continue evaluation of solutions to develop associated design and construction criteria to support the transition of new technologies into the shore facilities infrastructure. ***FY 2014 Plans:*** Waterfront facilities, repair, upgrade and service life extension: Continue analysis and solution of CVN capable dry-dock and waterfront seismic analysis and standard seismic risk mitigation procedures. Continue to identify and validate operational and maintenance issues of waterfront facilities associated with supporting the Navy's new class of ships and submarines, including the Ford Class Carrier. These new ships will create compatibility issues with existing infrastructure in terms of berthing loading, hotel services, and movement of people, ordnance and equipment. Modify and validate modeling and simulation of pier, dry dock, wharf and waterfront facility configurations with new ship and submarine platforms and associated systems. Continue to investigate natural and catastrophic events on critical waterfront facilities and begin to develop risk identification and mitigation methodologies. Investigate special design and maintenance requirements for Naval Facilities in the arctic environment. Sustainment, Restoration & Modernization: Continue Corrosion Prevention & Control projects, emphasing sustainable design and improved lifecycle cost reductions. Initiate improved concrete construction and crack repair technologies utilizing affordable and green aggregate constituents. Initiate investigations for retrofitting existing facilities to conform to high performance building standards. Continue evaluation of solutions			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 0995: *Naval Facilities System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
to develop associated design and construction criteria to support the transition of new technologies associated the shore facilities infrastructure.			
Accomplishments/Planned Programs Subtotals	1.772	1.409	1.387

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Projects identified in this budget have been carefully selected to respond to both the facilities support for new Acquisition Category Programs, to address TOC considerations of an evolving and aging infrastructure, and to facilitate rational risk based decisions and solutions to protect and decrease risk levels for Department of the Navy-critical infrastructure and facilities. Each project has been assessed to ensure that it is addressing legitimate risks and requirements of the shore establishment. The results of these projects will be the development of design and construction criteria and or components that directly impact the shore facilities.

E. Performance Metrics

Quarterly Program Reviews are conducted with the major performers to include funds status discussion, schedule review, assessment of plan to actual to meet FMB benchmarks at midyear and end-of-year for PY1 and CY, and review of accomplishments and issues to date.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 0995: *Naval Facilities System*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Waterfront Facilities, Repair, Upgrade and Services Life Extension	Various	NAVFAC EXWC:Pt Hueneme, CA	0.552	0.972	Nov 2011	0.560	Dec 2012	0.553	Dec 2013	-		0.553	Continuing	Continuing	Continuing
Sustainment, Restoration and Modernization	Various	NAVFAC EXWC:Pt Hueneme, CA	0.834	0.800	Dec 2011	0.849	Dec 2012	0.834	Dec 2013	-		0.834	Continuing	Continuing	Continuing
Modular Hybrid Pier	WR	NAVFAC EXWC:Pt Hueneme, CA	5.478	0.000		0.000		0.000		-		0.000	0.000	5.478	
		Subtotal	6.864	1.772		1.409		1.387		0.000		1.387			

Remarks

Remarks:

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.864	1.772		1.409		1.387		0.000		1.387			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 0995: *Naval Facilities System*

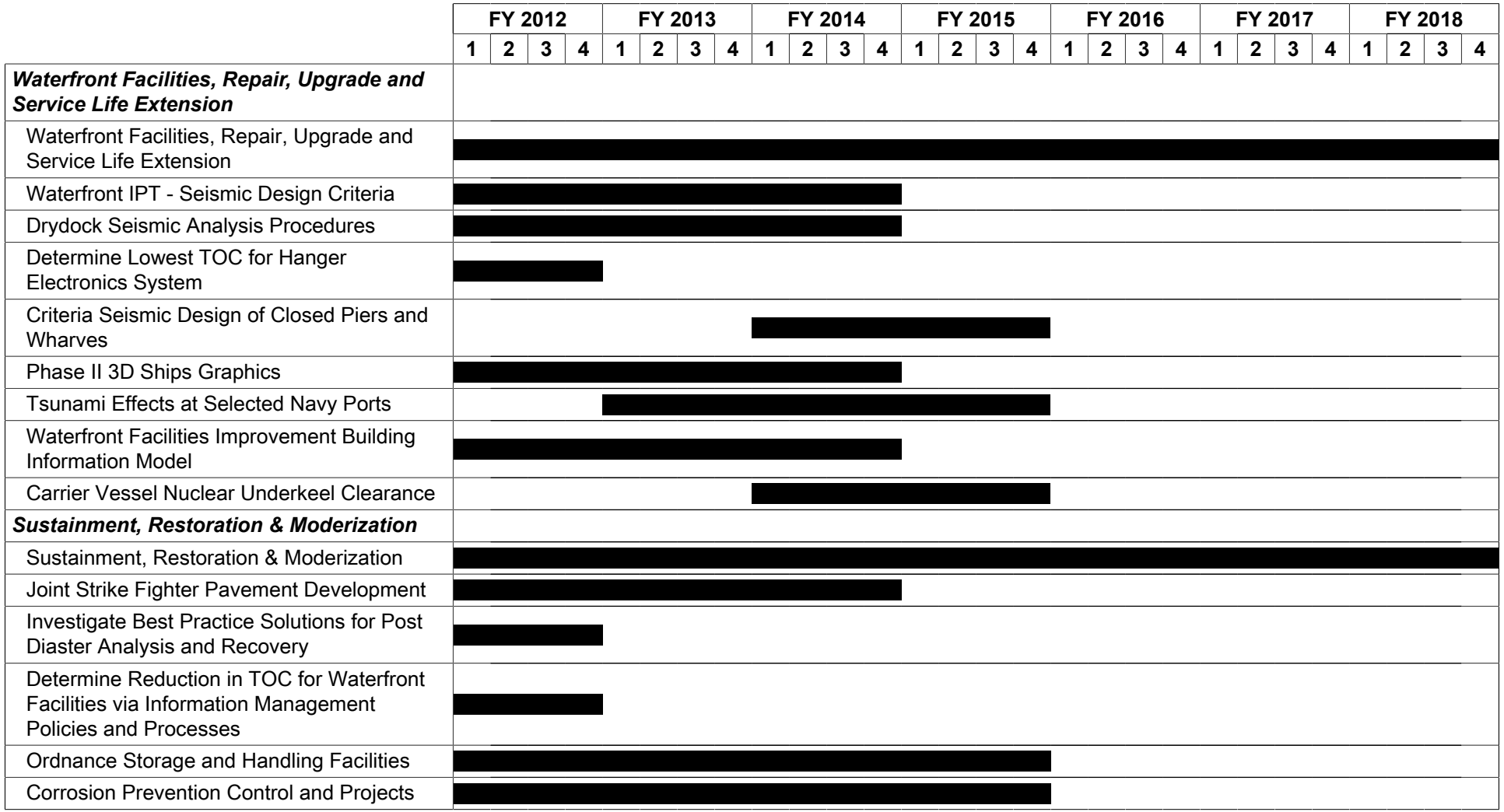


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603725N: *Facilities Improvement*	**PROJECT** 0995: *Naval Facilities System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Waterfront Facilities, Repair, Upgrade and Service Life Extension				
Waterfront Facilities, Repair, Upgrade and Service Life Extension	1	2012	4	2018
Waterfront IPT - Seismic Design Criteria	1	2012	4	2014
Drydock Seismic Analysis Procedures	1	2012	4	2014
Determine Lowest TOC for Hanger Electronics System	1	2012	4	2012
Criteria Seismic Design of Closed Piers and Wharves	1	2014	4	2015
Phase II 3D Ships Graphics	1	2012	4	2014
Tsunami Effects at Selected Navy Ports	1	2013	4	2015
Waterfront Facilities Improvement Building Information Model	1	2012	4	2014
Carrier Vessel Nuclear Underkeel Clearance	1	2014	4	2015
Sustainment, Restoration & Moderization				
Sustainment, Restoration & Moderization	1	2012	4	2018
Joint Strike Fighter Pavement Development	1	2012	4	2014
Investigate Best Practice Solutions for Post Diaster Analysis and Recovery	1	2012	4	2012
Determine Reduction in TOC for Waterfront Facilities via Information Management Policies and Processes	1	2012	4	2012
Ordnance Storage and Handling Facilities	1	2012	4	2015
Corrosion Prevention Control and Projects	1	2012	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3155: *Force Protection Ashore*	6.503	1.982	1.992	1.632	-	1.632	2.035	2.058	2.094	2.124	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Protection of Navy Installations against terrorist activities requires deployment of advanced technology for force protection capabilities. This antiterrorism and force protection (AT/FP) ashore project will develop, demonstrate and validate technologies for the following: access control and integrated perimeter security surveillance sensors and intelligent electronic security systems for automated intruder detection (Installation Protection); perimeter security; waterside protection against craft and swimmer intrusion; secure and efficient operations centers and emergency management centers including human and information support systems (Command and Control). Programs currently being evaluated are standard-based enterprise physical security system integration and automation; Command, Control, and Communications (C3) capabilities for emergency operations; integrated and networked mass notification systems (MNS); Waterside intelligent video security systems; integrated over-the-water sensors and analytics for automated course of action planning; identifying and interdicting malevolent threats - watercraft, swimmers, divers, and unmanned underwater vessels (UUVs) to reduce injury and death to the war fighter and damage to high value units (HVUs). Through demonstration and validation of risk modeling and simulation models, the potential of emerging technologies will be evaluated and installation security strategies that reduce manpower and other costs will be formulated. These demonstrations and validations derive advanced technology from science and technology programs of government academia and industry. The technology evaluation and validation produces data for performance specifications used for competitive procurement. All work will be coordinated with other programs and through industry forums as appropriate.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Force Protection Ashore	1.982	1.992	1.632
Articles:	0	0	0
FY 2012 Accomplishments:			
Completed, and initiated advanced prototype development and demonstrations as follows: - Advanced C3 development and demonstration of the Joint Interoperability and Advanced Emergency Mobile Communications project for mobile operations and interoperability at ATFP Installations during AT exercises. Beginning specification development for transition to C4I Suite. - Initial demonstration of Net-centric Mass Notification System project through Internet Protocol(IP-enabled) Wide Area Alert Notification (WAAN) development, integration, and demonstration for Navy and Joint Bases for early warning from remote Command and Control Centers. - Swimmer/Diver Intent Recognition and Interdiction technology assessment.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Waterside Intelligent Video evaluation (OT) ***FY 2013 Plans:*** -Complete Waterside Intelligent Video evaluation (OT) and procurement specification development. - Continue demonstration and validation of Swimmer/Diver Intent Recognition and Interdiction project. - Begin integration and demonstration of Automated Sensor Assessment and Course of Action Planning (COAP) project Test & Evaluation (DT) for EHSS. - Initiate Integrated Physical Security and Access Control (PS/AC) Automatiion project for sensor management, monitoring and response capability development. - Continue Net-centric Mass Notification System IP-enabled WAAN development and testing (DT/OT) at operational Navy Installation with various COTS Vendors for Navy enterprise and inter-service/agency interoperability. ***FY 2014 Plans:*** - Continue Integrated PS/AC Automation project with the Regional Dispatch Center (RDC) to include developmental test and evaluation (DT) - Continue integration and demonstration of Automated Sensor Assessment and Course of Action Planning (COAP) (OT) with EHSS. - Complete integration and validation of advanced beyond swimmers/diver detection, tracking, and interdiction capabilities into EHSS. - Complete Net-centric Mass Notification System specification development for transition. - Initiate Elevated Persistent Surveilance project for integrated waterside and installation threat detection, recognition and tracking capability development, integration and evaluation technology assessment and spiral development.			
Accomplishments/Planned Programs Subtotals	1.982	1.992	1.632

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Demonstration and validation is conducted for maximum transfer and interaction with industry such as to influence the industry COTS with the results of this demonstration and prototype validation. Acquisition is based on performance specifications enabled by this project.

E. Performance Metrics

Quarterly Program Reviews to include funds status, schedule review and assessment of plan to actual.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Force Protection Ashore (CA)	WR	NSWC:Pt Hueneme, CA	1.610	0.000		0.000		0.000		-		0.000	0.000	1.610	
Force Protection Ashore (Crane)	WR	NSWC Dahlgren:Panama City, Crane	2.581	0.000		0.000		0.000		-		0.000	0.000	2.581	
Force Protection Ashore (VA)	WR	ONR:Arlington, VA	0.300	0.000		0.000		0.000		-		0.000	0.000	0.300	
Waterside Protection Capability Development - Waterside Intelligent Video: (OT)	WR	SPAWAR:San Diego, CA	0.205	0.000		0.000		0.000		-		0.000	0.000	0.205	
Waterside Protection Capability Development - Waterside Intelligent Video: Procurement Specificition	WR	SPAWAR:San Diego, CA	0.060	0.000		0.000		0.000		-		0.000	0.000	0.060	
Waterbourne Vessel Microwave Interdiction: Technology Assessment	WR	SPAWAR:San Diego, CA	0.105	0.000		0.000		0.000		-		0.000	0.000	0.105	
Waterbourne Vessel Michrowave Interdidtion: Concept of Employment	WR	SPAWAR:San Diego, CA	0.105	0.000		0.000		0.000		-		0.000	0.000	0.105	
Command and Control Capability Development: Spiral Development	WR	SPAWAR:San Diego, CA	0.205	0.000		0.000		0.000		-		0.000	0.000	0.205	
Command and Control Capability Development: DT	WR	SPAWAR:San Diego, CA	0.205	0.000		0.000		0.000		-		0.000	0.000	0.205	
Command and Control Capability Development: OT	WR	SPAWAR:San Diego, CA	0.210	0.000		0.000		0.000		-		0.000	0.000	0.210	
Waterside Protection Capability Development	WR	SPAWAR:San Diego, CA	0.195	0.000		0.000		0.000		-		0.000	0.000	0.195	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
- Martime: Technology Assessment															
Waterside Protection Capability Development - Martime: Concept of Employment	WR	SPAWAR:San Diego, CA	0.205	0.000		0.000		0.000		-		0.000	0.000	0.205	
Waterside Protection Capability Development - Martime: Spiral Development	WR	SPAWAR:San Diego, CA	0.205	0.000		0.000		0.000		-		0.000	0.000	0.205	
Waterside Protection Capability Development - Martime: Spiral Development (II)	Various	SPAWAR:San Diego, CA	0.000	0.299	Nov 2011	0.134	Nov 2012	0.000		-		0.000	Continuing	Continuing	Continuing
Waterside Protection Capability Development - Martime: Developmental Test & Evaluation	Various	SPAWAR:San Diego, CA	0.000	0.316	Nov 2011	0.163	Nov 2012	0.000		-		0.000	Continuing	Continuing	Continuing
Waterside Protection Capability Development - Martime: OT	Various	SPAWAR:San Diego, CA	0.050	0.005	Mar 2012	0.000		0.200	Nov 2013	-		0.200	Continuing	Continuing	Continuing
Waterside Protection Capability Development - Martime: Procurement Specification	Various	SPAWAR:San Diego, CA	0.000	0.085	Nov 2011	0.065	Nov 2012	0.129	Nov 2013	-		0.129	Continuing	Continuing	Continuing
Surveilance/Counter-Surveilance: Procurement Specification	Various	NSWC:Panama City, FL	0.000	0.050	Feb 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Waterside Protection Capability Development: COAP Technology Assessment	Various	SPAWAR:San Diego, CA	0.105	0.165	May 2012	0.055	Jan 2013	0.000		-		0.000	Continuing	Continuing	Continuing
Waterside Protection Capability Development :	Various	SPAWAR:San Diego, CA	0.105	0.220	Aug 2012	0.077	Apr 2013	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
COAP Concept of Employment															
Waterside Protection Capability Development :COAP Spiral Development	Various	SPAWAR:San Diego, CA	0.000	0.315	Dec 2011	0.108	Nov 2012	0.110	Nov 2013	-		0.110	Continuing	Continuing	Continuing
Waterside Protection Capability Development : COAP Spiral Develpment (II)	Various	SPAWAR:San Diego, CA	0.000	0.342	Jun 2012	0.225	Nov 2012	0.217	Nov 2013	-		0.217	Continuing	Continuing	Continuing
Inclement Weather Sensor System (mid range IR):Procurement Specification	Various	NSWC:Panama City, FL	0.052	0.095	Jul 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	6.503	1.892		0.827		0.656		0.000		0.656			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Command and Control Capability Development: Government Engineering Support	Various	SPAWAR:San Diego, CA	0.000	0.090	Jan 2012	0.085	Nov 2012	0.085	Nov 2013	-		0.085	Continuing	Continuing	Continuing
Installation Protection Capability Development - Integrated Physical Security and Access Control Automation: Spiral Development	Various	NSWC:Dahlgren, VA	0.000	0.000		0.155	Dec 2012	0.225	Nov 2013	-		0.225	Continuing	Continuing	Continuing
Installation Protection Capability Development -Integrated Physical Security and Access	Various	NSWC:Dahlgren, VA	0.000	0.000		0.154	Dec 2012	0.180	Nov 2013	-		0.180	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Control Automation:Test & Evoluation (DT)															
Installation Protection Capability Development - Integrated Physical Security and Access Control Automation:Test & Eveluation (OT)	Various	SPAWAR:San Diego, CA	0.000	0.000		0.000		0.218	Nov 2013	-		0.218	Continuing	Continuing	Continuing
Installation Protection Capability Development - Elevated Persistence Surveilance:Technology Assessment	Various	SPAWAR:San Diego, CA	0.000	0.000		0.000		0.125	Nov 2013	-		0.125	Continuing	Continuing	Continuing
Installation Protection Capability Development - Elevated Persistence Surveilance: Spiral Development	Various	SPAWAR:San Diego, CA	0.000	0.000		0.000		0.143	Nov 2013	-		0.143	Continuing	Continuing	Continuing
Installation Protection Capability Development - Advanced Integrated Waterside Threat protection	Various	SPAWAR:San Diego, CA	0.000	0.000		0.314	Dec 2012	0.000		-		0.000	Continuing	Continuing	Continuing
Command and Control Capability Development - Net-centric Mass Notification System: Test & Evaluation (OT)	Various	SPAWAR:San Diego, CA	0.000	0.000		0.145	Dec 2012	0.000		-		0.000	Continuing	Continuing	Continuing
Command and Control Capability Development - Net-centric Mass Notification System: Procurement Specification	Various	SPAWAR:San Diego, CA	0.000	0.000		0.082	Dec 2012	0.000		-		0.000	Continuing	Continuing	Continuing
Installation Protection Capability Development - Integrated Physical	Various	NSWC:Dahlgren, VA	0.000	0.000		0.125	Dec 2012	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Security and Access Control Automation: Technology Assessment															
Command and Control Capability Development - Net-centric Mass Notification System: Spiral Development	Various	SPAWAR:San Diego, CA	0.000	0.000		0.105	Dec 2012	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	0.090		1.165		0.976		0.000		0.976			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.503	1.982		1.992		1.632		0.000		1.632			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*

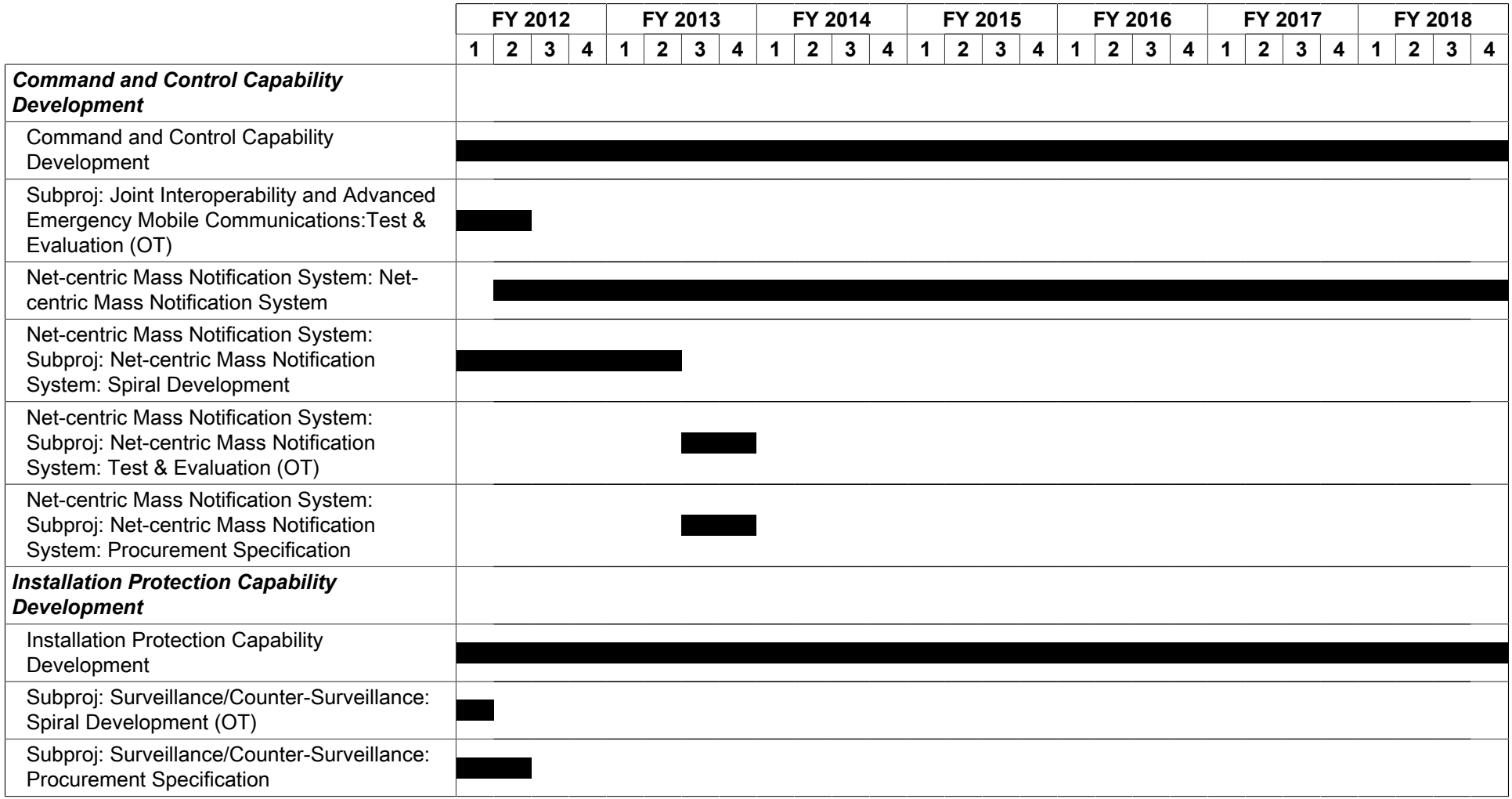


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*

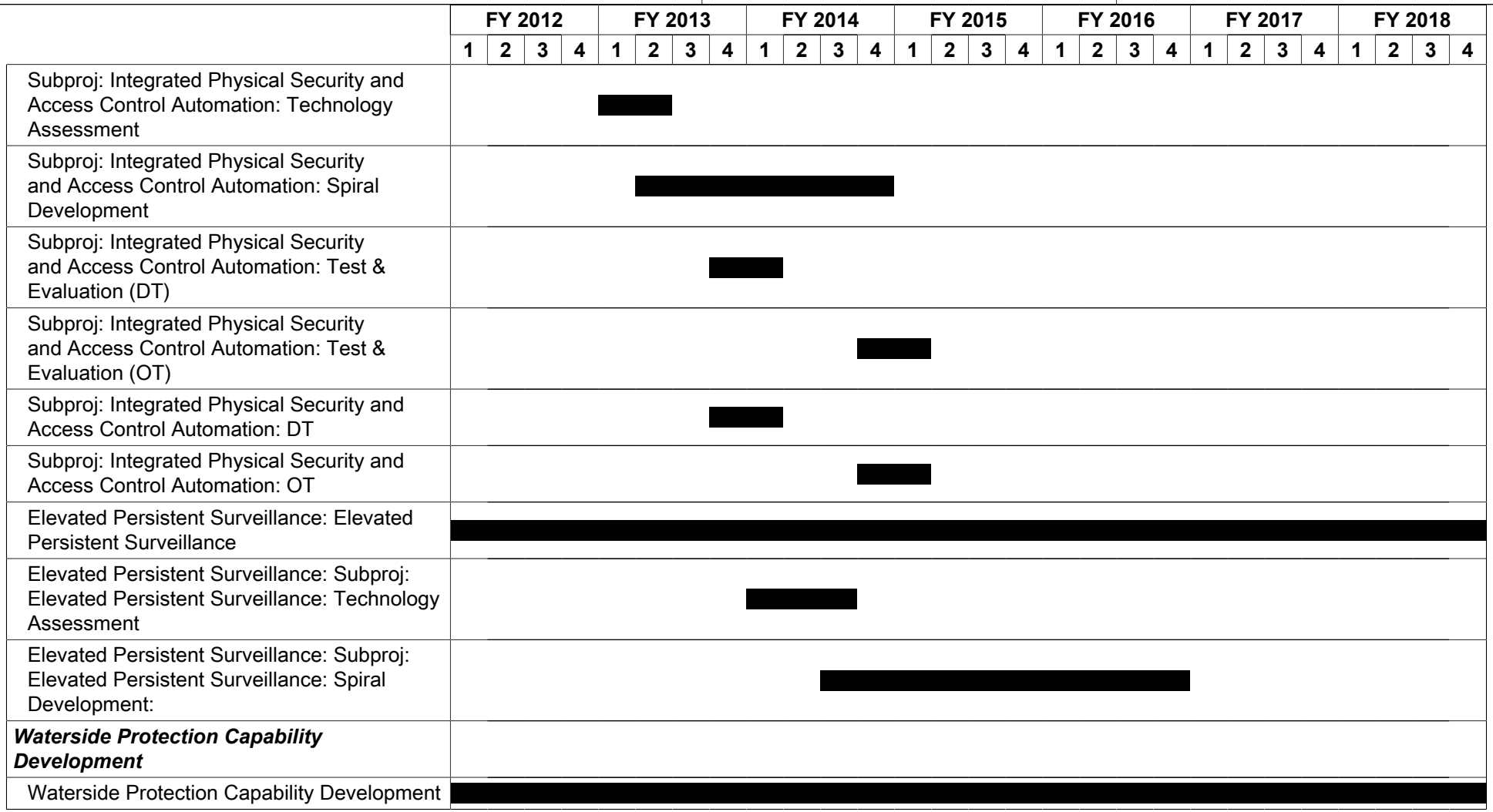


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*

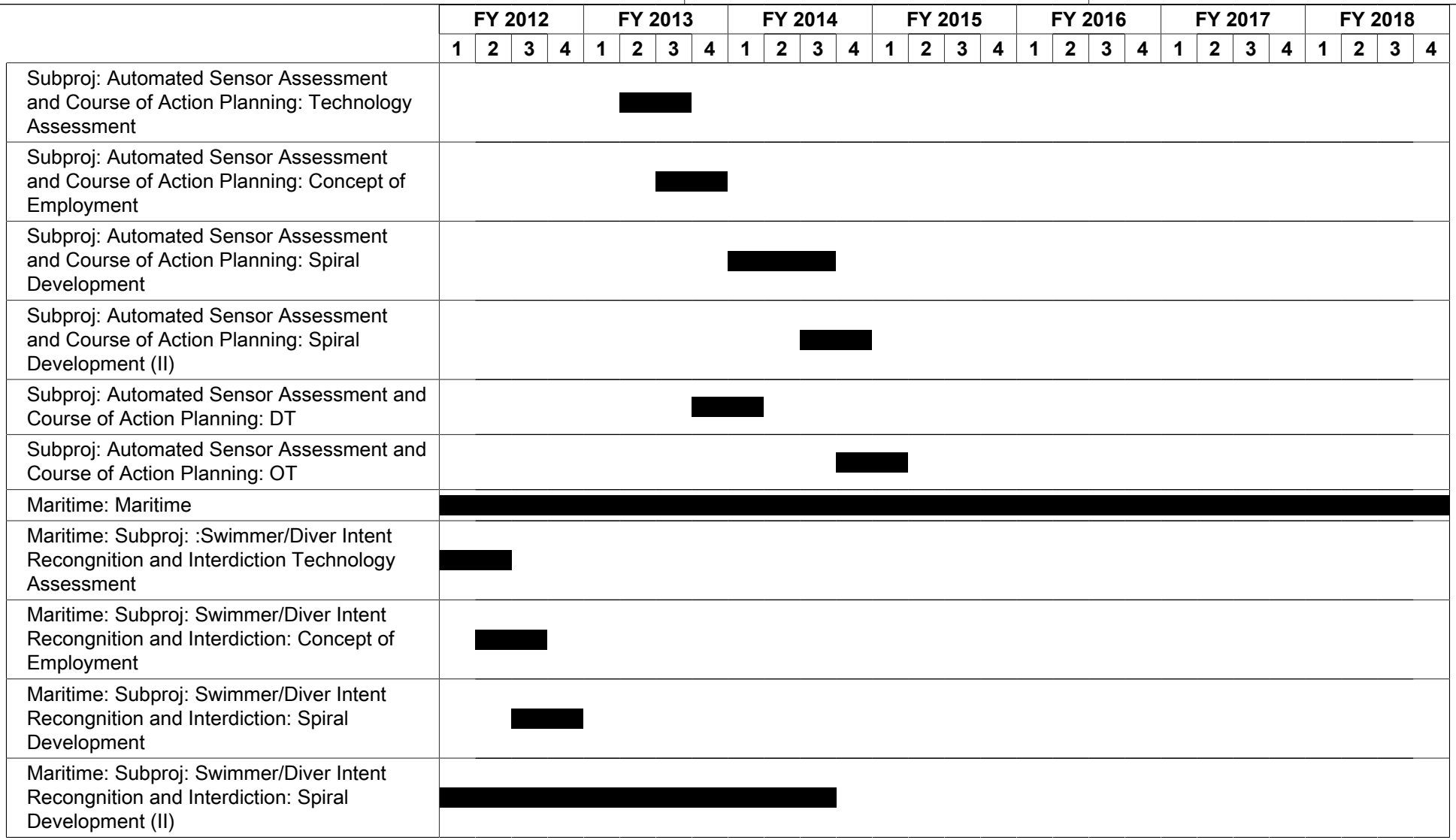


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*

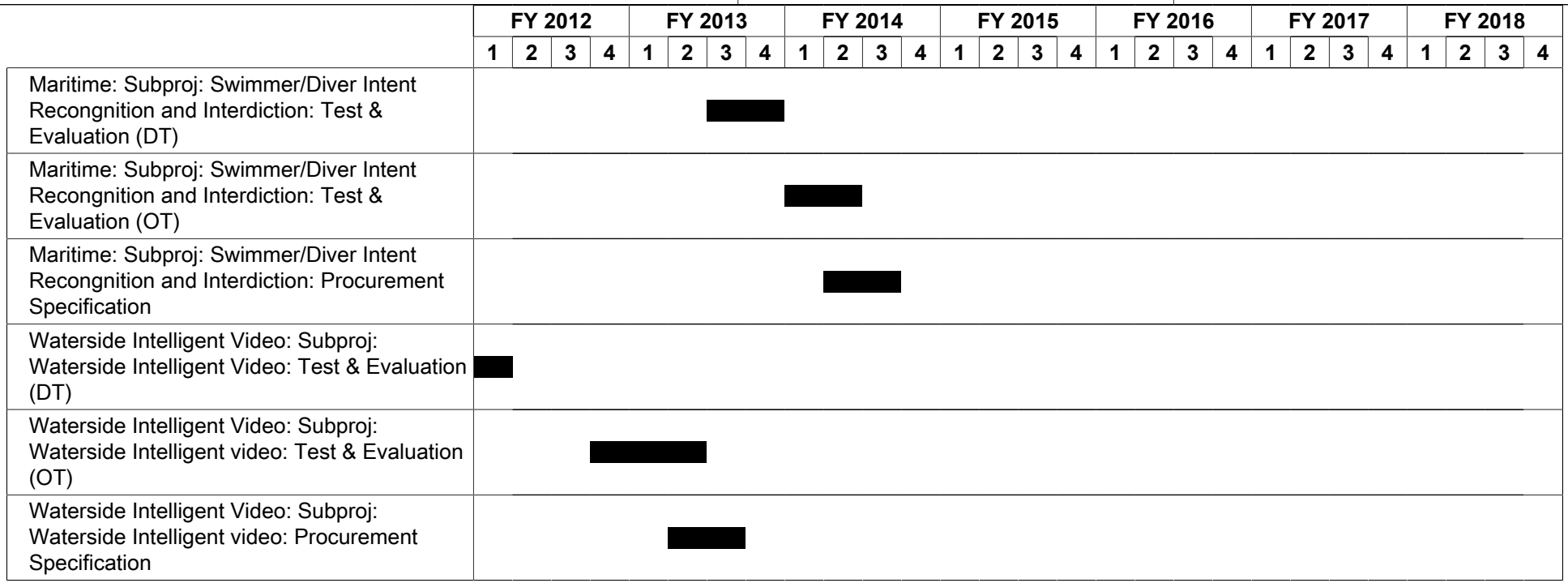


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603725N: *Facilities Improvement*	**PROJECT** 3155: *Force Protection Ashore*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Command and Control Capability Development				
Command and Control Capability Development	1	2012	4	2018
Subproj: Joint Interoperability and Advanced Emergency Mobile Communications:Test & Evaluation (OT)	1	2012	2	2012
Net-centric Mass Notification System: Net-centric Mass Notification System	2	2012	4	2018
Net-centric Mass Notification System: Subproj: Net-centric Mass Notification System: Spiral Development	1	2012	2	2013
Net-centric Mass Notification System: Subproj: Net-centric Mass Notification System: Test & Evaluation (OT)	3	2013	4	2013
Net-centric Mass Notification System: Subproj: Net-centric Mass Notification System: Procurement Specification	3	2013	4	2013
Installation Protection Capability Development				
Installation Protection Capability Development	1	2012	4	2018
Subproj: Surveillance/Counter-Surveillance: Spiral Development (OT)	1	2012	1	2012
Subproj: Surveillance/Counter-Surveillance: Procurement Specification	1	2012	2	2012
Subproj: Integrated Physical Security and Access Control Automation: Technology Assessment	1	2013	2	2013
Subproj: Integrated Physical Security and Access Control Automation: Spiral Development	2	2013	4	2014
Subproj: Integrated Physical Security and Access Control Automation: Test & Evaluation (DT)	4	2013	1	2014
Subproj: Integrated Physical Security and Access Control Automation: Test & Evaluation (OT)	4	2014	1	2015
Subproj: Integrated Physical Security and Access Control Automation: DT	4	2013	1	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Subproj: Integrated Physical Security and Access Control Automation: OT	4	2014	1	2015
Elevated Persistent Surveillance: Elevated Persistent Surveillance	1	2012	4	2018
Elevated Persistent Surveillance: Subproj: Elevated Persistent Surveillance: Technology Assessment	1	2014	3	2014
Elevated Persistent Surveillance: Subproj: Elevated Persistent Surveillance: Spiral Development:	3	2014	4	2016
Waterside Protection Capability Development				
Waterside Protection Capability Development	1	2012	4	2018
Subproj: Automated Sensor Assessment and Course of Action Planning: Technology Assessment	2	2013	3	2013
Subproj: Automated Sensor Assessment and Course of Action Planning: Concept of Employment	3	2013	4	2013
Subproj: Automated Sensor Assessment and Course of Action Planning: Spiral Development	1	2014	3	2014
Subproj: Automated Sensor Assessment and Course of Action Planning: Spiral Development (II)	3	2014	4	2014
Subproj: Automated Sensor Assessment and Course of Action Planning: DT	4	2013	1	2014
Subproj: Automated Sensor Assessment and Course of Action Planning: OT	4	2014	1	2015
Maritime: Maritime	1	2012	4	2018
Maritime: Subproj: :Swimmer/Diver Intent Recongnition and Interdiction Technology Assessment	1	2012	2	2012
Maritime: Subproj: Swimmer/Diver Intent Recongnition and Interdiction: Concept of Employment	2	2012	3	2012
Maritime: Subproj: Swimmer/Diver Intent Recongnition and Interdiction: Spiral Development	3	2012	4	2012
Maritime: Subproj: Swimmer/Diver Intent Recongnition and Interdiction: Spiral Development (II)	1	2012	3	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603725N: *Facilities Improvement*	PROJECT 3155: *Force Protection Ashore*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Maritime: Subproj: Swimmer/Diver Intent Recongnition and Interdiction: Test & Evaluation (DT)	3	2013	4	2013
Maritime: Subproj: Swimmer/Diver Intent Recongnition and Interdiction: Test & Evaluation (OT)	1	2014	2	2014
Maritime: Subproj: Swimmer/Diver Intent Recongnition and Interdiction: Procurement Specification	2	2014	3	2014
Waterside Intelligent Video: Subproj: Waterside Intelligent Video: Test & Evaluation (DT)	1	2012	1	2012
Waterside Intelligent Video: Subproj: Waterside Intelligent video: Test & Evaluation (OT)	4	2012	2	2013
Waterside Intelligent Video: Subproj: Waterside Intelligent video: Procurement Specification	2	2013	3	2013

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603734N: *(U)CHALK CORAL*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	76.540	45.966	144.951	-	144.951	173.404	182.831	117.387	105.799	Continuing	Continuing
1804: *Chalk Coral*	0.000	76.540	45.966	144.951	-	144.951	173.404	182.831	117.387	105.799	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	79.415	45.966	49.104	-	49.104
Current President's Budget	76.540	45.966	144.951	-	144.951
Total Adjustments	-2.875	0.000	95.847	-	95.847
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.709	0.000			
• SBIR/STTR Transfer	-1.166	0.000			
• Program Adjustments	0.000	0.000	2.310	-	2.310
• Rate/Misc Adjustments	0.000	0.000	93.537	-	93.537

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy												DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	29.881	4.054	3.811	5.797	-	5.797	3.874	3.900	3.968	4.040	Continuing	Continuing
2955: *JEDMICS*	29.881	2.801	2.887	2.899	-	2.899	2.962	2.972	3.024	3.079	Continuing	Continuing
3223: *Logistics R&D*	0.000	0.895	0.924	2.898	-	2.898	0.912	0.928	0.944	0.961	Continuing	Continuing
3225: *Ordnance PHST*	0.000	0.358	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.358

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Includes development and evaluation of incentive systems for improving the productivity of civilian and military personnel. Identifies barriers to increased productivity and evaluates the effect of removing them. Develops techniques for easing the introduction of new technology to the work place. Identifies and evaluates methods for improving the quality of work-life.

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.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	4.137	3.811	3.847	-	3.847
Current President's Budget	4.054	3.811	5.797	-	5.797
Total Adjustments	-0.083	0.000	1.950	-	1.950
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.024	0.000			
• SBIR/STTR Transfer	-0.059	0.000			
• Program Adjustments	0.000	0.000	1.950	-	1.950

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*

Change Summary Explanation

Technical: Not applicable.

Schedule: Due to Information Assurance requirements, software release titles for 3.13 and out have changed to 3.0.13 and out for Project Unit 2955, JEDMICS on the R-2A,R-4 and R-4A exhibits.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 2955: *JEDMICS*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2955: *JEDMICS*	29.881	2.801	2.887	2.899	-	2.899	2.962	2.972	3.024	3.079	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

In FY85 Congress directed the Services and Defense Logistics Agency to permanently capture, manage and control engineering data in digital format so it would be available to support competitive spares re-procurement. The Joint Engineering Data Management Information & Control System (JEDMICS) program manages and controls 106,000,000 engineering images and has 25,000 authorized users responsible for over 70,000 user sessions per month. Over 2.5 million digital images are retrieved each month. New data and new users are added each month as DoD re-engineers its business processes to take advantage of digital data that is managed and controlled for corporate reuse. The JEDMICS system is deployed at 6 interoperable sites that service 600 locations worldwide. Data stored in JEDMICS is used for Logistics Support, Spares re-procurement, Weapons Systems procurement, Engineering, Maintenance, Distribution, Manufacturing, Air National Guard and Deployed Engineering Technical Services organizations. JEDMICS facilitates work process re-design since it brings the electronic drawings to the desktop, shop floor or flight line in real time eliminating walk, wait and slack time to retrieve drawings. Additionally, Administrative Lead Time, Repair Turn Around Time, Engineering Change Proposal processing time, demilitarization time, and all cycle times dependent on engineering data have decreased with the real time availability of digital engineering data. JEDMICS also facilitates Electronic Commerce since it produces digital technical data packages that can be forwarded along with an electronic order. Funds are for Commercial Off The Shelf (COTS) test, evaluation and integration. JEDMICS development efforts are required to integrate and test COTS upgrades.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: JEDMICS Development	2.760	2.827	2.847
Articles:	0	0	0
Description: Conduct development efforts associated with JEDMICS software releases. Conduct COTS requirements definition, evaluation, integration and testing of annual baseline releases. Conduct technology insertion of the JEDMICS system that is required to protect the $21B digital data asset managed in JEDMICS. These annual releases are necessary to incorporate changes that are essential to keeping the system running within the Navy's Enterprise. They include Service mandated Information Technology changes, storage capability increases for emerging engineering data formats, changes to accommodate commercial hardware and software end-of-life product obsolescence, and defenses for newly recognized Information Assurance vulnerabilities affecting the systems various software applications.			
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 2955: *JEDMICS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Develop and integrate Joint Engineering Data Management Information & Control System (JEDMICS) Software Release 3.0.13. ***FY 2013 Plans:*** Develop and integrate JEDMICS Software Release 3.0.14. ***FY 2014 Plans:*** Develop and integrate JEDMICS Software Release 3.0.15.			
Title: JEDMICS Test ***Articles:*** ***Description:*** Conduct test and readiness reviews and functional performance tests on JEDMICS system. ***FY 2012 Accomplishments:*** Complete Developmental Test (DT) of JEDMICS Software Release 3.12. Initiate DT of JEDMICS Software Release 3.0.13. ***FY 2013 Plans:*** Complete DT of JEDMICS Software Release 3.0.13. Initiate DT of JEDMICS Software Release 3.0.14. ***FY 2014 Plans:*** Complete DT of JEDMICS Software Release 3.0.14. Initiate DT of JEDMICS Software Release 3.0.15.	0.025 0	0.025 0	0.025 0
Title: JEDMICS Evaluation & Review ***Articles:*** ***Description:*** Conduct technical evaluations and configuration control reviews of JEDMICS system. ***FY 2012 Accomplishments:*** Conduct technical evaluations and reviews for JEDMICS Software Release 3.0.14. ***FY 2013 Plans:*** Conduct technical evaluations and reviews for JEDMICS Software Release 3.0.15. ***FY 2014 Plans:*** Conduct technical evaluations and reviews for JEDMICS Software Release 3.0.16.	0.016 0	0.035 0	0.027 0
Accomplishments/Planned Programs Subtotals	2.801	2.887	2.899

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 2955: *JEDMICS*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

Execution of sole-source negotiated requirements type contract for engineering, design, development and test efforts. Performance-based reviews conducted quarterly by the Project Management Office.

E. Performance Metrics

1. Complete testing, integration, & upgrade of three major embedded Commercial Off-the-Shelf products.
2. Test & integrate system Information Assurance Vulnerability Management software patch upgrades four times.
3. Complete development, testing, & integration of a minimum twenty corrected high-priority software problem reports.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 2955: *JEDMICS*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	C/IDIQ	Wyle Laboratories, Inc:Huntsville, AL	0.592	0.171	Oct 2011	0.159	Oct 2012	0.144	Oct 2013	-		0.144	Continuing	Continuing	Continuing
Software Development	SS/T&M	Northrop Grumman Information:McLean, VA	25.124	2.589	Nov 2011	2.668	Nov 2012	2.703	Nov 2013	-		2.703	Continuing	Continuing	Continuing
Prior Year Support no Longer Funded in Budget Year or Out years	Various	Various:Various	0.216	0.000		0.000		0.000		-		0.000	0.000	0.216	
		Subtotal	25.932	2.760		2.827		2.847		0.000		2.847			

Remarks

Remarks: Funds are for development efforts associated with Commercial Off The Shelf (COTS) obsolescence on the fully deployed COTS Intensive Joint Engineering Data Management Infomation & Control System. Funds are for COTS evaulation, integration, and test and evaluation. The common baseline will be maintained and obsolete COTS software and hardware will be replaced. Baseline releases will protect joint interoperability, upgrade operating systems for security patches and supportable versions, support integration to replace obsolete COTS, and upgrade the Oracle database to supportable versions.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MIPR	WR-ALC/ TILAB:Robins AFB, GA	2.420	0.025	Oct 2011	0.025	Oct 2012	0.025	Oct 2013	-		0.025	Continuing	Continuing	Continuing
		Subtotal	2.420	0.025		0.025		0.025		0.000		0.025			

Remarks

Supports testing and evaluation of baseline releases in a user environment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 2955: *JEDMICS*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	Naval Air Warfare Center:NAS Patuxent River, MD	0.224	0.014	Oct 2011	0.015	Oct 2012	0.013	Oct 2013	-		0.013	Continuing	Continuing	Continuing
Travel	Various	Various:Various	0.222	0.002	Jul 2012	0.020	Jul 2013	0.014	Jul 2014	-		0.014	Continuing	Continuing	Continuing
Prior Year Mgmt no Longer Funded in Budget Year or Out years	Various	Various:Various	1.083	0.000		0.000		0.000		-		0.000	0.000	1.083	
		Subtotal	1.529	0.016		0.035		0.027		0.000		0.027			

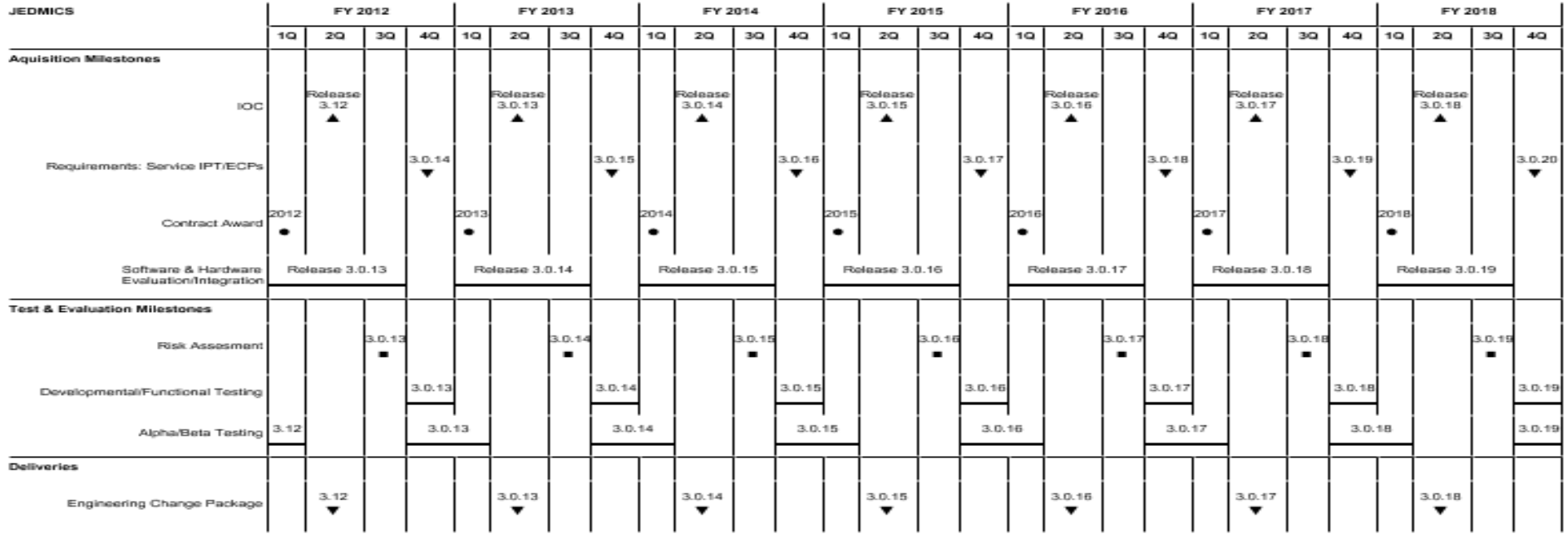
Remarks

Supports program compliance reviews and program related travel by government employees.

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.881	2.801		2.887		2.899		0.000		2.899			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 2955: *JEDMICS*



2014PB - 0603739N - 2955

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603739N: *Navy Logistic Productivity*	**PROJECT** 2955: *JEDMICS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
JEDMICS				
Aquisition Milestones: IOC: IOC Release 3.12	2	2012	2	2012
Aquisition Milestones: IOC: IOC Release 3.0.13	2	2013	2	2013
Aquisition Milestones: IOC: IOC Release 3.0.14	2	2014	2	2014
Aquisition Milestones: IOC: IOC Release 3.0.15	2	2015	2	2015
Aquisition Milestones: IOC: IOC Release 3.0.16	2	2016	2	2016
Aquisition Milestones: IOC: IOC Release 3.0.17	2	2017	2	2017
Aquisition Milestones: IOC: IOC Release 3.0.18	2	2018	2	2018
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.0.14	4	2012	4	2012
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.0.15	4	2013	4	2013
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.0.16	4	2014	4	2014
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.0.17	4	2015	4	2015
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.0.18	4	2016	4	2016
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.0.19	4	2017	4	2017
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.0.20	4	2018	4	2018
Aquisition Milestones: Contract Award: 2012 Contract Award	1	2012	1	2012
Aquisition Milestones: Contract Award: 2013 Contract Award	1	2013	1	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 2955: *JEDMICS*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Aquisition Milestones: Contract Award: 2014 Contract Award	1	2014	1	2014
Aquisition Milestones: Contract Award: 2015 Contract Award	1	2015	1	2015
Aquisition Milestones: Contract Award: 2016 Contract Award	1	2016	1	2016
Aquisition Milestones: Contract Award: 2017 Contract Award	1	2017	1	2017
Aquisition Milestones: Contract Award: 2018 Contract Award	1	2018	1	2018
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.0.13	1	2012	3	2012
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.0.14	1	2013	3	2013
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.0.15	1	2014	3	2014
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.0.16	1	2015	3	2015
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.0.17	1	2016	3	2016
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.0.18	1	2017	3	2017
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.0.19	1	2018	3	2018
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.0.13	3	2012	3	2012
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.0.14	3	2013	3	2013
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.0.15	3	2014	3	2014
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.0.16	3	2015	3	2015
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.0.17	3	2016	3	2016
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.0.18	3	2017	3	2017
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.0.19	3	2018	3	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 2955: *JEDMICS*

	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/ Functional Testing Release 3.0.13	4	2012	4	2012
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/ Functional Testing Release 3.0.14	4	2013	4	2013
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/ Functional Testing Release 3.0.15	4	2014	4	2014
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/ Functional Testing Release 3.0.16	4	2015	4	2015
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/ Functional Testing Release 3.0.17	4	2016	4	2016
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/ Functional Testing Release 3.0.18	4	2017	4	2017
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/ Functional Testing Release 3.0.19	4	2018	4	2018
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.12	1	2012	1	2012
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.0.13	4	2012	1	2013
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.0.14	4	2013	1	2014
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.0.15	4	2014	1	2015
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.0.16	4	2015	1	2016
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.0.17	4	2016	1	2017
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.0.18	4	2017	1	2018
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.0.19	4	2018	4	2018
Deliveries: Engineering Change Package: Engineering Change Package Release 3.12	2	2012	2	2012
Deliveries: Engineering Change Package: Engineering Change Package Release 3.0.13	2	2013	2	2013
Deliveries: Engineering Change Package: Engineering Change Package Release 3.0.14	2	2014	2	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 2955: *JEDMICS*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Deliveries: Engineering Change Package: Engineering Change Package Release 3.0.15	2	2015	2	2015
Deliveries: Engineering Change Package: Engineering Change Package Release 3.0.16	2	2016	2	2016
Deliveries: Engineering Change Package: Engineering Change Package Release 3.0.17	2	2017	2	2017
Deliveries: Engineering Change Package: Engineering Change Package Release 3.0.18	2	2018	2	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 3223: *Logistics R&D*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3223: *Logistics R&D*	0.000	0.895	0.924	2.898	-	2.898	0.912	0.928	0.944	0.961	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Stable annual funding is required to facilitate implementation and execution of a robust, flexible Logistics R&D program that will provide the means for Naval Supply Systems Command (NAVSUP) to effectively pursue solutions to mission-related capability/technology gaps. The NAVSUP Logistics R&D program has an established infrastructure and business process for ensuring that R&D funds are applied to projects that address high priority enterprise needs established in accordance with OPNAV goals and the NAVSUP Commander's Guidance.

From a process perspective, Log R&D investments are governed by a NAVSUP enterprise-wide Executive Steering Group (ESG) chaired by the NAVSUP Vice Commander, and comprised of SES and Command leadership representatives. The ESG ratifies capability/technology gaps identified by all activities within the enterprise, and then assesses and prioritizes all proposed Log R&D initiatives in accordance with their potential for filling the established gap and generating return on investment.

The established Log R&D business management process has currently identified capability/technology gaps in the following general areas: 1) the need to develop technology enhancements promoting the movement of shipboard supply operations ashore, especially as it relates to optimally manned ships, 2) developing and/or modernizing shipboard equipment, material or processes for which NAVSUP exercises Technical Authority, 3) developing and modernizing Information Technology (IT) and Automatic Identification Technology (AIT) applications to enhance performance of supply chain management and logistics functions (e.g., remote diagnostics/ prognostics, in-transit visibility, unique item identification) that are not supported by Navy ERP, and 4) collaborating with acquisition program managers to reduce total ownership costs. This modest R&D investment will establish a NAVSUP Logistics R&D Program to explore additional technologies and significantly increase potential cost savings.

Examples of specific issues/projects that are under consideration for investment of Log R&D funding as a result of the FY10 NAVSUP capability gap and initiative review include: Automated inventory management system; Shipboard ozone laundering; Improved general purpose protective equipment (helmet protection and anti-vibration gloves); Non-plastic waste bags; Counterfeit parts detection methodology; Afloat automatic identification technology architecture.

This list of potential projects for addressing capability gaps will be updated and prioritized over time, under the oversight of the NAVSUP Log R&D ESG, to ensure that funds allocated provide the highest return on investment consistent with Navy/NAVSUP goals and objectives.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 3223: *Logistics R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Automated Inventory Management System	0.545	0.562	0.000
Articles:	0	0	
FY 2012 Accomplishments: Continuation of objectives identified in FY11			
FY 2013 Plans: Continuation of objectives identified in FY11			
Title: Shipboard Ozone Laundering	0.080	0.083	0.000
Articles:	0	0	
FY 2012 Accomplishments: Continuation of FY11 plans			
FY 2013 Plans: Continuation of FY11 plans if necessary			
Title: Improved General Purpose Protective Equipment	0.052	0.054	0.000
Articles:	0	0	
FY 2012 Accomplishments: Continuation of FY11 projects.			
FY 2013 Plans: Continuation of FY11 projects if necessary.			
Title: Non-Plastic Waste Bags	0.083	0.086	0.000
Articles:	0	0	
FY 2012 Accomplishments: Continuation of FY11 Projects.			
FY 2013 Plans: Continuation of FY12 Projects.			
Title: Counterfeit Parts Detection Methodology	0.068	0.070	0.000
Articles:	0	0	
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 3223: *Logistics R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continuation of FY11 Projects. ***FY 2013 Plans:*** Continuation of FY11 Projects if necessary.			
Title: Afloat Automatic Identification Technology Architecture ***Articles:*** ***FY 2012 Accomplishments:*** Continuation of FY11 Projects. ***FY 2013 Plans:*** Continuation of Projects if necessary.	0.067 0	0.069 0	0.000
Title: Navy Pal ***Articles:*** ***FY 2014 Plans:*** Development of a Navy Pal payment system for cashless payments associated with the Navy Cash project. Plans TBD.	0.000	0.000	1.950 0
Title: Navy Logistics Productivity Projects TBD ***Articles:*** ***Description:*** Projects for increasing Navy Logistics Productivity ***FY 2014 Plans:*** Projects will be determined during FY14.	0.000	0.000	0.948 0
Accomplishments/Planned Programs Subtotals	0.895	0.924	2.898

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Automated Inventory Management System: Use of commercial warehouse management software and wireless Automatic Identification Technologies (AIT) to streamline afloat supply commodity management on large aviation platforms (CVN/LHA/LHD). Funds to provide initial year of multi-year Integrated Product & Process Development (IPPD) effort.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 3223: *Logistics R&D*

Shipboard Ozone Laundering: Development and test of ozone laundering for shipboard use to reduce total operating costs and reduce environmental impact (energy and chemical) usage.

Improved General Purpose Protective Equipment: Develop a helmet for shipboard, facility & aircraft maintenance personnel that incorporates hearing protection, air supply, face protection and a means to communicate; Develop anti-vibration protective gloves for maintenance, repair and construction personnel.

Non-Plastic Waste Bags: Develop an alternative to plastic trash bags with similar performance characteristics, yet not containing plastic, in order to decrease the amount of plastic waste required to be processed aboard Navy vessels.

Counterfeit Parts Detection Methodology: Develop a methodology utilizing existing databases and tools for the detection and mitigation of counterfeit parts in the naval aircraft supply chain. Mitigating counterfeit parts will reduce maintenance and AVDLR costs, while improving safety.

Afloat Automatic Identification Technology Architecture: Establish an afloat AIT architecture that parallels the ashore solution and provides better visibility and reduces shipboard manning requirements. Funds to provide initial year of multi-year Integrated Product & Process Development (IPPD) effort.

Navy Pal: Develop a cashless payment system for Navy similar to the commercial Paypal system.

E. Performance Metrics

TBD

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 3223: *Logistics R&D*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Navy Pal	TBD	TBD:TBD	0.000	0.000		0.000		1.950	Jun 2014	-		1.950	0.000	1.950	
Navy Log Productivity Projects TBD	TBD	TBD:TBD	0.000	0.895	Jun 2012	0.924	Jun 2013	0.948	Jun 2014	-		0.948	Continuing	Continuing	Continuing
		Subtotal	0.000	0.895		0.924		2.898		0.000		2.898			

Remarks

Development of "Navy Pal", a cashless payment system similar to the commercial Paypal system.

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.895		0.924		2.898		0.000		2.898			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 3223: *Logistics R&D*

	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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
Navy Pal cashless payment system																												
Navy Pal: Navy Pal development: Navy Pal development													[redacted]															

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603739N: *Navy Logistic Productivity*	**PROJECT** 3223: *Logistics R&D*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Navy Pal cashless payment system				
Navy Pal: Navy Pal development: Navy Pal development	3	2014	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 3225: *Ordnance PHST*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3225: *Ordnance PHST*	0.000	0.358	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.358
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Ordnance Packaging Handling Storage and Transportation (PHST) RDT&E resources focus on developing new Ordnance Handling Equipment (OHE) to replace the 25+ year old equipment presently used by the Fleet for Underway Replenishment (UNREP) operations. This OHE is a high cost and maintenance item. Development of new OHE takes advantage of new technology such as the CH-60 helicopter, which has double the lift capacity of the CH-46. OHE is used daily by the war fighter to conduct Connected Replenishment (CONREP) and Vertical Replenishment (VERTREP). A sample of these efforts includes redesigning the MK 105 sling to increase efficiency during VERTREP, condensing entire families of slings down to fewer and more efficient pieces of gear, developing a stream strongback and the associated equipment necessary to complement, not compromise, the Heavy UNREP initiative of the future, etc. The new sling designs being developed take advantage of present and future manufacturing and operational capabilities. This initiative improves availability, reliability, and maintainability while reducing overall cost. The end result will be a Fleet that has been properly equipped to conduct UNREP with more efficiency.

The PHST Center is developing a baseline of the current naval ordnance PHST logistics system. This baseline will identify inefficiencies and recommend hardware and operational enhancements in the area of modal change, thus providing an investment strategy for future Naval PHST operations by conducting an end-to-end study.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Ordnance PHST Development	0.358	0.000	0.000
Articles:	0		
Description: Develop new OHE to replace the 25+ year old equipment presently in Fleet use to include: 1) Re-design Mk 105 Pendant Sling to optimize cost and throughput during Vertical Replenishment; 2) New concept development to replace 12x12 and 14x14 ft. Nylon Cargo Nets ; 3) Design a new Standard Tension Replacement Alongside Method (STREAM) Strongback to compliment the Fleet's Heavy UNREP initiative of the future; 4) Condense Mk 85, 86, 87, and 100 family of pallet slings into fewer pieces gear to optimize cost and efficiency during CONREP; and 5) Re-design the Mk 45 Handlift Truck. Ordnance PHST will additionally conduct a baseline study of the current Naval PHST logistics system to identify inefficiencies and recommend hardware and operational enhancements.			
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 3225: *Ordnance PHST*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Begin investigating the Mk 24/137 Light Airborne Multi-Purpose System Dolly. Field test a new Mk 105 replacement. Work on potential improvements cited in the PHST baseline study. Develop a Mk 85 series replacement. Evaluate a course of action for the heavy STREAM strongback. A heavy Standard Tension Replacement Alongside Method (STREAM) strongback is a metal rigid item with a 12,000 lb capacity that acts as an intermediate to a ship's STREAM and other handling equipment and provides a means for attaching handling equipment during loading/offloading or connected transfer-at-sea operations.			
Accomplishments/Planned Programs Subtotals	0.358	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Execution of in-house engineering, design, development and test efforts. Performance-based reviews conducted quarterly or as required by the Project Management Office.

E. Performance Metrics

1. Conduct Operational Testing of a Mk 105 Sling Replacement
2. Improve 4 of the 8 areas of concern from the Packaging Handling Storage and Transportation Baseline Study
3. Identify 3 problem areas inherent in the Mk 24/137 Light Airborne Mulit-Purpose System Dolly design
4. Conduct a successful Preliminary Design Review for a Mk 85 Series sling replacement

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603739N: *Navy Logistic Productivity*	PROJECT 3225: *Ordnance PHST*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NSWC Indian Head:Indian Head, MD	0.000	0.358	Nov 2011	0.000		0.000		-		0.000	0.000	0.358	
		Subtotal	0.000	0.358		0.000		0.000		0.000		0.000	0.000	0.358	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.358		0.000		0.000		0.000		0.000	0.000	0.358	

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603746N: *(U)RETRACT MAPLE*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	272.049	341.305	308.131	-	308.131	263.710	200.549	144.076	146.488	Continuing	Continuing
1906: *Retract Maple*	0.000	272.049	341.305	308.131	-	308.131	263.710	200.549	144.076	146.488	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	276.171	341.305	318.138	-	318.138
Current President's Budget	272.049	341.305	308.131	-	308.131
Total Adjustments	-4.122	0.000	-10.007	-	-10.007
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.070	0.000			
• SBIR/STTR Transfer	-4.052	0.000			
• Program Adjustments	0.000	0.000	-9.404	-	-9.404
• Rate/Misc Adjustments	0.000	0.000	-0.603	-	-0.603

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603748N: *(U)LINK PLUMERIA*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	54.816	181.220	195.189	-	195.189	225.570	180.030	177.916	155.209	Continuing	Continuing
1978: *Link Plumeria*	0.000	54.816	181.220	195.189	-	195.189	225.570	180.030	177.916	155.209	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	52.588	181.220	192.850	-	192.850
Current President's Budget	54.816	181.220	195.189	-	195.189
Total Adjustments	2.228	0.000	2.339	-	2.339
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	3.000	0.000			
• SBIR/STTR Transfer	-0.772	0.000			
• Program Adjustments	0.000	0.000	1.569	-	1.569
• Rate/Misc Adjustments	0.000	0.000	0.770	-	0.770

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603751N: *(U)RETRACT ELM*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	114.374	174.014	56.358	-	56.358	185.141	234.755	188.156	81.699	Continuing	Continuing
2003: *Retract Elm*	0.000	114.374	174.014	56.358	-	56.358	185.141	234.755	188.156	81.699	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	150.584	174.014	195.678	-	195.678
Current President's Budget	114.374	174.014	56.358	-	56.358
Total Adjustments	-36.210	0.000	-139.320	-	-139.320
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-34.000	0.000			
• SBIR/STTR Transfer	-2.210	0.000			
• Program Adjustments	0.000	0.000	-30.657	-	-30.657
• Rate/Misc Adjustments	0.000	0.000	-108.663	-	-108.663

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603764N: *(U)LINK EVERGREEN*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	142.858	68.654	55.378	-	55.378	46.504	47.312	48.116	48.982	Continuing	Continuing
1972: *Link Evergreen*	0.000	142.858	68.654	55.378	-	55.378	46.504	47.312	48.116	48.982	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	144.985	68.654	55.378	-	55.378
Current President's Budget	142.858	68.654	55.378	-	55.378
Total Adjustments	-2.127	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.127	0.000			

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603787N: *(U)SPECIAL PROCESSES*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	42.805	44.487	48.842	-	48.842	51.250	48.483	49.342	50.213	Continuing	Continuing
0116: *Linear Tank*	0.000	42.805	44.487	48.842	-	48.842	51.250	48.483	49.342	50.213	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	43.365	44.487	48.945	-	48.945
Current President's Budget	42.805	44.487	48.842	-	48.842
Total Adjustments	-0.560	0.000	-0.103	-	-0.103
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.074	0.000			
• SBIR/STTR Transfer	-0.634	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.103	-	-0.103

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603790N: *NATO Research and Deve*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	30.115	9.402	9.389	7.509	-	7.509	10.786	10.557	9.970	10.151	Continuing	Continuing
2293: *NATO Cooperative R & D*	30.115	9.402	9.389	7.509	-	7.509	10.786	10.557	9.970	10.151	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

In accordance with Title 10 United States Code, Section 2350a, this Program Element (PE) provides funding for research and development (R&D) programs with approved allies under international agreements. These funds can only be applied to work efforts in the U.S., and the Under Secretary of Defense, Acquisition and Technology and Logistics (USD, AT&L) must approve each international agreement. The program provides funds for multiple projects under separately approved international agreements as well as funds that support the establishment of such agreements. Each international agreement is summarized in a separate Summary Statement of Intent (SSOI) that also states why the project serves to increase the defense capabilities of the U.S. The SSOI is used to obtain Project approval by the Department of the Navy and the Office of the Secretary of Defense.

This program historically does not meet established execution benchmarks. The North Atlantic Treaty Organization (NATO) R&D cooperative programs differ from other Research, Development, Test and Evaluation (RDT&E) programs because issuance of funding from this PE coincides with the signature of international agreements. These signatures occur throughout the fiscal year and often encounter unexpected delays during the staffing and negotiation phases of agreement processing prior to signature.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	9.140	9.389	9.520	-	9.520
Current President's Budget	9.402	9.389	7.509	-	7.509
Total Adjustments	0.262	0.000	-2.011	-	-2.011
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.500	0.000			
• SBIR/STTR Transfer	-0.238	0.000			
• Rate/Misc Adjustments	0.000	0.000	-2.011	-	-2.011

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603790N: *NATO Research and Deve*	PROJECT 2293: *NATO Cooperative R & D*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2293: *NATO Cooperative R & D*	30.115	9.402	9.389	7.509	-	7.509	10.786	10.557	9.970	10.151	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

In accordance with Title 10 U.S. Code Section 2350a, this project provides funding for research and development projects with approved allies under international agreements. These funds can only be applied to work efforts in the U.S., and the Office of Secretary of Defense must approve each international agreement. The program provides funds for multiple projects under separately approved international agreements as well as funds that support the establishment of such agreements. Each international agreement is summarized in a separate SSOI which also states why the project serves to increase the conventional defense capabilities of the U.S. The SSOI is used to obtain project approval by the Department of the Navy and the Office of the Secretary of Defense.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: NATO Cooperative R & D	9.402	9.389	7.509
Articles:	0	0	0

FY 2012 Accomplishments:

- Continue to plan and/or support FY12 approved cooperative projects less those noted as completed above.
- Completed support for the Coalition Network for Secure Information Sharing (CoNSIS) cooperative project between the U.S. and multiple nations.
- Completed support for Enhancing and Validating the Dynamic System Mechanics Advanced Simulation (DYSMAS) to meet Emerging Modeling and Simulation Changes cooperative project between the U.S. and Germany.
- Completed support for the Submarine Hydrodynamics Maneuvering & Control cooperative project between the U.S. and the U.K.
- Initiated support for the ProSimon cooperative project between the U.S. and the Netherlands.
- Continued support for the Submarine Sonar Telemetry cooperative project between the U.S. and the U.K.
- Completed support for Torpedo Guidance and Control; False Targets cooperative project between the U.S. and the U.K.
- Continued support for the Advanced Electromagnetic Silencing project between the U.S. and the U.K.
- Initiated support for the Submarine Electric Power and Propulsion project between the U.S. and UK.
- Initiated support for the Alternate Material Propeller cooperative project between the U.S. and Australia.
- Continued support for the Test, Planning, and execution project between the U.S. and multiple nations.
- Completed support for the Medusa project between the U.S. and Japan.
- Continued support for the Submarine Composite Structures project between the U.S. and UK.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603790N: *NATO Research and Deve*	PROJECT 2293: *NATO Cooperative R & D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Completed support for the Fiber Optic Mini Acoustic project between the U.S. and Australia. ***FY 2013 Plans:*** - Continue to plan and/or support FY12/13 approved cooperative projects. - Planned support for the Arctic Ship Design project between the U.S. and Finland. - Planned support for the Submarine Very Low Frequency project between the U.S. and UK. - Planned support for the Submarine Electric Actuation project between the U.S. and UK. - Planned support for the Waterside Rapid Deployment project among the U.S., Australia, and Canada. - Planned support for the Weight Critical Structures project between the U.S. and UK. ***FY 2014 Plans:*** - Continue to plan and/or support FY13 approved cooperative projects.			
Accomplishments/Planned Programs Subtotals	9.402	9.389	7.509

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The intent of the North Atlantic Treaty Organization (NATO) cooperative R&D program is to provide "start-up" funds for projects seeking allied contributions into cooperative research and development projects with the U.S. The primary metric used in the program is foreign contributions into projects supported by the program. The performance goal is met if total foreign contributions into projects exceed total NATO cooperative R&D program funds by over 100%.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603790N: *NATO Research and Deve*	PROJECT 2293: *NATO Cooperative R & D*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test and Evaluation	C/FP	NAVSEA:Washington Navy Yard, DC	8.407	2.500	Sep 2012	4.000	Sep 2013	3.989	May 2014	-		3.989	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NSWC:West Bethesda, MD	8.121	2.000	Sep 2012	1.500	Sep 2013	2.000	Sep 2014	-		2.000	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NUWC:Newport, RI	1.002	0.000		0.750	Jun 2013	0.500	Jan 2014	-		0.500	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	SPAWAR:San Diego, CA	1.853	1.500	Sep 2012	0.500	Sep 2013	0.500	Sep 2014	-		0.500	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NAVAIR:Patuxent River, MD	1.000	0.000		0.750	Apr 2013	0.386	Apr 2014	-		0.386	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NRL:Washington, DC	0.900	0.700	Sep 2012	0.750	Sep 2013	0.134	Sep 2014	-		0.134	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NAWC:Point Mugu, CA	2.500	2.000	Apr 2012	1.000	Apr 2013	0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	Miscellaneous:Philadelphia, PA	6.283	0.702	Sep 2012	0.139	Sep 2013	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	30.066	9.402		9.389		7.509		0.000		7.509			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ACQ Workforce Fund	Various	Various:Various	0.049	0.000		0.000		0.000		-		0.000	0.000	0.049	
		Subtotal	0.049	0.000		0.000		0.000		0.000		0.000	0.000	0.049	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	30.115	9.402		9.389		7.509		0.000		7.509			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603790N: *NATO Research and Deve*	PROJECT 2293: *NATO Cooperative R & D*

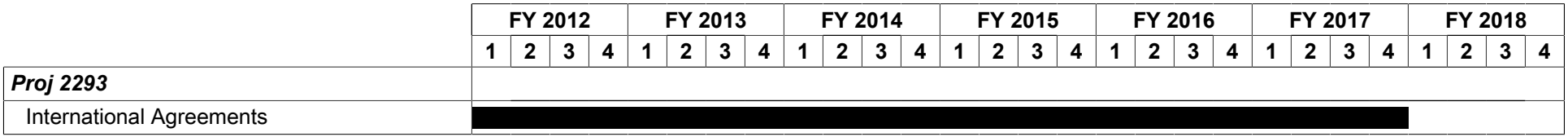


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603790N: *NATO Research and Deve*	**PROJECT** 2293: *NATO Cooperative R & D*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2293				
International Agreements	1	2012	4	2017

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603795N: *Land Attack Tech*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	0.411	16.132	5.075	-	5.075	2.046	0.000	0.000	0.000	0.000	23.664
2038: *ADVANCED MINOR CALIBER GUN*	0.000	0.000	16.132	5.075	-	5.075	2.046	0.000	0.000	0.000	0.000	23.253
2325: *Naval Fires Control System*	0.000	0.411	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.411

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Naval Fires Control System (NFCS) (Project 2325) - Automates shipboard land attack battle management duties to be interoperable and consistent with joint C4ISR systems. This shipboard system will significantly improve the Navy's ability to support Operational Maneuver from the Sea (OMFTS).

The Advanced Minor Caliber Gun (Project 2038) will support non-recurring engineering, component integration, and testing efforts required for the Task Force Defense (TFD) capability upgrade to the MK38 Mod 2, a minor caliber gun weapon system.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	0.421	16.132	5.077	-	5.077
Current President's Budget	0.411	16.132	5.075	-	5.075
Total Adjustments	-0.010	0.000	-0.002	-	-0.002
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.010	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.002	-	-0.002

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603795N: *Land Attack Tech*	PROJECT 2038: *ADVANCED MINOR CALIBER GUN*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2038: *ADVANCED MINOR CALIBER GUN*	0.000	0.000	16.132	5.075	-	5.075	2.046	0.000	0.000	0.000	0.000	23.253
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Advanced Minor Caliber Gun project will support non-recurring engineering, component integration, testing and qualification efforts required for the Task Force Defense (TFD) capability upgrade to the MK38 Mod 2, a minor caliber gun weapon system. TFD creates a near term improvement to address ship based, close range solutions for FIFTH Fleet Counter- Swarm. The MK38 Mod 2 was developed in FY04 under Chief of Naval Operations (CNO) direction to outfit near term deployers to counter small boat threats.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Systems Engineering and Testing	0.000	16.132	5.075
Articles:		0	0
FY 2013 Plans: Funding will purchase commercially available Non-Developmental Items (NDI) hardware and test units; provide systems engineering, integration engineering, software updates, on-mount testing, safety and technical oversight support for the MK38 Task Force Defense (TFD) capability upgrade development. Will fund USN qualification effort of the MK 38 TFD kit and fund the development of the COAX interface Technical Data Package (TDP) for future competition.			
FY 2014 Plans: Continues the MK38 TFD capability upgrade development. Funds at-sea testing efforts, and the development of the Loud Hailer interface TDP for future competition.			
Accomplishments/Planned Programs Subtotals	0.000	16.132	5.075

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603795N: *Land Attack Tech*	PROJECT 2038: *ADVANCED MINOR CALIBER GUN*

D. Acquisition Strategy

The acquisition strategy for the Task Force Defense (TFD) capability will support MK38 Mod 2 OEM engineering services required to meet the performance requirements of TFD.

E. Performance Metrics

Quarterly Program Reviews and semi-annual Product Certification Panel Reviews.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603795N: *Land Attack Tech*	PROJECT 2038: *ADVANCED MINOR CALIBER GUN*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Product Integration	SS/BOA	BAE Systems:Minneapolis MN	0.000	0.000		13.775	Jan 2013	3.468	Dec 2013	-		3.468	0.000	17.243	
		Subtotal	0.000	0.000		13.775		3.468		0.000		3.468	0.000	17.243	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Services	WR	NSWC, DD:Dahlgren, VA	0.000	0.000		1.796	Dec 2012	1.077	Dec 2013	-		1.077	0.000	2.873	
Government Engineering Services	WR	NSWC, IHD:Indian Head, MD	0.000	0.000		0.311	Dec 2012	0.355	Dec 2013	-		0.355	0.000	0.666	
		Subtotal	0.000	0.000		2.107		1.432		0.000		1.432	0.000	3.539	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Support Services	C/CPFF	ALION:Washington, DC	0.000	0.000		0.250	Jan 2013	0.175	Jan 2014	-		0.175	0.000	0.425	
		Subtotal	0.000	0.000		0.250		0.175		0.000		0.175	0.000	0.425	

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		16.132		5.075		0.000		5.075	0.000	21.207	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603795N: *Land Attack Tech*	PROJECT 2038: *ADVANCED MINOR CALIBER GUN*

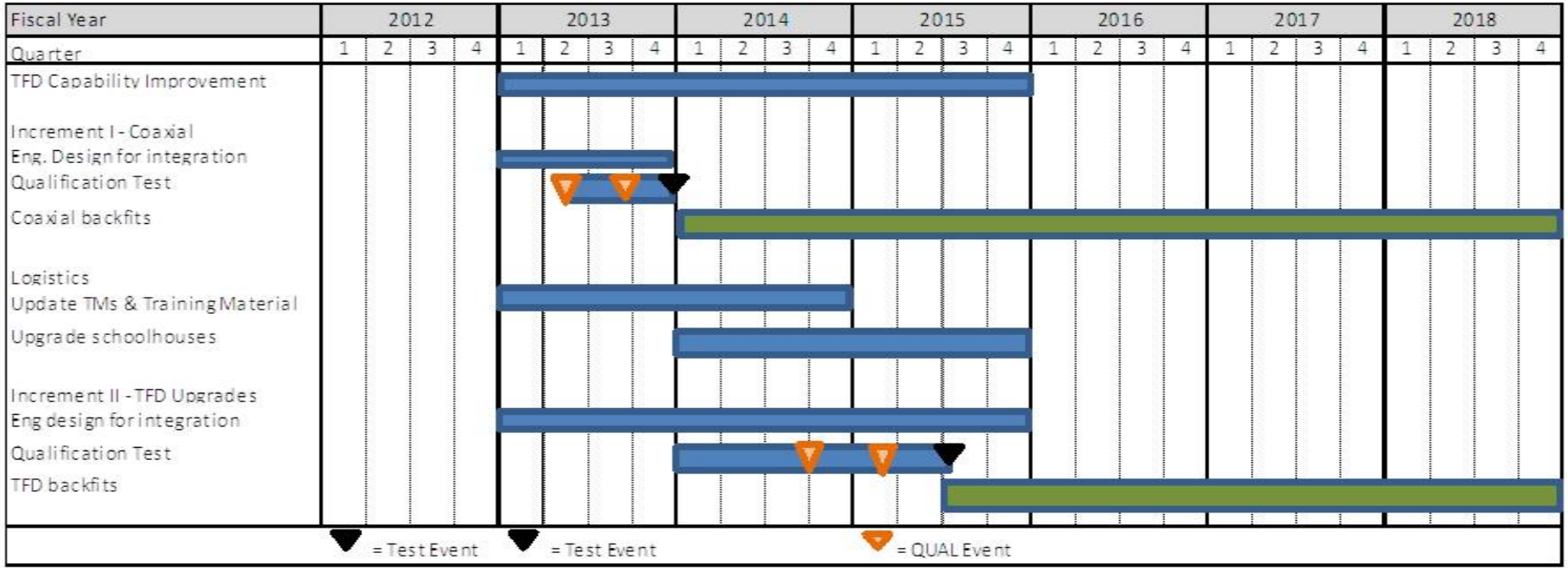


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603795N: *Land Attack Tech*	**PROJECT** 2038: *ADVANCED MINOR CALIBER GUN*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2038				
TFD Capability Improvement	1	2013	4	2015
Increment I - Coaxial Eng. Design for integration	1	2013	4	2013
Increment I Qualification Test	2	2013	4	2013
Coaxial backfits	1	2014	4	2018
Logistics Update TMs & Training Material	1	2013	4	2014
Upgrade schoolhouses	1	2014	4	2015
Increment II - TFD Upgrades Eng design for integration	1	2013	4	2015
Increment II Qualification Test	1	2014	3	2015
TFD backfits	3	2015	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603795N: *Land Attack Tech*	PROJECT 2325: *Naval Fires Control System*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2325: *Naval Fires Control System*	0.000	0.411	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.411
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Naval Fires Control System (NFCS) covers the mission planning and coordination for current and future Naval Surface Fire Support system requirements. NFCS plans, coordinates and manages the firing of Naval Surface Fires Support (NSFS) weapon systems including the 5"/62 caliber gun and Conventional Munitions. The NFCS phase I is interfacing with the Advanced TOMAHAWK Weapons Control Systems (ATWCS) and the Tactical TOMAHAWK Weapons Control Systems (TTWCS) in order for NFCS to share the Advanced Tactical Display Console (ATDC) with ATWCS and TTWCS. Funding provides software and system engineering analysis and development, reuse and integration of government and commercial computer programs to support extended range munitions and other naval weapon applications. The NFCS Phase I requirements have been completed.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Software/System Engineering	0.286	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: Funding provided software and system engineering analysis and development. Reuse and integration of government and commercial computer programs to support extended range munitions and other naval weapon applications.			
Title: Technical Design Agent	0.050	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: Funding provided Technical Design Agent (TDA) support, joint requirements investigation and Concept of Operations (CONOPs) scenario development.			
Title: C4I Systems	0.075	0.000	0.000
Articles:	0		
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603795N: *Land Attack Tech*	PROJECT 2325: *Naval Fires Control System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Funding provided continued support for C4I and combat system interface investigation and analysis in relation to developing C4I systems and technologies.			
Accomplishments/Planned Programs Subtotals	0.411	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 5112: *OPN*	2.044	3.472	1.188		1.188	1.188	0.896	0.934	0.945	0.000	13.134

Remarks

D. Acquisition Strategy

A sole source contract was awarded to GDIS for Phase 1 software development. NSWC/DD took over this function from GDIS and will remain the software developer. The original hardware manufacturer and developer is NUWC, Keyport.

E. Performance Metrics

Quarterly Program Reviews and semi-annual Product Certification Panel Reviews.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603795N: *Land Attack Tech*	PROJECT 2325: *Naval Fires Control System*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software/System Engineering	WR	Not Specified:Not Specified	0.000	0.286	Jan 2012	0.000		0.000		-		0.000	0.000	0.286	
Technical Design Agent	WR	Not Specified:Not Specified	0.000	0.050	Jan 2012	0.000		0.000		-		0.000	0.000	0.050	
C4I System	WR	Not Specified:Not Specified	0.000	0.075	Aug 2012	0.000		0.000		-		0.000	0.000	0.075	
		Subtotal	0.000	0.411		0.000		0.000		0.000		0.000	0.000	0.411	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.411		0.000		0.000		0.000		0.000	0.000	0.411	

Remarks

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603851M: *Joint Non-Lethal Weapons Testing*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	415.453	40.189	44.994	51.178	-	51.178	61.781	56.226	55.784	56.738	Continuing	Continuing
2319: *Non-Lethal Weapons*	415.453	40.189	44.994	51.178	-	51.178	61.781	56.226	55.784	56.738	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The DoD's Joint Non-Lethal Weapons Program (JNLWP) was established by the Secretary of Defense, who assigned centralized responsibility for DoD joint research and development of non-lethal weapons and technology to the Commandant of the Marine Corps as the Executive Agent. The Under Secretary of Defense for Acquisition, Technology and Logistics (USD AT&L) provides principle oversight of the JNLWP.

The efforts in this Program Element (PE) reflect Joint Service research and development (R&D) investment decisions provided by the Joint Non Lethal Weapons Integrated Product Team, a multi-service flag level corporate board that executes the JNLWP for the Executive Agent. Research conducted is based on the needs and capabilities of the Services, the Special Operations Command and the Coast Guard, as identified in the DoD's Non-Lethal Weapons Joint Capabilities Document. This coordinated joint R&D development approach addresses mutual capability gaps and assures the best non-lethal technologies and equipment are provided to the operating forces while eliminating duplicative Service investment.

This PE funds Joint Service research, development, test, and evaluation of non-lethal weapon (NLW) systems and technologies that provide a non-lethal capability to minimize fatal or permanent injuries as well as undesired damage to property and the environment. NLW are designed to incapacitate or hinder movement of individuals, crowds, or equipment. The availability of NLW allows commanders less than lethal options, across the spectrum of military operational warfare, i.e., peacekeeping, humanitarian assistance and disaster relief, as well as special operations.

The Joint Non-Lethal Weapons Directorate was established by the Executive Agent to manage the day to day research and development activities of the DoD Joint Non-Lethal Weapons Program. The JNLWP funding is distributed amongst the USA, USAF, USN, USMC, SOCOM, and USCG in support of NLW research and development efforts. Each Service is responsible for their procurement and operating support costs.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603851M: *Joint Non-Lethal Weapons Testing*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	40.992	44.994	60.907	-	60.907
Current President's Budget	40.189	44.994	51.178	-	51.178
Total Adjustments	-0.803	0.000	-9.729	-	-9.729
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.803	0.000			
• Program Adjustments	0.000	0.000	-5.791	-	-5.791
• Rate/Misc Adjustments	0.000	0.000	-3.938	-	-3.938

Change Summary Explanation

The increase of $6.184M from FY13 to FY14 provides additional model and simulation efforts of non-lethal weapons (NLWs), evaluation of NLWs, active denial technology transition, as well as increased system development and design of technology development. The FY14 funding increase reflects an increased FYDP funding profile that will meet DoD requirements throughout the FYDP.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603851M: *Joint Non-Lethal Weapons Testing*	PROJECT 2319: *Non-Lethal Weapons*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2319: *Non-Lethal Weapons*	415.453	40.189	44.994	51.178	-	51.178	61.781	56.226	55.784	56.738	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project develops non-lethal weapon (NLW) systems that provide a new non-lethal capability to minimize fatal or permanent injuries and undesired damage to property and the environment. These systems are designed to stun, incapacitate, or hinder movement of individuals, crowds or equipment. The availability of NLW allows commanders less than lethal options, particularly in urban warfare and military operations other than war, i.e., peacekeeping, humanitarian assistance and disaster relief, as well as special operations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: *Modeling and Simulation (M&S) of NLWs.	1.102	1.256	2.176
Articles:	0	0	0
FY 2012 Accomplishments: Continued modeling and simulation (M&S) of NLWs in warfighter training/war gaming models and performance effects data collection/population to demonstrate/analyze NL effects and optimize training.			
FY 2013 Plans: Continue modeling and simulation (M&S) of NLWs in warfighter training/war gaming models and performance effects data collection/population to demonstrate/analyze NL effects and optimize training.			
FY 2014 Plans: Continue modeling and simulation (M&S) of NLWs in warfighter training/war gaming models and performance effects data collection/population to demonstrate/analyze NL effects and optimize training.			
Title: *Evaluations of NLWs.	1.531	2.250	3.414
Articles:	0	0	0
FY 2012 Accomplishments: Continued evaluation of NLWs by Service warfighting laboratories and Joint Staff, J7, Joint and Coalition Warfighting for direct user feedback of various non-lethal (NL) technologies and munitions to include policy and strategy and strategic communication.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603851M: *Joint Non-Lethal Weapons Testing*	PROJECT 2319: *Non-Lethal Weapons*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue evaluation of NLWs by Service warfighting laboratories and Joint Staff, J7, Joint and Coalition Warfighting for direct user feedback of various non-lethal (NL) technologies and munitions to include policy and strategy and strategic communication. ***FY 2014 Plans:*** Continue evaluation of NLWs by Service warfighting laboratories and Joint Staff, J7, Joint and Coalition Warfighting for direct user feedback of various non-lethal (NL) technologies and munitions to include policy and strategy and strategic communication.			
Title: *JNLW Program's execution oversight and technologies database support. ***Articles:*** ***FY 2012 Accomplishments:*** Continued execution oversight, administration and support of the Joint NLW Program and technologies database. ***FY 2013 Plans:*** Continue execution oversight, administration and support of the Joint NLW Program and technologies database. The increase in this line item for FY2013 and out reflects funding for the operation of the JNLWD, previously funded in the O&M,MC appropriation. ***FY 2014 Plans:*** Continue execution oversight, administration and support of the Joint NLW Program and technologies database.	3.790 0	6.998 0	6.050 0
Title: *Program Support of the Joint NLW Program. ***Articles:*** ***FY 2012 Accomplishments:*** Continued program support efforts for each Service's coordination and participation in the Joint NLW Program. This includes SOCOM and USCG. ***FY 2013 Plans:*** Continue program support efforts for each Service's coordination and participation in the Joint NLW Program. This includes SOCOM and USCG. ***FY 2014 Plans:*** Continue program support efforts for each Service's coordination and participation in the Joint NLW Program. This includes SOCOM and USCG. Increases to this line item supports Service pre-milestone A combat development requirements documentation.	2.221 0	2.425 0	4.649 0
Title: *Active Denial Technology (ADT) Transition. ***Articles:*** ***FY 2012 Accomplishments:***	1.000 0	1.045 0	1.975 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603851M: *Joint Non-Lethal Weapons Testing*	PROJECT 2319: *Non-Lethal Weapons*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continued maturation of active denial technologies to increase system efficiencies and reduce system size, weight and cost in preparation for transition to joint acquisition programs of record. ***FY 2013 Plans:*** Continue maturation of active denial technologies to increase system efficiencies and reduce system size, weight and cost in preparation for transition to joint acquisition programs of record. ***FY 2014 Plans:*** Continue maturation of active denial technologies to increase system efficiencies and reduce system size, weight and cost in preparation for transition to joint acquisition programs of record.			
Title: *JNLW Emerging Technologies ***Articles:***	15.447 0	16.120 0	16.440 0
FY 2012 Accomplishments: Continued the advanced development of a wide range of Counter-Personnel and Counter-Materiel emerging technologies in directed energy and kinetic weapons and munitions to support Combatant Commands and Service capability gaps and priorities. This line item funds maturing technology transitions from advanced technology development efforts. Accomplishments included demonstrations for vehicle stopping technologies such as Distributed Sound and Light Array and Multi-Frequency Radio Frequency (RF) Vehicle Stopper, vessel stopping technologies such as Non-Lethal UAV High Powered Microwave Payload, and counter-personnel options designed to hail, warn, suppress and/or disable such as Harbinger and Kibosh. ***FY 2013 Plans:*** Continue the advanced development of a wide range of Counter-Personnel and Counter-Materiel emerging technologies in directed energy and kinetic weapons and munitions to support Combatant Commands and Service capability gaps and priorities. This line item funds maturing technology transitions from advanced technology development efforts. ***FY 2014 Plans:*** Continue the advanced development of a wide range of Counter-Personnel and Counter-Materiel emerging technologies in directed energy and kinetic weapons and munitions to support Combatant Commands and Service capability gaps and priorities. This line item funds maturing technology transitions from advanced technology development efforts.			
Title: *System development and Design of technology development. ***Articles:***	3.664 0	4.508 0	5.039 0
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603851M: *Joint Non-Lethal Weapons Testing*	PROJECT 2319: *Non-Lethal Weapons*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continued system development and design of technology development downselected items to proceed into the acquisition cycle to provide NL technology solutions to critical joint mission tasks. ***FY 2013 Plans:*** Continue system development and design of technology development downselected items to proceed into the acquisition cycle to provide NL technology solutions to critical joint mission tasks. ***FY 2014 Plans:*** Continue system development and design of technology development downselected items to proceed into the acquisition cycle to provide NL technology solutions to critical joint mission tasks.			
Title: *Develop/expand the NATO Measures of Effectives (MOE) efforts. ***Articles:*** ***FY 2012 Accomplishments:*** Continued to develop/expand the NATO Measures of Effectives (MOE) efforts, chaired by the U.S. to provide input for Defense Capabilities Initiative (DCI) and NATO assessment of NLW in the Defense planning process. Expanded interaction with combatant commander (COCOM) staffs to identify emerging NLW capabilities and their utility in theater operations and Homeland Security missions. ***FY 2013 Plans:*** Continue to develop/expand the NATO Measures of Effectives (MOE) efforts, chaired by the U.S. to provide input for Defense Capabilities Initiative (DCI) and NATO assessment of NLW in the Defense planning process. Expanded interaction with combatant commander (COCOM) staffs to identify emerging NLW capabilities and their utility in theater operations and Homeland Security missions. ***FY 2014 Plans:*** Continue to develop/expand the NATO Measures of Effectives (MOE) efforts, chaired by the U.S. to provide input for Defense Capabilities Initiative (DCI) and NATO assessment of NLW in the Defense planning process. Expanded interaction with combatant commander (COCOM) staffs to identify emerging NLW capabilities and their utility in theater operations and Homeland Security missions.	1.981 0	2.070 0	2.200 0
Title: *Mission Payload Module Non Lethal Weapon System ***Articles:*** ***FY 2012 Accomplishments:***	4.664 0	2.134 0	2.624 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603851M: *Joint Non-Lethal Weapons Testing*	PROJECT 2319: *Non-Lethal Weapons*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continued development of a tube launched NL munition for integration on HMMWVs, tactical vehicles, boats and ships, with a range of 25-150 meters Threshold (T) and 25 - 500 meters Objective (O). Accomplishments included release of the request for proposal for the EMD phase, system requirement review, and a technology readiness review. ***FY 2013 Plans:*** Continue development of a tube launched NL munition for integration on HMMWVs, tactical vehicles, boats and ships, with a range of 25-150 meters (T) and 25 - 500 meters (O). Finalize system design and conduct pre-developmental test activities to determine system readiness for developmental testing. ***FY 2014 Plans:*** Continue development of a tube launched NL munition for integration on HMMWVs, tactical vehicles, boats and ships, with a range of 25-150 meters (T) and 25 - 500 meters (O). Conduct developmental testing activities, conduct Functional Configuration Audit (FCA) and System Verification Review, and Operational Assessment (OA) to prepare for the Initial Operational Testing and Evaluation following a favorable Milestone C.			
Title: *Joint Integration Program (JIP). ***Articles:***	0.600 0	0.600 0	0.600 0
FY 2012 Accomplishments: Continued to select and test newly developed commercial products that may meet the Joint Service requirements for specific NL capability set common items. Evaluations included the following COTS items; Soft Stop Barriers, Non-Lethal Range Requirements for human exposure, and Crew Served Bright White Lights. ***FY 2013 Plans:*** Continue to select and test newly developed commercial products that may meet the Joint Service requirements for specific NL capability set common items. ***FY 2014 Plans:*** Continue to select and test newly developed commercial products that may meet the Joint Service requirements for specific NL capability set common items.			
Title: *Studies and Analysis ***Articles:***	4.189 0	5.588 0	6.011 0
FY 2012 Accomplishments: Continued medical and NL casualty data research and collection; human effects assessments; acceptability analysis; and technical studies/ analysis of emerging technologies for possible NL application. Human Effects Studies and Assessments			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603851M: *Joint Non-Lethal Weapons Testing*	PROJECT 2319: *Non-Lethal Weapons*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
included continued analysis on Kibosh, Harbinger, and Active Denial Technologies (ADT) Beam Characterization, as well as assessment of methodology used in the determination of Non-Lethal Risk of Significant Injury for multiple munitions and systems. ***FY 2013 Plans:*** Continue medical and NL casualty data research and collection; human effects assessments; acceptability analysis; and technical studies/ analysis of emerging technologies for possible NL application. ***FY 2014 Plans:*** Continue medical and NL casualty data research and collection; human effects assessments; acceptability analysis; and technical studies/ analysis of emerging technologies for possible NL application.			
Accomplishments/Planned Programs Subtotals	40.189	44.994	51.178

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The JNLW Program strategy is to continue to pursue the fielding of NLW systems through modifying Commercial-Off-The-Shelf (COTS) products for near term capabilities and the development of new technology NLW systems in various stages of acquisition. These are balanced with efforts in modeling and simulation, experimentation, and state-of-the-art technology investment. The acquisition strategy for each weapon system is largely Lead Service dependent. The JNLWP provides RDT&E funding while the Services are responsible for procurement and operations and maintenance funding. For complex development programs, such as directed energy research, JNLWP RDT&E funds will support each Service's RDT&E joint application efforts.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603851M: *Joint Non-Lethal Weapons Testing*	PROJECT 2319: *Non-Lethal Weapons*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NLW Product Development	MIPR	ARDEC:Picatinny, NJ	41.188	5.311	Oct 2011	2.500	Oct 2012	3.500	Oct 2013	-		3.500	0.000	52.499	
NLW Product Development	MIPR	SOCOM:McDill AFB, FL	14.177	3.697	Oct 2011	3.500	Oct 2012	4.200	Oct 2013	-		4.200	0.000	25.574	
NLW Product Development	Various	NSWC:Various	19.155	2.941	Oct 2011	4.460	Oct 2012	6.750	Oct 2013	-		6.750	0.000	33.306	
NLW Product Development	MIPR	USAF:Eglin AFB, FL	16.964	0.000		0.000		0.000		-		0.000	0.000	16.964	
NLW Product Development	MIPR	USAF:Kirtland AFB, NM	22.061	4.035	Oct 2011	1.500	Oct 2012	2.975	Oct 2013	-		2.975	0.000	30.571	
NLW Product Development	MIPR	USAF:Ft. Sam Houston AFB, TX	49.623	0.000		3.500	Oct 2012	4.500	Oct 2013	-		4.500	0.000	57.623	
NLW Product Development	MIPR	JWCF:Fort Monroe, VA	12.157	0.000		0.000		0.000		-		0.000	0.000	12.157	
NLW Product Development	Various	MCSC:Quantico, VA	16.487	4.664	Oct 2011	5.000	Oct 2012	5.483	Oct 2013	-		5.483	Continuing	Continuing	Continuing
NLW Product Development	MIPR	NSMA:Arlington, VA	24.277	0.000		0.000		0.000		-		0.000	0.000	24.277	
NLW Product Development	C/CPFF	MCLB:Albany, GA	8.316	0.000		0.000		0.000		-		0.000	0.000	8.316	
NLW Product Development	MIPR	M&S:Various	16.910	1.208	Oct 2011	1.500	Oct 2012	1.500	Oct 2013	-		1.500	0.000	21.118	
NLW Product Development	Various	JIP:Various	12.512	0.600	Oct 2011	0.600	Oct 2012	0.600	Oct 2013	-		0.600	0.000	14.312	
NLW Product Development	Various	Uniformed Services:Various	103.778	15.633	Oct 2011	17.023	Oct 2012	15.670	Oct 2013	-		15.670	0.000	152.104	
		Subtotal	357.605	38.089		39.583		45.178		0.000		45.178			

Remarks

Joint Program funds are distributed amongst the USA, USAF, USN, USMC, SOCOM, and USCG in support of NLW research and development efforts. Each Cost Category Item does not correlate to an individual project/effort. They fund multiple non-lethal projects/efforts that are incrementally funded throughout the fiscal year as each service identifies the project/effort requiring funding. October award dates reflect the start of incremental funding and does not indicate that the full amount will be awarded in October.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603851M: *Joint Non-Lethal Weapons Testing*	PROJECT 2319: *Non-Lethal Weapons*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NLW Support Cost	WR	MCSC:Quantico, VA	10.871	0.000		0.000		0.000		-		0.000	0.000	10.871	
NLW Support Cost	WR	NSWC:Dahlgren, VA	12.998	1.400	Oct 2011	0.600	Oct 2012	0.600	Oct 2013	-		0.600	0.000	15.598	
NLW Support Cost	Various	Various:Various	30.426	0.700	Oct 2011	4.811	Feb 2013	5.400	Feb 2014	-		5.400	15.900	57.237	
		Subtotal	54.295	2.100		5.411		6.000		0.000		6.000	15.900	83.706	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MPM T&E Cost	Various	Various:Various	3.553	0.000		0.000		0.000		-		0.000	0.000	3.553	
		Subtotal	3.553	0.000		0.000		0.000		0.000		0.000	0.000	3.553	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	415.453	40.189		44.994		51.178		0.000		51.178			

Remarks

Joint Program funds are distributed amongst the USA, USAF, USN, USMC, SOCOM, and USCG in support of NLW research and development efforts. Each Cost Category Item does not correlate to an individual project/effort. They fund multiple non-lethal projects/efforts that are incrementally funded throughout the fiscal year as each service identifies the project/effort requiring funding. October award dates reflect the start of incremental funding and does not indicate that the full amount will be awarded in October.

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603851M: *Joint Non-Lethal Weapons Testing*	PROJECT 2319: *Non-Lethal Weapons*

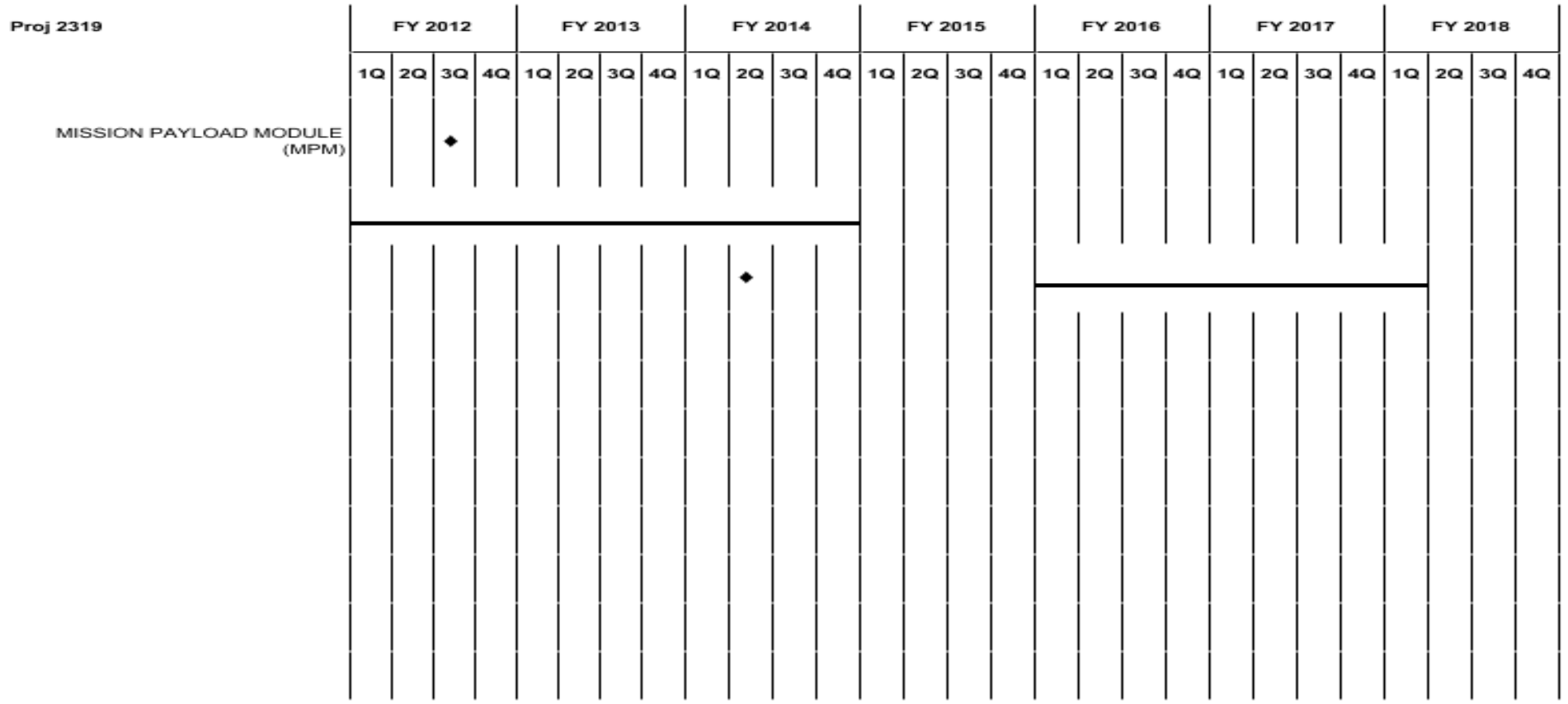


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603851M: *Joint Non-Lethal Weapons Testing*	**PROJECT** 2319: *Non-Lethal Weapons*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2319				
MISSION PAYLOAD MODULE (MPM): MS B	3	2012	3	2012
MISSION PAYLOAD MODULE (MPM): ENGINEERING AND MANUFACTURING PHASE	1	2012	4	2014
MISSION PAYLOAD MODULE (MPM): MS C	2	2014	2	2014
MISSION PAYLOAD MODULE (MPM): PRODUCTION AND DEPLOYMENT PHASE	1	2016	1	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	578.093	95.097	137.369	205.615	-	205.615	196.665	257.393	281.736	229.585	Continuing	Continuing
2329: *JPALS*	542.699	70.397	78.364	41.992	-	41.992	19.178	23.848	18.677	18.347	Continuing	Continuing
3228: *JPALS 1B*	35.394	24.700	59.005	117.424	-	117.424	129.436	199.575	232.578	189.556	Continuing	Continuing
3354: *JPALS Inc 2*	0.000	0.000	0.000	46.199	-	46.199	48.051	33.970	30.481	21.682	Continuing	Continuing
MDAP/MAIS Code(s): 238												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Joint Precision Approach and Landing System (JPALS) is an Acquisition Category ID program with joint partners for requirements and acquisition including the USAF, USN/USMC, USA, USCG, and the Federal Aviation Administration (FAA). JPALS development includes an incremental approach employing a family of systems (FoS) to ensure joint, allied, coalition and FAA / International Civil Aviation Organization interoperability. JPALS is the next generation global positioning system (GPS)-based precision approach and landing system for the DoD. It will replace several aging and obsolete aircraft landing systems with a FoS that provide a rapidly deployable, adverse weather, adverse terrain, day/night precision approach and landing capability for fixed and rotary wing manned and unmanned aircraft. Operating environments include fixed or permanent ground facilities, expeditionary facilities, and shipboard.

The JPALS program was established in response to the Joint Mission Needs Statement (MNS) for Precision Approach and Landing Capability (PALC), which was approved by the Chief of Naval Operations on 28 July 1994 and the Chief of Staff of the Air Force on 8 August 1994. The PALC MNS was validated by the Joint Requirements Oversight Council (JROC) on 29 August 1995. Army Joint Service participation was included in the 28 May 1996 Principal Deputy Under Secretary of Defense (Acquisition and Technology) Milestone 0 Acquisition Decision Memorandum, which also designated the Air Force as the Lead Service. In March 2004, the JPALS Overarching Integrated Program Team determined that the MNS should be converted to an Initial Capabilities Document (ICD). The JPALS ICD was approved by the JROC on 19 September 2005. On 16 March 2007, the JROCM approved the JPALS Capability Development Document and designated the Navy as the Lead Service. The Analysis of Alternatives was finalized in 3Q FY2007. Milestone B was met 14 July 2008. At Milestone B, the Milestone Decision Authority separated Increment (Inc) 1 into Inc 1A and Inc 1B. On 19 January 2010, the JROC approved Inc 2 for the Land-Based System and designated the Air Force as the lead component for the Land-Based System.

In December, 2012, the Department transferred responsibility for development and funding for JPALS Increment 2 from the Air Force to the Navy. JPALS Increment 2 will reach milestone B in 1Q FY 2015.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	118.255	137.369	154.833	-	154.833
Current President's Budget	95.097	137.369	205.615	-	205.615
Total Adjustments	-23.158	0.000	50.782	-	50.782
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-20.524	0.000			
• SBIR/STTR Transfer	-2.634	0.000			
• Program Adjustments	0.000	0.000	51.971	-	51.971
• Rate/Misc Adjustments	0.000	0.000	-1.189	-	-1.189

Change Summary Explanation

Technical: Not applicable.

Schedule:

2329: JPALS Inc 1A project schedule updated to clarify Engineering Development Model (EDM) deliveries and adjust IOC and RDT&E LRIP delivery schedule by one quarter. JPALS MS C, LRIP contract award, and LRIP deliveries were moved by several quarters to accommodate a delay in the CVN 77 availability and a re-phasing of the program by the Department.

3228: JPALS Inc 1B schedule has been updated to reflect recent program changes within the Department.

Financial:

2329: Added FY14 funding for JPALS Prime contractor EAC growth.

3228: FY12 funding was reprogrammed for higher Service priorities.

3354: Added FY 14 funding to reflect the transfer of funding and the development of JPALS Increment 2 from the Air Force to the Navy.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 2329: *JPALS*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2329: *JPALS*	542.699	70.397	78.364	41.992	-	41.992	19.178	23.848	18.677	18.347	Continuing	Continuing
Quantity of RDT&E Articles	2	6	2	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Joint Precision Approach and Landing System (JPALS) Increment 1A provides for development, integration, installation, and test of Sea-Based JPALS on all air capable ships and air stations ashore, in accordance with the JPALS Capability Development Document (CDD). This effort includes the build and test of Ship Global Positioning System/Inertial Navigation System based precision approach and landing systems to replace obsolete AN/SPN-46, AN/SPN-42, and AN/SPN-35 Systems. This requirement supports the JPALS Integration on CVN/LHA/LHD-class ships and establishes requirements for air integration, and provides critical enabling technology for Joint Strike Fighter (JSF)F-35 A/B/C, Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) and FIRESCOUT Unmanned Air System (UAS). Includes risk reduction efforts and trade studies for DDG-1000 and all other Air Capable Ships (ACS).

JPALS Engineering Development Model (EDM) test articles will be delivered to support system development and demonstration, as follows:

FY12 - 6 EDMs for Shipboard Testing (CVN+LHD/LHA)
FY13 - 2 RDT&E LRIPs for Shipboard Testing (CVN/LHD)

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: JPALS Engineering and Manufacturing Development (EMD) Increment 1A - Shipboard	70.397	78.364	41.992
Articles:	6	2	0
Description: JPALS Increment 1A provides for development, integration, installation, and test of Sea-Based JPALS.			
FY 2012 Accomplishments: Continued IT 1-3 and Operational Assessment test events. Six Engineering and Development Models (EDMS) delivered.			
FY 2013 Plans: Conduct shipboard integrated testing and perform Operational Assessment. Establish ashore training capability in support of F-35 Development Test (DT). Includes funding for 2 RDT&E LRIPS which will be obligated in second quarter FY14.			
FY 2014 Plans: Attain Milestone C and award LRIP contract. Continue shore based testing and support of F-35 DT. Award RDT&E LRIP contract.			
Accomplishments/Planned Programs Subtotals	70.397	78.364	41.992

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 2329: *JPALS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN: *JPALS*	0.000	0.000	0.000		0.000	22.134	48.473	47.473	46.117	60.334	224.531

Remarks

D. Acquisition Strategy

Technology Development phase was conducted jointly by NAVAIRSYSCOM (PMA213), USAF Electronic Systems Command (Global Air) and multiple industry partners. This effort provided the concept of operations, performance specifications and technology readiness levels necessary to provide the foundation from which to launch the Increment 1 System Development and Demonstration (SDD) phase development. In March 2007, overall joint program leadership transferred from the USAF to the USN. The JPALS 1A phase reached MS B on 14 July 2008 and the SDD phase development contract was awarded on 17 July 2008. Tasking consists of seabased JPALS, related ship and airborne reference systems, end-to-end software algorithms, necessary ship installation hardware, test equipment, system simulation software, and other RDT&E deliverable products to the joint team. The SDD contract was decided after full and open competition. An updated JPALS Acquisition Strategy separated Increment 1 into two Increments (Inc 1A and Inc 1B). JPALS Increment 1A will be developed by the Navy with an open system architecture in order to facilitate the compatible integration of many different aircraft and avionics architectures. The Navy is lead service for the Joint Program and lead component for Increment 1. JPALS Increment 1A provides for development, integration, installation, and test of Sea-Based JPALS to meet IOC of all air capable ships, in accordance with the JPALS Capability Development Document. Additionally, this requirement supports the JPALS Integration on CVN/LHA/LHD-class ships, air stations ashore, and provides critical enabling technology for Joint Strike Fighter (JSF)F-35 A/B/C and ship-based Unmanned Air Systems (UAS).

E. Performance Metrics

MS B conducted 17 July 2008 and approval granted for program progression to Engineering and Manufacturing Development (EMD) phase. Preliminary Design Review conducted first quarter FY 2010. Critical Design Review conducted first quarter FY2011. EDM 2 Delivery completed fourth quarter FY2011. EDM 3 - 8 deliveries completed third quarter FY2012. MS C scheduled for 1st quarter FY2014.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 2329: *JPALS*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Integration	WR	NAWCAD:Pax River, MD	20.841	2.500	Dec 2011	1.141	Dec 2012	1.777	Dec 2013	-		1.777	0.000	26.259	
Primary Hardware Development	C/CPAF	Raytheon:Fullerton, CA	224.530	38.474	Jan 2012	26.617	Jan 2013	14.226	Jan 2014	-		14.226	0.000	303.847	308.699
Ship Integration - LRIP	WR	NAWCAD:Pax River, MD	0.000	0.000		2.740	Dec 2012	2.679	Dec 2013	-		2.679	0.000	5.419	
LRIP 1 Contract	TBD	Raytheon:Fullerton, CA	0.000	0.000		13.538	Mar 2014	0.112	Dec 2013	-		0.112	0.000	13.650	13.650
Award Fee	C/CPAF	Various:Various	8.068	2.000	Jan 2012	0.000		0.000		-		0.000	0.000	10.068	10.068
Prior Year Prod Dev costs no longer funded in FYDP	Various	Various:Various	130.650	0.000		0.000		0.000		-		0.000	0.000	130.650	
		Subtotal	384.089	42.974		44.036		18.794		0.000		18.794	0.000	489.893	

Remarks

The Primary Hardware Development contract with Raytheon is a combined CPAF and CPIF contract.
Period 4A (21 November 2011 - 20 November 2012) Paid out in December 2012 for 89.3% of potential award.

FY2014 LRIP contract award in 2nd Qtr of FY14 will be funded with FY13 RDT&E.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering Support-EMD	WR	NAWCAD:Pax River, MD	31.453	8.080	Dec 2011	13.367	Dec 2012	3.058	Dec 2013	-		3.058	0.000	55.958	
Integrated Logistics Support	WR	NAWCAD:Pax River, MD	11.091	3.302	Dec 2011	3.980	Dec 2012	2.299	Dec 2013	-		2.299	0.000	20.672	
Prior Year Support costs no longer funded in FYDP	Various	Various:Various	21.514	0.000		0.000		0.000		-		0.000	0.000	21.514	
		Subtotal	64.058	11.382		17.347		5.357		0.000		5.357	0.000	98.144	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 2329: *JPALS*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD:Pax River, MD	29.154	5.020	Dec 2011	7.180	Dec 2012	1.852	Dec 2013	-		1.852	0.000	43.206	
Operational Test & Evaluation	WR	COMOPTEVFOR:Norfolk, VA	1.709	0.390	Dec 2011	0.510	Dec 2012	3.666	Dec 2013	-		3.666	0.000	6.275	
LRIP Certification	WR	NAWCAD:Pax River, MD	0.000	0.000		0.000		2.083	Dec 2013	-		2.083	0.000	2.083	
		Subtotal	30.863	5.410		7.690		7.601		0.000		7.601	0.000	51.564	

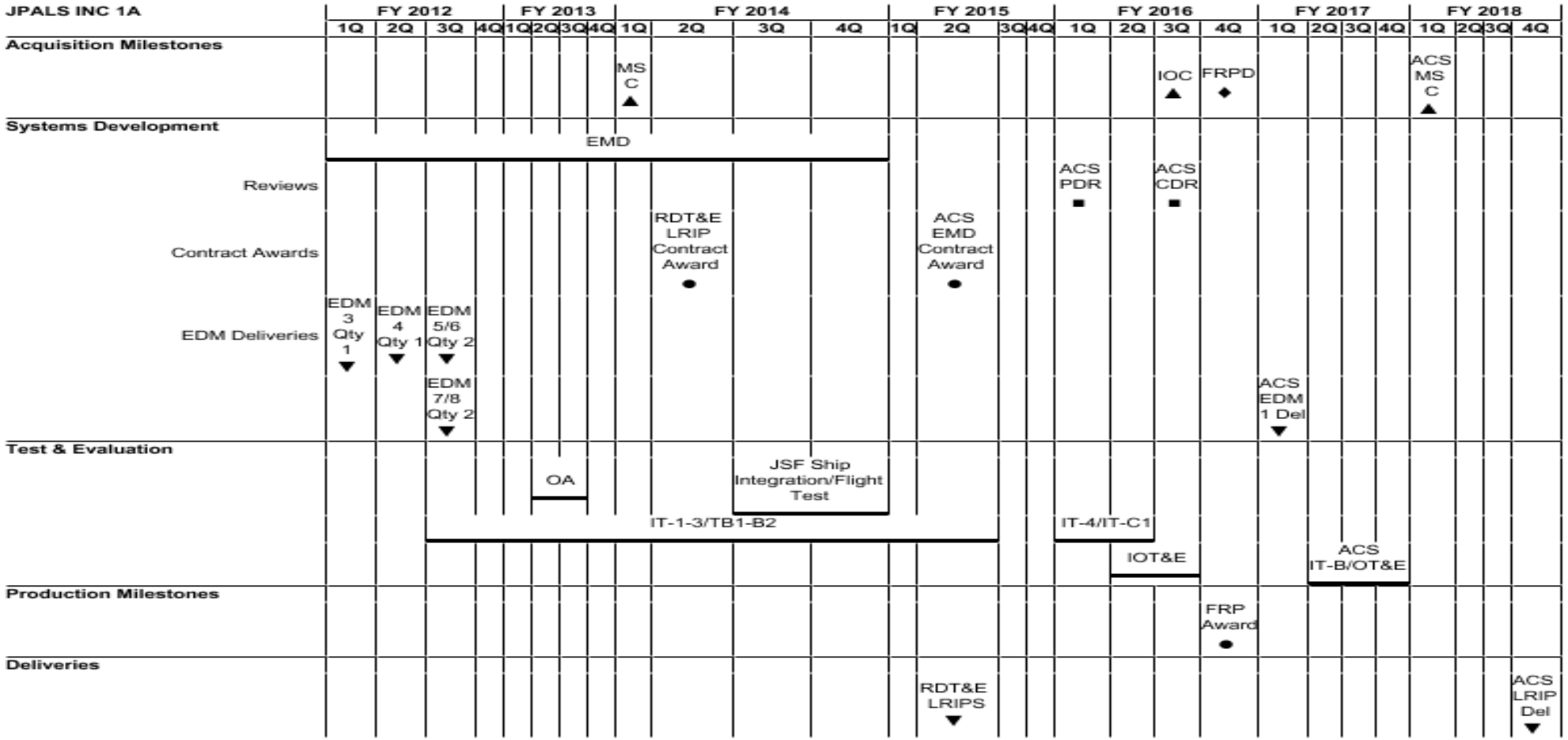
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCAD:Pax River, MD	44.814	7.400	Dec 2011	5.654	Dec 2012	3.908	Dec 2013	-		3.908	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCAD:Pax River, MD	9.107	1.102	Dec 2011	2.301	Dec 2012	3.982	Dec 2013	-		3.982	0.000	16.492	
PM Support-MSS	C/CPFF	Amelex:California, MD	7.425	1.764	Dec 2011	1.126	Dec 2012	1.955	Dec 2013	-		1.955	0.000	12.270	12.270
Travel	WR	NAVAIR:Pax River, MD	2.343	0.365	Dec 2011	0.210	Dec 2012	0.395	Dec 2013	-		0.395	0.000	3.313	
		Subtotal	63.689	10.631		9.291		10.240		0.000		10.240			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	542.699	70.397		78.364		41.992		0.000		41.992			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 2329: *JPALS*



2014PB - 0603860N - 2329

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603860N: *JT Precision Approach & Ldg Sys*	**PROJECT** 2329: *JPALS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
JPALS INC 1A				
Acquisition Milestones: MS C	1	2014	1	2014
Acquisition Milestones: IOC	3	2016	3	2016
Acquisition Milestones: Full Rate Production Decision	4	2016	4	2016
Acquisition Milestones: ACS MS C	1	2018	1	2018
Systems Development: Engineering and Manufacturing Development	1	2012	4	2014
Systems Development: Reviews: ACS PDR	1	2016	1	2016
Systems Development: Reviews: ACS CDR	3	2016	3	2016
Systems Development: Contract Awards: RDT&E LRIP Contract Award	2	2014	2	2014
Systems Development: Contract Awards: ACS EMD Contract Award	2	2015	2	2015
Systems Development: EDM Deliveries: EDM 3 Delivery	1	2012	1	2012
Systems Development: EDM Deliveries: EDM 4 Delivery	2	2012	2	2012
Systems Development: EDM Deliveries: EDM 5 /6 Delivery	3	2012	3	2012
Systems Development: EDM Deliveries: EDM 7/8 Delivery	3	2012	3	2012
Systems Development: EDM Deliveries: ACS EDM 1 Delivery	1	2017	1	2017
Test & Evaluation: JSF Ship Integration / Flight Test F35/JSF	3	2014	4	2014
Test & Evaluation: Operational Assessment (OA)	2	2013	3	2013
Test & Evaluation: IT-1-3 /ITB1-B2	3	2012	2	2015
Test & Evaluation: IT-4/IT-C1	1	2016	2	2016
Test & Evaluation: Initial Operational Test and Evaluation (IOT&E)	2	2016	3	2016
Test & Evaluation: ACS IT-B/OT&E	2	2017	4	2017
Production Milestones: Full Rate Production (FRP) Contract Award	4	2016	4	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 2329: *JPALS*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Deliveries: RDT&E LRIP Delivery Qty 2	2	2015	2	2015
Deliveries: ACS LRIP Del	4	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3228: *JPALS 1B*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3228: *JPALS 1B*	35.394	24.700	59.005	117.424	-	117.424	129.436	199.575	232.578	189.556	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Joint Precision Approach and Landing System Increment 1B, beginning in FY10, provides for integration and testing into the avionics of the Carrier (CVN) & LH Air Wings, including but not limited to: C-2A, F/A-18E/F, EA-18G, MH-60R/S, and E-2D. This is the first phase of the air integration of JPALS onto all sea based USN aircraft. Additionally, trade studies and risk reduction activities will be pursued on additional sea based USN/USMC aircraft, to include MV-22, CH-53K, UH-1Y and MQ-8.

JPALS 1B underwent a significant program replan due to funding cuts and Service reprioritizations. The replan shifted a significant amount of integration work away from platform Original Equipment Manufacturers (OEMs) to government led integration activities into the avionics required for JPALS, previously planned to start in FY13. C-2A provides the best multiplatform avionics development and test opportunities and is now the designated lead platform. JPALS is required on the Carrier (CVN) Airwing to support CVN 79 events in 2022, which will not be equipped with a AN/SPN-46 Automatic Carrier Landing System (ACLS).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Lead Platform Integration	16.850	38.196	77.153
Articles:	0	0	0
Description: This effort includes development, integration, and testing of the C-2A and related JPALS capable multiplatform avionics. JPALS Inc 1B provides the Navy with aircraft that are JPALS capable in 2022 and out in the CVN/LHA/LHD Air Wings.			
FY 2012 Accomplishments: Continued direct platform risk reduction activities and the risk reduction into multiplatform avionics to ensure a common or core JPALS Air System implementation.			
FY 2013 Plans: Initial design efforts for JPALS on C-2A. Conduct government laboratory testing of C-2A representative JPALS capable multiplatform avionics prototypes.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3228: *JPALS 1B*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue testing of JPALS capable multiplatform avionics Embedded Global Positioning System Inertial Navigation Systems (EGI) and ARC-210 GEN 5 prototypes in government labs to produce successful end-to-end system test results.			
Title: Follow-on Platform Integration	7.850	20.809	40.271
Articles:	0	0	0
Description: This effort includes development, integration, and testing of the F/A-18E/F, EA-18G, E-2D, and MH-60R/S, providing the Navy with aircraft that are JPALS capable in 2022 and out. Additionally, trade studies and risk reduction activities will be pursued on additional sea based USN/USMC manned aircraft and unmanned air systems. ***FY 2012 Accomplishments:*** Continued JPALS trade studies, risk reduction, and design activities for applicable CVN aircraft. ***FY 2013 Plans:*** Continue JPALS trade studies, risk reduction, and design activities for applicable CVN aircraft and Multi Platform Avionics. Conduct F/A-18 E/F and EA-18G SRR-2. ***FY 2014 Plans:*** Conduct F/A-18 E/F and EA-18G SFR. Continue JPALS trade studies, risk reduction, development of platform specifications, aircraft Original Equipment Manufacturers collaboration, and design activities for applicable CVN aircraft. Conduct F/A-18 E/F and EA-18G SFR.			
Accomplishments/Planned Programs Subtotals	24.700	59.005	117.424

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• APN/0573: *JPALS*	0.000	0.000	0.000		0.000	0.000	0.000	24.600	44.700	2,710.200	2,779.500

Remarks

D. Acquisition Strategy

JPALS Technology Development phase was conducted jointly by NAVAIRSYSCOM (PMA213), USAF Electronic Systems Command (Global Air), and multiple industry partners. This effort provided the concept of operations, performance specifications and technology readiness levels necessary to provide the foundation from which to launch the Increment 1 System Development and Demonstration phase development. The Navy is lead service for the Joint Program and lead component for Increment 1. The JPALS capability will be incrementally acquired based on technology maturity and service needs. An updated JPALS Acquisition Strategy separates Increment 1 into two Increments (Inc 1A and Inc 1B). JPALS Increment 1A provides for development, integration, installation, and test of Sea Based JPALS. JPALS

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3228: *JPALS 1B*

Increment 1B provides for integration and testing into the avionics of the CVN/LHA/LHD Air Wings. JPALS Inc 1B will consist of the procurement of airborne systems that are modifications or upgrades to original equipment manufacturer aircraft and integration to existing avionics.

E. Performance Metrics

Milestone B scheduled for 4Q15/1QFY16. C-2A PDR scheduled for 2QFY15.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3228: *JPALS 1B*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Integration-Non Specific	Various	Various:Various	4.781	0.166	Jan 2012	0.610	Mar 2013	0.601	Mar 2014	-		0.601	0.628	6.786	6.786
Aircraft Integration-multi-Platform Avionics	Various	Various:Various	0.150	9.088	Jul 2012	10.151	Jun 2013	22.323	Jun 2014	-		22.323	75.419	117.131	117.131
Aircraft Integration-JPALS Capable Avionics Integration	Various	Various:Various	0.000	0.000		13.632	Mar 2013	20.056	Mar 2014	-		20.056	14.210	47.898	47.898
Aircraft Integration-F/A-18E/F & EA-18G	SS/CPIF	Boeing:St. Louis, MO	7.543	0.272	Jan 2012	12.130	Jan 2013	22.940	Jan 2014	-		22.940	180.997	223.882	224.934
Aircraft Integration-MH-60R/S	SS/CPIF	Lockheed Martin:Owego, NY	8.595	0.000		0.500	Mar 2013	7.352	Mar 2014	-		7.352	119.381	135.828	136.278
Aircraft Integration-F/A-18 E/F & EA-18G	WR	NAWCAD:China Lake, CA	0.020	0.066	Dec 2011	0.085	Dec 2012	1.480	Dec 2013	-		1.480	61.150	62.801	
Aircraft Integration-MH-60R/S	SS/CPIF	Sikorsky:Stratford, CT	0.644	0.000		0.000		2.262	Apr 2014	-		2.262	62.385	65.291	65.291
Aircraft Integration-E-2D	SS/CPFF	Northrop Grumman:Bethpage, NY	0.000	0.000	Jan 2012	0.408	Apr 2013	2.252	Apr 2014	-		2.252	148.798	151.458	151.458
Aircraft Integration-C-2A	SS/FFP	Rockwell Collins:Cedar Rapids, IA	0.298	0.000		0.204	Jan 2013	5.870	Jan 2014	-		5.870	65.794	72.166	72.166
Aircraft Integration-C-2A	SS/FFP	Honeywell:Clearwater, FL	0.653	0.000		0.167	Jan 2013	2.218	Jan 2014	-		2.218	5.922	8.960	8.960
Aircraft Integration-C-2A	WR	SSC PAC:San Diego, CA	0.115	0.091	Dec 2011	0.082	Jan 2013	0.886	Jan 2014	-		0.886	3.296	4.470	
Aircraft Integration-C-2A	WR	FRC SW:San Diego, CA	0.083	0.093	Dec 2011	0.082	Jan 2013	0.886	Jan 2014	-		0.886	3.296	4.440	
		Subtotal	22.882	9.776		38.051		89.126		0.000		89.126	741.276	901.111	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3228: *JPALS 1B*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NAWCAD:Pax River, MD	0.881	0.242	Nov 2011	2.280	Dec 2012	3.076	Dec 2013	-		3.076	17.549	24.028	
Engineering Support	WR	NAWCAD:Pax River, MD	6.936	8.931	Nov 2011	13.570	Dec 2012	16.520	Dec 2013	-		16.520	92.246	138.203	
		Subtotal	7.817	9.173		15.850		19.596		0.000		19.596	109.795	162.231	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD:Pax River, MD	0.456	0.224	Nov 2011	0.534	Dec 2012	3.459	Dec 2013	-		3.459	115.219	119.892	
Operational Test & Evaluation	WR	COMOPTEVFOR:Norfolk, VA	0.000	0.000		0.000		0.000		-		0.000	21.203	21.203	
		Subtotal	0.456	0.224		0.534		3.459		0.000		3.459	136.422	141.095	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCAD:Pax River, MD	0.554	1.603	Nov 2011	0.534	Dec 2012	0.732	Dec 2013	-		0.732	Continuing	Continuing	Continuing
PM Support	WR	NAWCAD:Pax River, MD	3.035	3.394	Nov 2011	3.049	Dec 2012	3.479	Dec 2013	-		3.479	18.304	31.261	
PM Support-MSS	C/CPFF	Amelex:California, MD	0.650	0.530	Jan 2012	0.987	Jan 2013	1.032	Jan 2014	-		1.032	7.103	10.302	10.302
		Subtotal	4.239	5.527		4.570		5.243		0.000		5.243			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	35.394	24.700		59.005		117.424		0.000		117.424			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3228: *JPALS 1B*	

	All Prior Years	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3228: *JPALS 1B*

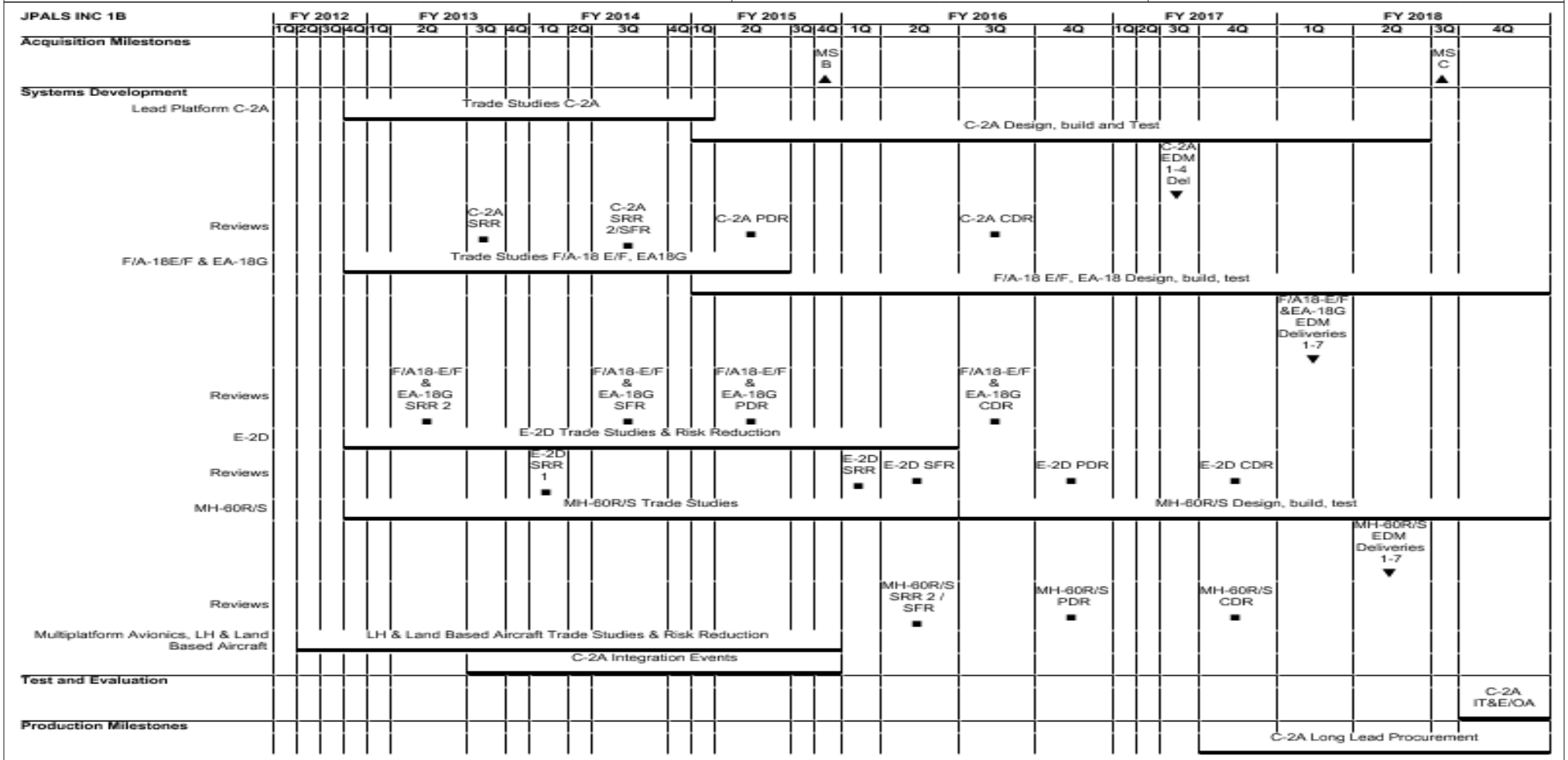


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3228: *JPALS 1B*



Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3228: *JPALS 1B*

Schedule Details

	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
JPALS INC 1B				
Acquisition Milestones: Milestone B	4	2015	4	2015
Acquisition Milestones: Milestone C	3	2018	3	2018
Systems Development: Lead Platform C-2A: C-2A Trade Studies and Risk Reduction	4	2012	1	2015
Systems Development: Lead Platform C-2A: C-2A Design, build, test	1	2015	2	2018
Systems Development: Lead Platform C-2A: C-2A Engineering Development Model (EDM) Deliveries 1-4	3	2017	3	2017
Systems Development: Reviews: C-2A SRR 2 / SFR (System Functional Review)	3	2014	3	2014
Systems Development: Reviews: C-2A SRR 1	3	2013	3	2013
Systems Development: Reviews: C-2A Preliminary Design Review (PDR)	2	2015	2	2015
Systems Development: Reviews: C-2A Critical Design Review (CDR)	3	2016	3	2016
Systems Development: F/A-18E/F & EA-18G: Trade Studies F/A-18E/F, EA-18G	4	2012	2	2015
Systems Development: F/A-18E/F & EA-18G: F/A-18 E/F, EA-18 Design, build, test	1	2015	4	2018
Systems Development: F/A-18E/F & EA-18G: F/A18-E/F &EA-18G EDM Deliveries 1-7	1	2018	1	2018
Systems Development: Reviews: F/A18-E/F & EA-18G SRR 2	2	2013	2	2013
Systems Development: Reviews: F/A18-E/F & EA-18G PDR	2	2015	2	2015
Systems Development: Reviews: F/A18-E/F & EA-18G CDR	3	2016	3	2016
Systems Development: Reviews: F/A-18-E/F & EA-18G SFR	3	2014	3	2014
Systems Development: E-2D: E-2D Trade Studies & Risk Reduction	4	2012	2	2016
Systems Development: Reviews: E-2D SRR 1	1	2014	1	2014
Systems Development: Reviews: E-2D SRR	1	2016	1	2016
Systems Development: Reviews: E-2D SFR	2	2016	2	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3228: *JPALS 1B*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Systems Development: Reviews: E-2D Preliminary Design Review (PDR)	4	2016	4	2016
Systems Development: Reviews: E-2D Critical Design Review (CDR)	4	2017	4	2017
Systems Development: MH-60R/S: MH-60R/S Trade Studies	4	2012	2	2016
Systems Development: MH-60R/S: MH-60R/S Design, build, test	3	2016	4	2018
Systems Development: MH-60R/S: MH-60R/S EDM Deliveries 1-4	2	2018	2	2018
Systems Development: Reviews: MH-60R/S SRR 2 / SFR	2	2016	2	2016
Systems Development: Reviews: MH-60R/S PDR	4	2016	4	2016
Systems Development: Reviews: MH-60R/S CDR	4	2017	4	2017
Systems Development: Multiplatform Avionics, LH & Land Based Aircraft: Multilplatform Avionics (MPA), LH & Land Based Aircraft Trade Studies & Risk Reduction	2	2012	4	2015
Systems Development: Multiplatform Avionics, LH & Land Based Aircraft: C-2A Integration Events MPA	3	2013	4	2015
Test and Evaluation: C-2A Initial Test and Evaluation (IT&E)/Operational Assessment (OA)	4	2018	4	2018
Production Milestones: C-2A Long Lead Procurement	4	2017	4	2018
Production Milestones: C-2A Low Rate Initial Production (LRIP) APN Procurement	4	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3354: *JPALS Inc 2*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3354: *JPALS Inc 2*	0.000	0.000	0.000	46.199	-	46.199	48.051	33.970	30.481	21.682	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program element provides for the development, integration, and testing of the Joint Precision Approach and Landing System (JPALS), Increment (Inc) 2. Inc 2 Land Based (LB) JPALS will mitigate the capability gaps identified in the Precision Approach and Landing Capability (PALC) Initial Capabilities Document (ICD). To be readily available to the Joint Force Commander, aviation assets need to operate in and out of airfields and landing areas across the range of military operations and in adverse weather conditions. Inc 2 LB JPALS will provide a joint, interoperable PALC for all aviation assets in conventional fixed-base and expeditionary operations. Inc 2 LB JPALS will provide guidance based on the aircraft's position in relation to the final approach course (azimuth), the glide path (elevation), and the distance (range) from the touchdown point on the runway or landing surface to enable a Category I precision approach and landing. The JPALS Capability Development Document (CDD) was approved 16 March 2007 and Annex A (Inc 2) was approved on 19 January 2010.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Navy Programmatic Expertise in support of the US Air Force JPALS Inc 2 Development	0.000	0.000	46.199
Articles:			0
Description: This effort includes programmatic support to the US Air Force for the development of the JPALS Inc 2 capability to provide joint, interoperable Precision Approach and Landing Capability for all aviation assets in conventional fixed-base and tactical operations.			
FY 2014 Plans: Begin primary hardware and software modification/engineering analysis and development. Initiation of Increment 1A Ashore Interim Training System development contract. Approval of Material Development Decision. Begin JPALS Increment 2 engineering studies and analysis. SRD finalization and RFP development.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	46.199

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3354: *JPALS Inc 2*

D. Acquisition Strategy

The JPALS capability is being delivered using an incremental acquisition approach employing Family of Systems architecture to ensure joint, allied, coalition and FAA/ICAO interoperability. The program is divided into incremental components based on technical limitations and service needs. JROCM dated 16 Mar 2007 designated the US Navy as the lead DoD component for JPALS implementation; however, JROCM dated 19 Jan 2010 designated the USAF as the Lead Component for Increment 2 - the Land Based initiative. Lead service and funding were transferred from the Air Force to the Navy in December 2012. The Inc 2 acquisition strategy focuses primarily on modifications to the Increment 1A ship system to minimize development costs and schedule, and maximize interoperability. The Inc 1A ship system will be minimally modified to provide a rapid, interim shore based Inc 1A capability, followed by modifications to provide full Inc 2 LB JPALS capability. All interim shore based systems will be upgraded to full Inc 2 LB JPALS capability. Inc 2 LB JPALS civil capability will follow the military capability in full cooperation and coordination with the Federal Aviation Administration.

E. Performance Metrics

Development initiation for the Inc 1A interim shore capability is scheduled for 1Q FY14. Material Development Decision for full Inc 2 LB capability development is scheduled for 1Q FY14.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3354: *JPALS Inc 2*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HW Dev	SS/CPIF	TBD:TBD	0.000	0.000		0.000		9.860	Oct 2013	-		9.860	22.841	32.701	32.701
Primary HW Dev - SW	SS/CPIF	TBD:TBD	0.000	0.000		0.000		13.997	Oct 2013	-		13.997	41.152	55.149	55.149
Systems Engineering	WR	NAWCAD:PAX River, MD	0.000	0.000		0.000		4.652	Dec 2013	-		4.652	12.530	17.182	
Training Development	WR	NAWCAD:PAX River, MD	0.000	0.000		0.000		0.300	Dec 2013	-		0.300	0.901	1.201	
LRIP Contract	SS/CPIF	TBD:TBD	0.000	0.000		0.000		0.000		-		0.000	9.633	9.633	9.633
		Subtotal	0.000	0.000		0.000		28.809		0.000		28.809	87.057	115.866	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NAWCAD:Pax River, MD	0.000	0.000		0.000		1.315	Dec 2013	-		1.315	3.764	5.079	
Government Engineering Support	WR	NAWCAD:PAX River, MD	0.000	0.000		0.000		1.174	Dec 2013	-		1.174	3.521	4.695	
Tech Data	WR	NAWCAD:PAX River, MD	0.000	0.000		0.000		0.850	Dec 2013	-		0.850	2.518	3.368	
Studies and Analyses	Various	Various:Various	0.000	0.000		0.000		0.974	Oct 2013	-		0.974	0.000	0.974	
		Subtotal	0.000	0.000		0.000		4.313		0.000		4.313	9.803	14.116	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development T&E	WR	NAWCAD:Pax River, MD	0.000	0.000		0.000		0.497	Dec 2013	-		0.497	21.500	21.997	
Operational T&E	WR	COMOPTEVFOR:Norfolk, VA	0.000	0.000		0.000		0.000	Dec 2013	-		0.000	4.100	4.100	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3354: *JPALS Inc 2*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Assets	WR	NAWCAD:Pax River, MD	0.000	0.000		0.000		6.940	Dec 2013	-		6.940	5.296	12.236	
LRIP Certification	WR	NAWCAD:Pax River, MD	0.000	0.000		0.000		0.000		-		0.000	1.100	1.100	
		Subtotal	0.000	0.000		0.000		7.437		0.000		7.437	31.996	39.433	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	Not Specified:Not Specified	0.000	0.000		0.000		4.290	Dec 2013	-		4.290	Continuing	Continuing	Continuing
PM Support MSS	C/CPFF	CTSi:Lexington Park, MD	0.000	0.000		0.000		1.350	Dec 2013	-		1.350	8.986	10.336	10.336
		Subtotal	0.000	0.000		0.000		5.640		0.000		5.640			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		46.199		0.000		46.199			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860N: *JT Precision Approach & Ldg Sys*	PROJECT 3354: *JPALS Inc 2*

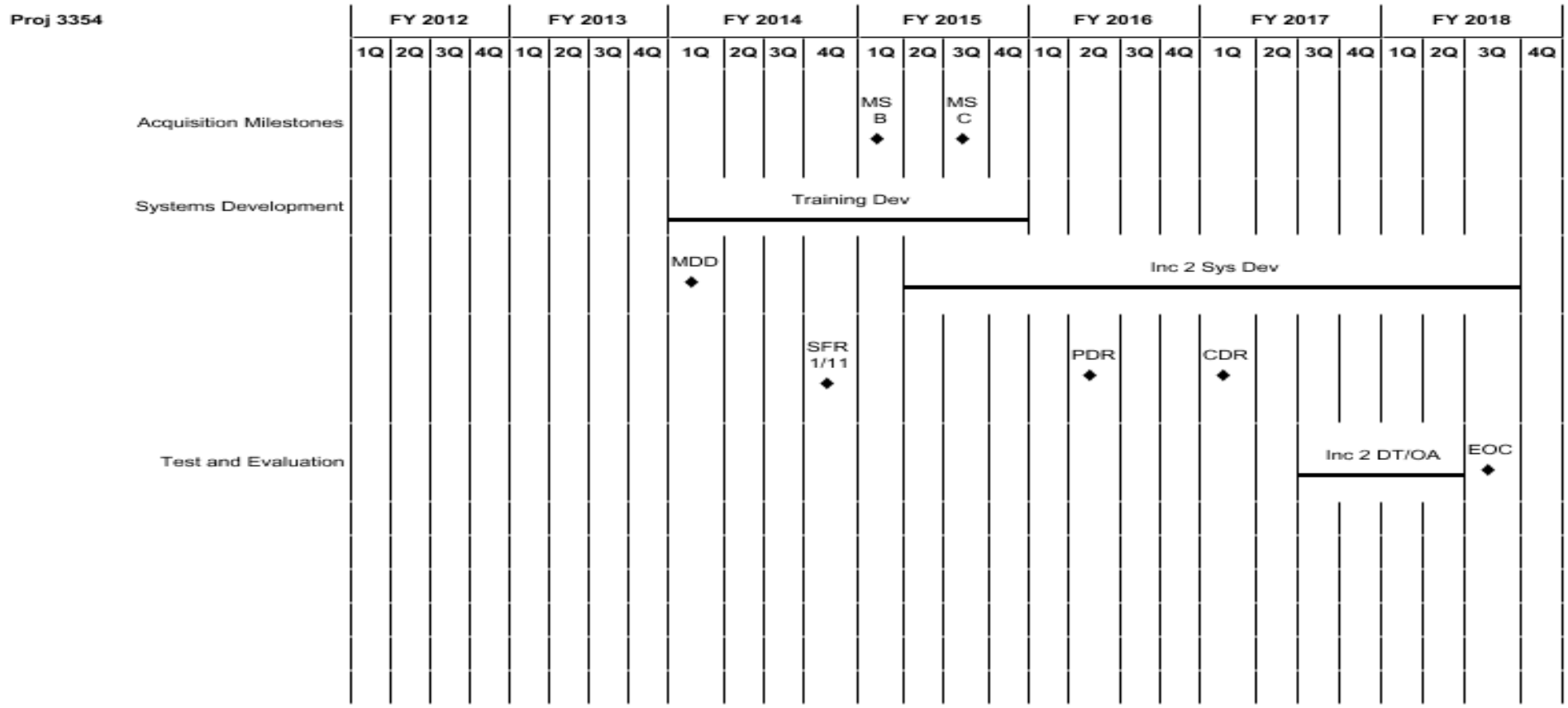


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603860N: *JT Precision Approach & Ldg Sys*	**PROJECT** 3354: *JPALS Inc 2*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3354				
Acquisition Milestones: Milestone B	1	2015	1	2015
Acquisition Milestones: Milestone C	3	2015	3	2015
Systems Development: Increment 1A Ashore Interim Training System Development	1	2014	4	2015
Systems Development: Increment 2 Material Development Decision	1	2014	1	2014
Systems Development: Inc 2 System Development	2	2015	3	2018
Systems Development: PDR	2	2016	2	2016
Systems Development: CDR	1	2017	1	2017
Systems Development: Inc 1 Ashore SFR 1/11	4	2014	4	2014
Test and Evaluation: Increment 2 Developmental Test/Operational Assemssment	3	2017	2	2018
Acquisition Milestones: Early Operational Capability	3	2018	3	2018

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603889N: *Counterdrug RDT&E Projects*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	7.354	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.354
2219: *Counterdrug RDTE Support*	0.000	7.354	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.354

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Counterdrug RDTE Projects Program mission is to develop and deploy technology that disrupts, deters, and denies the flow of drugs, people, information, money, and weapons related to narcoterrorism.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	7.354	0.000	0.000	-	0.000
Total Adjustments	7.354	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	7.622	0.000			
• SBIR/STTR Transfer	-0.268	0.000			

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603889N: *Counterdrug RDT&E Projects*	PROJECT 2219: *Counterdrug RDTE Support*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2219: *Counterdrug RDTE Support*	0.000	7.354	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.354
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Counterdrug RDT&E mission is to develop and deploy technology that disrupts, deters, and denies the flow of drugs, people, information, money and weapons related to narcoterrorism.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: New Accomplishment/Planned Program Entry	7.354	0.000	0.000
Articles:	0		
FY 2012 Accomplishments: N/A			
Accomplishments/Planned Programs Subtotals	7.354	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Competitive procurement through RDT&E Indefinite Delivery, Indefinite Quantity (IDIQ) Contract

E. Performance Metrics

The CNTPO program goal is to identify and respond to R&D requirements that support ongoing counter narcoterrorism missions being conducted by the Department of Defense, other Federal agencies, partner nations and State and local authorities. CNTPO will conduct studies, analyses and experimentation in both laboratory and non-laboratory environments to support the DoD strategy for disrupting, deterring, and denying the flow of drugs, people, information, money and weapons related to illegal drug trafficking and narcoterrorism.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603889N: *Counterdrug RDT&E Projects*	PROJECT 2219: *Counterdrug RDTE Support*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Tools	WR	Naval Post Graduate School:Monterey, CA	0.000	0.402	Sep 2012	0.000		0.000		-		0.000	0.000	0.402	
Software Tools Development	C/IDIQ	Space and Missile Defense Command:Huntsville, AL	0.000	1.799	Mar 2013	0.000		0.000		-		0.000	0.000	1.799	
Enhanced Radar Processing	TBD	GSA:TBD	0.000	0.350	Sep 2013	0.000		0.000		-		0.000	0.000	0.350	
TBD	Various	TBD:TBD	0.000	3.792	Sep 2013	0.000		0.000		-		0.000	0.000	3.792	
		Subtotal	0.000	6.343		0.000		0.000		0.000		0.000	0.000	6.343	

Remarks

Development of prototype sensors related to detection and monitoring of narcotics trafficking activities. Development of software tools to aid counter narcotics organizations in the collection and analysis of data related to narcotics activities. Remaining $3,792K marked as TBD is awaiting final approval from OSD.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	WR	NSWC/DD:Dahlgren, VA	0.000	0.356	Oct 2012	0.000		0.000		-		0.000	0.000	0.356	
RDT&E Support	C/CPFF	Millenium Engineering and Integration (MEI):Arlington, VA	0.000	0.230	Jan 2013	0.000		0.000		-		0.000	0.000	0.230	
TBD	TBD	TBD:TBD	0.000	0.425	Sep 2013	0.000		0.000		-		0.000	0.000	0.425	
		Subtotal	0.000	1.011		0.000		0.000		0.000		0.000	0.000	1.011	

Remarks

Performance or and/or witnessing of tests and demonstrations of emerging technologies or of prototype systems. Evaluation of benefits and drawbacks of emerging technologies. Remaining $425K marked as TBD is awaiting final approval from OSD.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603889N: *Counterdrug RDT&E Projects*	PROJECT 2219: *Counterdrug RDTE Support*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	7.354		0.000		0.000		0.000		0.000	0.000	7.354	

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	48.207	71.738	73.934	37.227	-	37.227	38.092	38.637	39.540	40.186	210.072	597.633
3302: *JATAS*	48.207	71.738	69.535	30.584	-	30.584	4.190	0.000	0.000	0.000	0.000	224.254
3304: *CIRCM*	0.000	0.000	4.399	6.643	-	6.643	33.902	38.637	39.540	40.186	210.072	373.379

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This element includes development of electronic warfare systems for the United States Navy and United States Marine Corps assault and strike aircraft. This includes the development and testing of advanced Infrared Countermeasures systems for emerging threats and emergency contingencies. Realignment of project units from Tactical Aircraft Directed Infrared Countermeasures to Joint and Allied Threat Awareness System began in FY 2011. Common Infrared Countermeasures is a new start for the Navy with efforts to begin in FY 2013.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	64.097	73.934	37.609	-	37.609
Current President's Budget	71.738	73.934	37.227	-	37.227
Total Adjustments	7.641	0.000	-0.382	-	-0.382
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	9.068	0.000			
• SBIR/STTR Transfer	-1.427	0.000			
• Program Adjustments	0.000	0.000	-0.080	-	-0.080
• Rate/Misc Adjustments	0.000	0.000	-0.302	-	-0.302

Change Summary Explanation

Schedule: 3302 Changes are as follows JATAS: Milestone C from 1st Qtr 2014 to 2nd Qtr 2014; Contractor TRR from 4th Qtr 2012 to 2nd Qtr 2013.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*

Changes in JATAS Engineering Development Model (EDM) deliveries are as follows: EDM Qual Test Comp deliveries from 4th Qtr 2012 to 2nd Qtr 2013.

3304 CIRCM MS-B moved from 3Q FY2013 to 1Q FY2015 and MS-C moved from 3Q FY2015 to 2Q FY 2017. The original dates were place holder while the Army worked toward a MS"A" decision. When the TD contract was awarded, the Army had to work through a protest period of 3.5 months. When the protest was completed and the team was ready to move forward with the TD phase, the final schedule approved by the Army PM has MS"B" in 1Q15. While it was hope to get a MS"B" decision in FY14 it was not smart to have the decision placed in the final quarter of the year. The PM made the decision to move the Milestone to 1Q FY15. Based on the EMD contract award, MS"C" is planned for 2Q17. The budget was updated with the current information once released by the Army.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3302: *JATAS*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3302: *JATAS*	48.207	71.738	69.535	30.584	-	30.584	4.190	0.000	0.000	0.000	0.000	224.254
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Joint and Allied Threat Awareness System (JATAS AN/AAR-59) is required to provide assault aircraft with a reliable and improved surface-to-air Infrared (IR) missile/Hostile Fire Indication (HFI) threat detection system. This capability must provide accurate and timely warning in all flight regimes, ambient light conditions, clutter backgrounds and weather conditions. It must be capable of providing countermeasure cueing to flares and/or a Directional Infrared Countermeasures (DIRCM). JATAS will enable assault Aircraft Survivability Equipment to detect and provide countermeasure cueing for current and emerging threats. Lead Department of the Navy platform for this capability is the MV-22. Project was previously funded by the Tactical Aircraft Directed Infrared Countermeasure (TADIRCM) project unit. JATAS has been designated an ACAT IC program.

PU 3302 JATAS began in FY 2011. Prior year efforts (FY 2008 - FY 2010) were funded via PU 3040 TADIRCM.

In FY 2012, JATAS has been assigned a system nomenclature of AN/AAR-59.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Joint and Allied Threat Awareness System (JATAS AN/AAR-59) EMD	56.753	57.422	29.090
Articles:	0	0	0
Description: Continue Engineering and Manufacturing Development (EMD) phase and provide required program support for EMD phase. ***FY 2012 Accomplishments:*** Conduct Critical Design Review (CDR), Contractor Test Readiness Review (TRR), and began delivery of Engineering Development Model units to support contractor test and development. ***FY 2013 Plans:*** Conduct Government TRR, Maintenance Demonstration, and Integrated Test & Evaluation (IT&E). ***FY 2014 Plans:*** Continue IT&E, IOT&E, and achieve Milestone C (MS C)			
Title: Joint and Allied Threat Awareness System (JATAS AN/AAR-59) Integration	14.985	12.113	1.494

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3302: *JATAS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0	0	0
Description: Provide platform integration support and JATAS A-kit development. ***FY 2012 Accomplishments:*** Conduct A-kit Preliminary Design Review and CDR. ***FY 2013 Plans:*** Complete development of A-kits to support IT&E. ***FY 2014 Plans:*** Continue IT&E and IOT&E.			
Accomplishments/Planned Programs Subtotals	71.738	69.535	30.584

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• (APN) 0204161N/0576: *JATAS AN/AAR-59*	0.000	0.000	17.355		17.355	17.530	19.513	109.294	115.401	894.621	1,173.714

Remarks

D. Acquisition Strategy

A JATAS Capabilities Development Document (CDD) was approved in a Joint Requirements Oversight Council Memorandum dated 18 February 2011. Per the CDD, the JATAS will be an advanced Missile Warning System (MWS) designed to replace the legacy AN/AAR-47(V) MWS and increase the survivability of Marine Corps and Navy tilt-rotor and rotary wing aircraft against infrared threats. Additionally, the system will provide aircrew with warnings of laser-enabled weapon systems such as range finders, illuminators, and beam riders. The JATAS will interface with existing AN/ALE-47 Countermeasures Dispensing System, existing AN/APR-39 Radar Warning Receiver, existing Department of the Navy Large Aircraft Infrared Countermeasure system, and other compatible Directed Infrared Countermeasures systems as part of an integrated electronic countermeasures response to attacking infrared missiles. Additionally, the JATAS will provide Hostile Fire Indication (HFI) of small arms, rockets and other unguided threats and provide situational awareness in Visually Degraded Environments. Per the CDD, JATAS will be developed in two increments. Increment I (Phase I) includes the missile and laser warning capabilities and cueing of countermeasure systems. Increment I (Phase II) adds HFI capability against Type I and III threats during the Engineering and Manufacturing Development phase of this program. Increment II, when future technology advancements and funding permit, will develop HFI capability against Type II threats. The Joint and Allied Threat Awareness System (JATAS) Engineering and Manufacturing Development (EMD) phase is being executed via a Fixed Price Incentive Firm (FPIF) contract over an approximate 48-month period of performance, with one FPIF option for the low-rate initial production lot and Firm-Fixed Price (FFP) options for the first seven full-rate production lots. A JATAS Technology

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3302: *JATAS*

Development phase contract was awarded in FY2009 and the EMD contract was awarded in 4th Quarter FY2011. JATAS Initial Operational Capability is planned for FY2015.

E. Performance Metrics

JATAS EMD contract awarded in fourth quarter FY 2011.

JATAS Integrated Baseline Review (IBR) was approved 2nd Quarter FY 2012.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3302: *JATAS*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Dev JATAS I	C/CPIF	ATK:Clearwater, FL	8.209	0.000		0.000		0.000		-		0.000	0.000	8.209	8.209
Primary Hdw Dev JATAS I	C/CPIF	LM:Woodland Hills, CA	6.130	0.000		0.000		0.000		-		0.000	0.000	6.130	6.130
Primary Hdw Dev JATAS II	C/FPIF	ATK:Clearwater, FL	18.300	47.421	Nov 2011	35.518	Jun 2013	11.432	Nov 2013	-		11.432	1.438	114.109	114.109
Aircraft Integration JATAS II	C/CPIF	Bell-Boeing:Philadelphia, PA	3.801	7.926	Jun 2012	12.141	Jun 2013	1.494	Feb 2014	-		1.494	0.083	25.445	25.445
Modeling/Simulation JATAS	WR	NAWCWD:Point Mugu, CA	0.355	0.000		0.071	Dec 2012	0.000		-		0.000	0.000	0.426	
Sys Eng Govt JATAS	WR	NAWCAD:Pax River, MD	2.224	3.000	Dec 2011	5.084	Dec 2012	2.644	Dec 2013	-		2.644	0.300	13.252	
Sys Eng Govt JATAS	WR	FRC:Jacksonville, FL	0.093	0.075	Dec 2011	0.000		0.075	Dec 2013	-		0.075	0.000	0.243	
		Subtotal	39.112	58.422		52.814		15.645		0.000		15.645	1.821	167.814	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Configuration Mgmt JATAS	WR	NAWCAD:Pax River, MD	0.000	0.200	Dec 2011	0.000		0.000		-		0.000	0.000	0.200	
Integrated Logistics JATAS I	WR	Various:Various	0.727	0.256	Dec 2011	0.628	Dec 2012	0.413	Dec 2013	-		0.413	0.000	2.024	
Integrated Logistics JATAS II	C/CPFF	Wyle Labs:Huntsville, AL	0.473	0.355	Jun 2012	0.253	Jun 2013	0.515	Jun 2014	-		0.515	0.000	1.596	1.596
Sw Dev JATAS	WR	NAWCWD:Point Mugu, CA	0.490	0.553	Dec 2011	2.326	Dec 2012	0.937	Dec 2013	-		0.937	0.315	4.621	
		Subtotal	1.690	1.364		3.207		1.865		0.000		1.865	0.315	8.441	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3302: *JATAS*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental T&E JATAS	WR	Various:Various	0.000	2.846	Dec 2011	9.162	Dec 2012	6.229	Dec 2013	-		6.229	0.034	18.271	
Operational T&E JATAS	WR	COTF:Norfolk, VA	0.200	0.195	Jan 2012	0.015	Dec 2012	0.419	Jan 2014	-		0.419	0.180	1.009	
ENG & Eval JATAS	C/CPFF	Various:Various	0.000	0.367	Dec 2011	0.127	Dec 2012	0.266	Dec 2013	-		0.266	0.134	0.894	0.894
ENG & Eval Govt JATAS	WR	Various:Various	1.534	0.893	Jan 2012	0.322	May 2013	4.463	Jan 2014	-		4.463	0.285	7.497	
Test Assets JATAS	WR	NAWCWD:China Lake, CA	0.000	3.900	Sep 2012	0.000		0.000		-		0.000	0.000	3.900	
		Subtotal	1.734	8.201		9.626		11.377		0.000		11.377	0.633	31.571	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Eng Supt JATAS	C/CPFF	Various:Various	1.210	0.331	Dec 2011	0.269	Dec 2012	0.225	Dec 2013	-		0.225	0.340	2.375	2.375
Govt Eng Supt JATAS	WR	NAWCWD:Point Mugu, CA	2.006	1.842	Dec 2011	2.754	Dec 2012	0.717	Dec 2013	-		0.717	0.976	8.295	
Program Mgmt Supt JATAS	C/CPFF	Various:Various	1.200	0.880	Dec 2011	0.000		0.635	Dec 2013	-		0.635	0.000	2.715	2.715
Travel JATAS	WR	NAVAIR:Various	0.150	0.150	Dec 2011	0.150	Dec 2012	0.120	Dec 2013	-		0.120	0.105	0.675	
Direct Support Costs JATAS	WR	Various:Various	0.016	0.000		0.000		0.000		-		0.000	0.000	0.016	
Cost Analysis Supt JATAS	WR	NAWCAD:Pax River, MD	0.895	0.420	Dec 2011	0.715	May 2013	0.000		-		0.000	0.000	2.030	
NAWCAD Pax Supt JATAS	WR	NAWCAD:Pax River, MD	0.194	0.128	Dec 2011	0.000		0.000		-		0.000	0.000	0.322	
		Subtotal	5.671	3.751		3.888		1.697		0.000		1.697	1.421	16.428	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3302: *JATAS*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	48.207	71.738		69.535		30.584		0.000		30.584	4.190	224.254	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	**PROJECT** 3302: *JATAS*

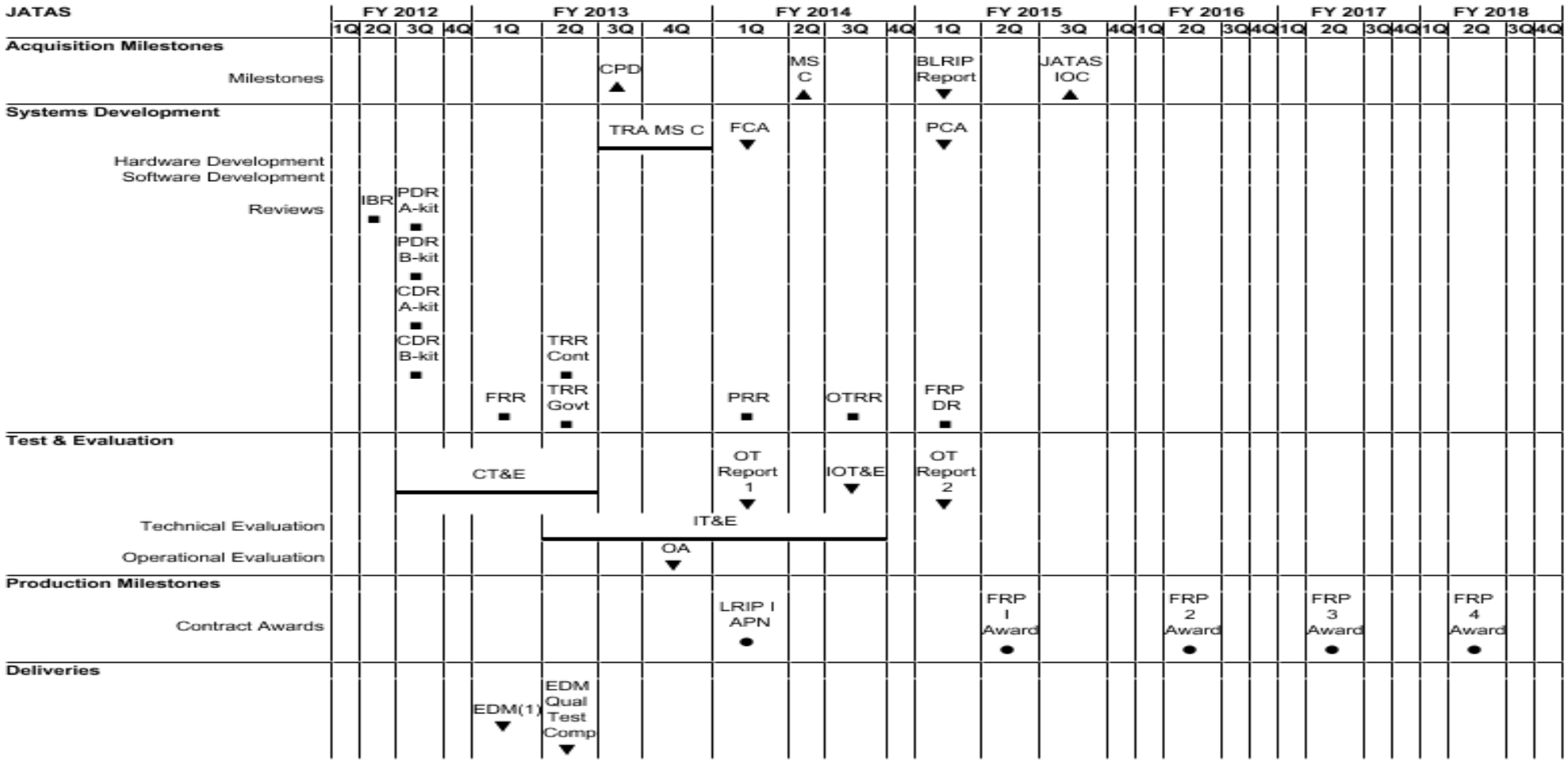
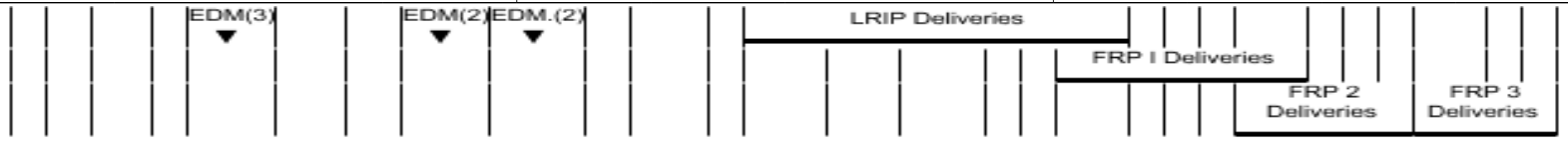


Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3302: *JATAS*



2014PB - 0604272N - 3302

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3302: *JATAS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
JATAS				
Acquisition Milestones: Milestones: Capabilities Production Document (CPD)	3	2013	3	2013
Acquisition Milestones: Milestones: Milestone C	2	2014	2	2014
Acquisition Milestones: Milestones: Beyond Low-Rate Initial Production Report (BLRIP)	1	2015	1	2015
Acquisition Milestones: Milestones: Joint and Allied Threat Awareness System (JATAS) Initial Operational Capability (IOC)	3	2015	3	2015
Systems Development: Technology Readiness Assessment for Milestone C (TRA MS C)	3	2013	4	2013
Systems Development: Functional Configuration Audit (FCA)	1	2014	1	2014
Systems Development: Physical Configuration Audit (PCA)	1	2015	1	2015
Systems Development: Reviews: Integrated Baseline Review IBR	2	2012	2	2012
Systems Development: Reviews: Preliminary Design Review (PDR) - A-kit	3	2012	3	2012
Systems Development: Reviews: Preliminary Design Review (PDR) - B-kit	3	2012	3	2012
Systems Development: Reviews: Critical Design Review (CDR) - A-kit	3	2012	3	2012
Systems Development: Reviews: Critical Design Review (CDR) - B-kit	3	2012	3	2012
Systems Development: Reviews: Test Readiness Review - Contractor (TRR Cont)	2	2013	2	2013
Systems Development: Reviews: Test Readiness Review - Government (TRR Govt)	2	2013	2	2013
Systems Development: Reviews: Flight Readiness Review (FRR)	1	2013	1	2013
Systems Development: Reviews: Production Readiness Review (PRR)	1	2014	1	2014
Systems Development: Reviews: Operational Test Readiness Review (OTRR)	3	2014	3	2014
Systems Development: Reviews: Full Rate Production Decision Review (FRP DR)	1	2015	1	2015
Test & Evaluation: Contractor Test and Evaluation (CT&E)	3	2012	2	2013
Test & Evaluation: OT Report 1 (OT)	1	2014	1	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3302: *JATAS*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test & Evaluation: Independent Operational Test and Evaluation (IOT&E)	3	2014	3	2014
Test & Evaluation: OT Report 2 (OT)	1	2015	1	2015
Test & Evaluation: Technical Evaluation: Initial Test and Evaluation (IT&E)	2	2013	3	2014
Test & Evaluation: Operational Evaluation: Operational Assessment (OA)	4	2013	4	2013
Production Milestones: Contract Awards: Low-Rate Initial Production (LRIP) I (APN)	1	2014	1	2014
Production Milestones: Contract Awards: Full Rate Production (FRP) I Award	2	2015	2	2015
Production Milestones: Contract Awards: Full Rate Production (FRP) 2 Award	2	2016	2	2016
Production Milestones: Contract Awards: Full Rate Production (FRP) 3 Award	2	2017	2	2017
Production Milestones: Contract Awards: Full Rate Production (FRP) 4 Award	2	2018	2	2018
Deliveries: Engineering Development Model (EDM) Qual Test Comp Deliveries	2	2013	2	2013
Deliveries: Engineering Development Model (EDM) Deliveries (1)	1	2013	1	2013
Deliveries: Engineering Development Model (EDM) Deliveries (3)	1	2013	1	2013
Deliveries: Engineering Development Model (EDM) Deliveries(2)	4	2013	4	2013
Deliveries: Engineering Development Model (EDM) Deliveries (2)	1	2014	1	2014
Deliveries: Low-Rate Initial Production Deliveries	1	2015	2	2016
Deliveries: Full Rate Production (FRP) I Deliveries	2	2016	2	2017
Deliveries: Full Rate Production (FRP) 2 Deliveries	2	2017	1	2018
Deliveries: Full Rate Production (FRP) 3 Deliveries	2	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3304: *CIRCM*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3304: *CIRCM*	0.000	0.000	4.399	6.643	-	6.643	33.902	38.637	39.540	40.186	210.072	373.379
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Common Infrared CounterMeasures (CIRCM) is a new start for the Navy with efforts to begin in FY 2013. This project includes the development, integration, and testing of a laser-based directed infrared countermeasure system for United States Navy and United States Marine Corps assault aircraft. This infrared countermeasure, when integrated with a missile warning detection system, will be capable of countering current and emerging IR threats. An USD(AT&L) Acquisition Decision Memorandum dated 15 April 09 designated the Army as the lead service for developing this capability for all rotary-wing, tilt-rotor, and small fixed-wing aircraft across the Department of Defense. It also designated the program as an ACAT 1D Special Interest program. The Army has designated the acquisition effort for this capability as the CIRCM program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: CIRCM Technology Development (TD)	0.000	4.399	6.643
Articles:		0	0
FY 2013 Plans: Support TD phase and program support for CIRCM.			
FY 2014 Plans: Continue to Support TD phase and program support for CIRCM.			
Accomplishments/Planned Programs Subtotals	0.000	4.399	6.643

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

CIRCM is a new start for the Navy with efforts to begin in FY 2013. CIRCM is an ACAT-ID Army lead acquisition program for the development, integration and production of an Infra-red Countermeasure for US Army, US Navy, and US Marine Corps assault aircraft. The Army will conduct a 21 month competitive prototyping TD phase with two contractors. During this time the contractors will deliver twelve prototypes for various test events with emphasis placed on reliability. Contractor(s) will concurrently develop preliminary designs for the CIRCM system, conduct Systems Requirements Review, System Functional Review, and Preliminary Design

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3304: *CIRCM*

Review Systems Engineering Technical Review events at appropriate times in the schedule. Upon completion of TD, the Army will conduct a competition for award of Engineering Manufacturing Development (EMD) contract(s). The EMD phase will be no more than 26 months and will include Critical Design Reviews, Test Readiness Reviews, EMD test assets and extensive testing. Following EMD there will be a yet to be defined Low Rate Initial Production phase where full qualification testing is conducted to support a First Unit Equipped date of FY 2018.

E. Performance Metrics

FY 2013:

Successful demonstration of Common Infrared Countermeasures-Joint and Allied Threat Awareness System (CIRCM-JATAS) Initial Capabilities Document Interoperability in Lab environment

Successful award of Engineering and Manufacturing Develoment (EMD) contract(s)

FY 2014:

Successful Critical Design Reviews and Technical Readiness Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3304: *CIRCM*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HDW Dev CIRCM	TBD	TBD:TBD	0.000	0.000		0.000		1.985	Dec 2013	-		1.985	302.442	304.427	304.427
Sys Eng Govt CIRCM	WR	NAWCAD:Pax River, MD	0.000	0.000		2.225	Dec 2012	2.417	Dec 2013	-		2.417	19.175	23.817	
		Subtotal	0.000	0.000		2.225		4.402		0.000		4.402	321.617	328.244	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics CIRCM I	WR	Various:Various	0.000	0.000		0.310	Dec 2012	0.310	Dec 2013	-		0.310	4.500	5.120	
Integrated Logistics CIRCM II	C/CPFF	Wyle Labs:Huntsville, AL	0.000	0.000		0.163	Jun 2013	0.171	Jun 2014	-		0.171	4.500	4.834	4.834
SW Dev CIRCM	WR	NAWCWD:Point Mugu, CA	0.000	0.000		0.118	Dec 2012	0.120	Dec 2013	-		0.120	5.512	5.750	
		Subtotal	0.000	0.000		0.591		0.601		0.000		0.601	14.512	15.704	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Eng & Eval CIRCM	C/CPFF	TBD:TBD	0.000	0.000		0.206	Dec 2012	0.210	Dec 2013	-		0.210	1.250	1.666	1.666
Eng & Eval Govt CIRCM	WR	Various:Various	0.000	0.000		0.641	Jan 2013	0.675	Jan 2014	-		0.675	9.031	10.347	
		Subtotal	0.000	0.000		0.847		0.885		0.000		0.885	10.281	12.013	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3304: *CIRCM*

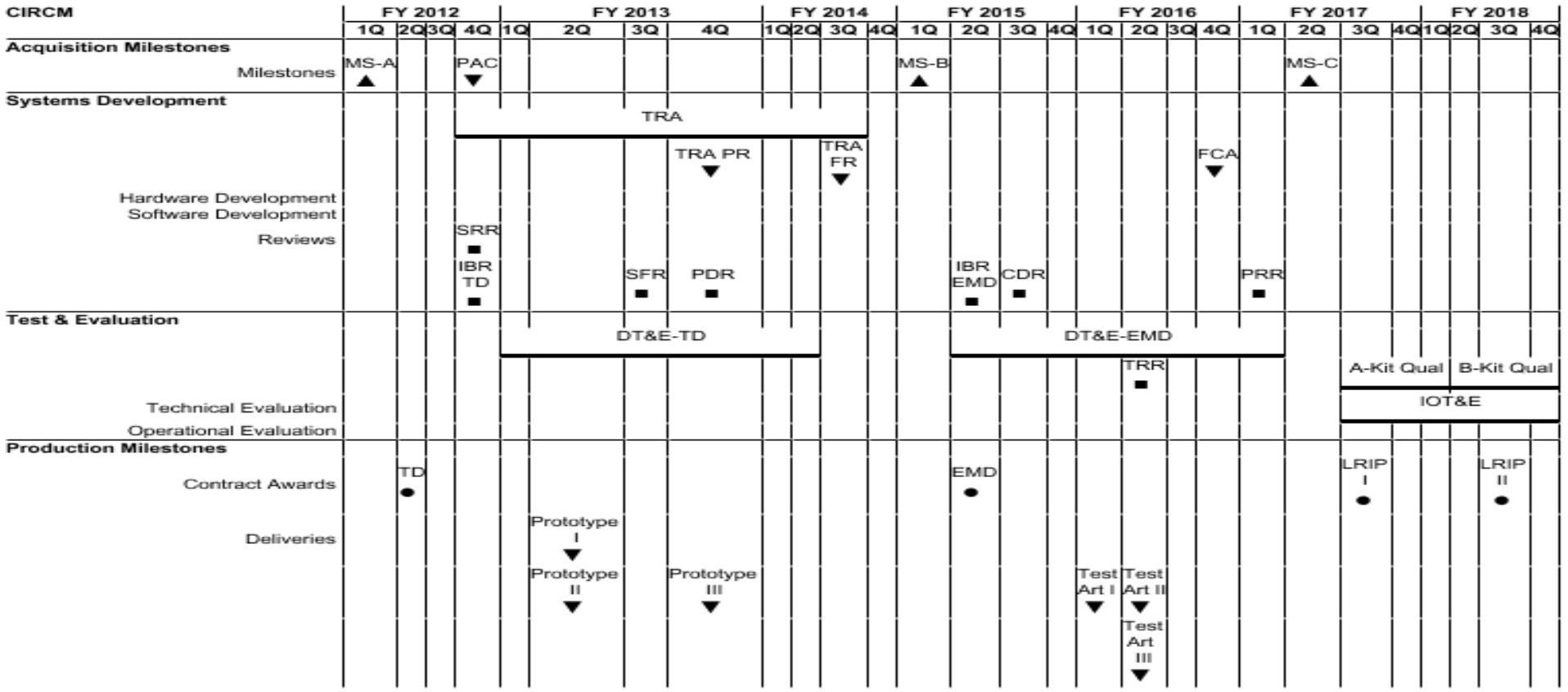
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Eng Supt CIRCM	C/CPFF	Various:Various	0.000	0.000		0.329	Dec 2012	0.340	Dec 2013	-		0.340	0.352	1.021	1.021
Govt Eng Supt CIRCM	WR	NAWCWD:Point Mugu, CA	0.000	0.000		0.118	Dec 2012	0.125	Dec 2013	-		0.125	11.250	11.493	
Travel CIRCM	WR	NAVAIR:Various	0.000	0.000		0.063	Dec 2012	0.060	Dec 2013	-		0.060	1.075	1.198	
Cost Analysis Supt CIRCM	WR	NAWCAD:Pax River, MD	0.000	0.000		0.226	Dec 2012	0.230	Dec 2013	-		0.230	3.250	3.706	
		Subtotal	0.000	0.000		0.736		0.755		0.000		0.755	15.927	17.418	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		4.399		6.643		0.000		6.643	362.337	373.379	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3304: *CIRCM*



2014PB - 0604272N - 3304

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3304: *CIRCM*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CIRCM				
Acquisition Milestones: Milestones: Milestone A (MS-A)	1	2012	1	2012
Acquisition Milestones: Milestones: Post Award Conference (PAC)	4	2012	4	2012
Acquisition Milestones: Milestones: Milestone B (MS-B)	1	2015	1	2015
Acquisition Milestones: Milestones: Milestone C (MS-C)	2	2017	2	2017
Systems Development: Technical Readiness Assessment (TRA)	4	2012	3	2014
Systems Development: Technical Readiness Assessment Preliminary Report (TRA PR)	4	2013	4	2013
Systems Development: Technical Readiness Assessment Final Report (TRA FR)	3	2014	3	2014
Systems Development: Functional Configuration Audit (FCA)	4	2016	4	2016
Systems Development: Reviews: System Requirements Review (SRR)	4	2012	4	2012
Systems Development: Reviews: Integrated Baseline Review (IBR TD)	4	2012	4	2012
Systems Development: Reviews: System Functional Review (SFR)	3	2013	3	2013
Systems Development: Reviews: Preliminary Design Review (PDR)	4	2013	4	2013
Systems Development: Reviews: Integrated Baseline Review (IBR EMD)	2	2015	2	2015
Systems Development: Reviews: Critical Design Review (CDR)	3	2015	3	2015
Systems Development: Reviews: Production Readiness Review (PRR)	1	2017	1	2017
Test & Evaluation: Developmental Test & Evaluation - TD (DT&E-TD)	1	2013	2	2014
Test & Evaluation: Developmental Test & Evaluation - EMD (DT&E-EMD)	2	2015	1	2017
Test & Evaluation: Test Readiness Review (TRR)	2	2016	2	2016
Test & Evaluation: A-Kit Qualification Test	3	2017	1	2018
Test & Evaluation: B-Kit Qualification Test	2	2018	4	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604272N: *Tact Air Dir Infrared CM (TADIRCM)*	PROJECT 3304: *CIRCM*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test & Evaluation: Technical Evaluation: Integrated Operational Test & Evaluation (IOT&E)	3	2017	4	2018
Production Milestones: Contract Awards: TD Contract Award	2	2012	2	2012
Production Milestones: Contract Awards: EMD Contract Award	2	2015	2	2015
Production Milestones: Contract Awards: LRIP I Contract Award	3	2017	3	2017
Production Milestones: Contract Awards: LRIP II Contract Award	3	2018	3	2018
Production Milestones: Deliveries: Prototype I Deliveries	2	2013	2	2013
Production Milestones: Deliveries: Prototype II Deliveries	2	2013	2	2013
Production Milestones: Deliveries: Prototype III Deviveries	4	2013	4	2013
Production Milestones: Deliveries: Test Article I Deliveries	1	2016	1	2016
Production Milestones: Deliveries: Test Article II Deliveries	2	2016	2	2016
Production Milestones: Deliveries: Test Article III Deliveries	2	2016	2	2016

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0604279N: *(U)ASE Self Protection Optimization*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	10.864	0.676	0.711	0.169	-	0.169	0.706	0.635	0.531	0.530	Continuing	Continuing
3308: *Technology Development*	0.000	0.461	0.474	0.080	-	0.080	0.384	0.344	0.281	0.283	Continuing	Continuing
3309: *Assault Survivability Optimization*	10.864	0.215	0.237	0.089	-	0.089	0.322	0.291	0.250	0.247	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This element includes development of Aircraft Survivability equipment and Electronic Warfare/Countermeasures solutions for the United States Navy, United States Marine Corps and Coalition Aircraft to include studies and evaluations of current and future aircraft threats, Modeling and Simulation for improved countermeasure capabilities, and development and testing to address new and emerging threats.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	0.697	0.711	0.426	-	0.426
Current President's Budget	0.676	0.711	0.169	-	0.169
Total Adjustments	-0.021	0.000	-0.257	-	-0.257
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.005	0.000			
• SBIR/STTR Transfer	-0.016	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.257	-	-0.257

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604279N: *(U)ASE Self Protection Optimization*	PROJECT 3308: *Technology Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3308: *Technology Development*	0.000	0.461	0.474	0.080	-	0.080	0.384	0.344	0.281	0.283	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Project Unit 3308 Technology Development: Funds efforts that focus on the quick reaction prototyping of tactical Electronic Warfare (EW)/Countermeasures solutions for increased survivability providing friendly forces the self protection necessary for successful mission accomplishment. This program directly addresses the operational requirement of multiple airborne platforms (Strike and Assault) for optimization of EW/Countermeasure solutions across the Department of the Navy. Improved countermeasure capabilities and techniques through Modeling and Simulation, validated in subsequent field testing to address new and emerging threats, capitalize upon upgrades to Aircraft Survivability Equipment systems capabilities for Strike and Assault platforms and evaluate new Radio Frequency Countermeasure & Infra Red Countermeasure technologies.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Technology Development	0.461	0.474	0.080
Articles:	0	0	0
FY 2012 Accomplishments: Begin studies and vulnerability analysis for EW programs.			
FY 2013 Plans: Continue studies and vulnerability analysis for EW programs.			
FY 2014 Plans: Continue studies and vulnerability analysis for EW Programs.			
Accomplishments/Planned Programs Subtotals	0.461	0.474	0.080

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

EW studies and vulnerability analyses will be conducted on strike and assualt aircraft across the FYDP.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604279N: *(U)ASE Self Protection Optimization*	PROJECT 3308: *Technology Development*

E. Performance Metrics

Continuation of studies and analyses efforts related to strike and assualt aircraft platforms across FYDP.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604279N: *(U)ASE Self Protection Optimization*	PROJECT 3308: *Technology Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Analysis	C/CPFF	GTRI:Atlanta, GA	0.000	0.000		0.300	Mar 2013	0.000		-		0.000	0.000	0.300	
		Subtotal	0.000	0.000		0.300		0.000		0.000		0.000	0.000	0.300	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Dev-ALQ-214 SW Dev	WR	Various:Various	0.000	0.000		0.174	Apr 2013	0.080	Dec 2013	-		0.080	0.000	0.254	
		Subtotal	0.000	0.000		0.174		0.080		0.000		0.080	0.000	0.254	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental T&E	WR	Various:Various	0.000	0.461	Jun 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	0.461		0.000		0.000		0.000		0.000			

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.461		0.474		0.080		0.000		0.080			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604279N: *(U)ASE Self Protection Optimization*	PROJECT 3309: *Assault Survivability Optimization*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3309: *Assault Survivability Optimization*	10.864	0.215	0.237	0.089	-	0.089	0.322	0.291	0.250	0.247	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project funds helicopter survivability evaluations of advanced Aircraft Survivability equipment for USMC, Navy, and Coalition Aircraft. The Missile Warning System (MWS), Laser Warning System (LWS), and Radar Warning Receiver (RWR) require periodic effectiveness and sustainability upgrades. Resources will be applied to the following areas:

1. Studies and Evaluations of current and future MWS/LWS/RWR Rotary aircraft threats.
2. MWS/LWS/RWR modeling techniques to support future hardware/software upgrades.
3. Evaluation of science and technology development programs in PMA-272 for transition into programs of record.
4. Evaluate sustainability enhancements as platforms migrate to Advanced Displays and Controls.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Studies & Analysis	0.215	0.237	0.089
Articles:	0	0	0
FY 2012 Accomplishments: Begin studies and analysis for assault aircraft programs.			
FY 2013 Plans: Continue studies and analysis for assault aircraft programs.			
FY 2014 Plans: Continue studies and analysis for assault aircraft programs.			
Accomplishments/Planned Programs Subtotals	0.215	0.237	0.089

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604279N: *(U)ASE Self Protection Optimization*	PROJECT 3309: *Assault Survivability Optimization*

D. Acquisition Strategy

Continuation of Missile Warning System/Laser Warning System/Radar Warning Receiver Rotary and assault aircraft threat analysis will be conducted across the FYDP. The contractor and contract type will be determined as requirements evolve.

E. Performance Metrics

Continuation of studies and analyses efforts related to assault aircraft platforms across FYDP.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604279N: *(U)ASE Self Protection Optimization*	PROJECT 3309: *Assault Survivability Optimization*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Modeling & Simulation	Various	Various:Various	5.601	0.000		0.150	Apr 2013	0.089	Nov 2013	-		0.089	Continuing	Continuing	Continuing
		Subtotal	5.601	0.000		0.150		0.089		0.000		0.089			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPIF	ATK:Clearwater, FL	2.610	0.000		0.000		0.000		-		0.000	0.000	2.610	2.610
Software Dev-Government	WR	Various:Various	0.585	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	3.195	0.000		0.000		0.000		0.000		0.000			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering & Evaluation	Various	Various:Various	0.593	0.215	Nov 2012	0.087	Apr 2013	0.000		-		0.000	Continuing	Continuing	Continuing
Test Assets	Various	Various:Various	1.475	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental T&E	WR	Various:Various	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	2.068	0.215		0.087		0.000		0.000		0.000			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.864	0.215		0.237		0.089		0.000		0.089			

Remarks

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604653N: *JT Cntr Radio Controlled IED Elec War (JCREW)*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	111.288	60.853	71.300	20.874	-	20.874	15.006	6.003	6.008	6.000	Continuing	Continuing
3177: *Joint Counter Radio-Controlled IED Elec Warfare*	111.288	60.853	71.300	20.874	-	20.874	15.006	6.003	6.008	6.000	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

A Memorandum of Understanding (MOU) will be developed to detail the transition of JCREW Executive Agent responsibilities to the Army starting in FY15.

A. Mission Description and Budget Item Justification

Provides for the research and development of EW systems, equipment, procedures, and tactical aids for all military services against the threat posed by Radio-Controlled Improvised Explosive Devices (RCIEDs) and to prevent initiation of RCIEDs across the spectrum of Joint military operations. The Navy has been designated as DOD Executive Agent and Single Manager for Military Ground-Based Counter Radio-Controlled Improvised Explosive Warfare (CREW) Technology by DOD Directive 5101.14 of 11 June 2007, requiring RDT&E to develop capabilities that meet global joint requirements. Utilize Joint requirements to provide a system of systems approach for a suite of equipment for mounted, dismounted, and fixed site operations; provide Joint CREW development of equipment, procedures, and tactical aids to make rapid improvements to performance, supportability and affordability, while maintaining pace with a migrating global threat.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	62.044	71.300	27.600	-	27.600
Current President's Budget	60.853	71.300	20.874	-	20.874
Total Adjustments	-1.191	0.000	-6.726	-	-6.726
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.191	0.000			
• Program Adjustments	0.000	0.000	-0.097	-	-0.097
• Rate/Misc Adjustments	0.000	0.000	-6.629	-	-6.629

Change Summary Explanation

Technical: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604653N: *JT Cntr Radio Controlled IED Elec War (JCREW)*

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604653N: *JT Cntr Radio Controlled IED Elec War (JCREW)*	PROJECT 3177: *Joint Counter Radio-Controlled IED Elec Warfare*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3177: *Joint Counter Radio-Controlled IED Elec Warfare*	111.288	60.853	71.300	20.874	-	20.874	15.006	6.003	6.008	6.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Provides for the research and development of EW systems, equipment, procedures, and tactical aids for all military services against the threat posed by Radio-Controlled Improvised Explosive Devices (RCIEDs) and to prevent initiation of RCIEDs across the spectrum of Joint military operations. The Navy has been designated as DOD Executive Agent and Single Manager for Military Ground-Based Counter Radio-Controlled Improvised Explosive Warfare (CREW) Technology by DOD Directive 5101.14 of 11 June 2007, requiring RDT&E to develop capabilities that meet global joint requirements. Utilize Joint requirements to provide a system of systems approach for a suite of equipment for mounted, dismounted, and fixed site operations; provide Joint CREW development of equipment, procedures, and tactical aids to make rapid improvements to performance, supportability and affordability, while maintaining pace with a migrating global threat.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Joint Counter Radio-Controlled IED Elec Warfare	60.853	71.300	20.874
Articles:	0	0	0

Description: Supports the effort required for the design, engineering, development, fabrication and test of contractor's development models for in-house verification and validation for governmental developmental testing for JCREW System of Systems (SoS) to include the Engineering Manufacturing and Development (EMD) Phase. The JCREW SoS approach includes three distinct capabilities that shall be developed and will utilize common component, software, and hardware solutions for an open, flexible, and compatible system design approach that is modular. These capabilities are: mobile dismounted operations, mobile ground, and waterborne transport and combat systems (mounted) and semi-permanent geographical area (fixed) systems. All capabilities will have coalition sharing capabilities. Multiple awards were made for all capabilities for development up through Critical Design Review (CDR).

FY 2012 Accomplishments:

Complete the Critical Design Review (CDR) and initiate material procurements in preparation for Engineering Development Model (EDM) fabrication.

FY 2013 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604653N: *JT Cntr Radio Controlled IED Elec War (JCREW)*	PROJECT 3177: *Joint Counter Radio-Controlled IED Elec Warfare*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Fabricate EDMs of Mounted, Fixed Site, and Dismounted systems and conduct contractor demonstration testing. Initiate document preparations in support of an FY14 Milestone C. ***FY 2014 Plans:*** Successfully complete initial delivery of Mounted, Fixed Site, and Dismounted EDM systems to the government with completed Factory Qualification Test (FQT) of hardware, software, and firmware. Complete Government Development Testing. Successfully complete MS C and initiate procurement of Long Lead Time Material for the Low Rate Initial Production of systems.			
Accomplishments/Planned Programs Subtotals	60.853	71.300	20.874

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• OPN/5509: *Explosive Ordnance Disposal Equip*	41.067	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	41.067

Remarks

D. Acquisition Strategy

SDD Phase: Two contractors to CDR - Single contractor CDR to MS C. Sole Source LRIP to support DT, MOTE, IOC, setup and maintain warm Production Line per DoDI 5000.02 and OEM Depot Line until FRP decision, FRP Production Line Start Up and Ramp Up and FRP Organic Depot Line Startup and Ramp Up. Spares support and OEM Depot will be utilized during LRIP phase. Establishment of Organic Depot capability during LRIP phase in support of FRP Decision Review with Weapons System Support Center Mechanicsburg as Primary Inventory Control Activity (PICA) coordinating with other service ICAs for USAF and USMC. Full Rate Production contract will be full and open competition using LRIP final Tech Data Package (TDP) with Government Purpose Rights (GPR).

E. Performance Metrics

Gate 6 Milestone B complete 10 Jul 2009; Contract for Preliminary Design Review (PDR) awarded 01 Oct 2009; achieved successful Preliminary Design Reviews (PDRs) April 2010; achieved successful Critical Design Review (CDR) Oct 2012; Milestone C anticipated in Q4 FY14.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604653N: *JT Cntr Radio Controlled IED Elec War (JCREW)*	PROJECT 3177: *Joint Counter Radio-Controlled IED Elec Warfare*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various	Exelis:NJ	9.992	2.145	Oct 2011	0.000	Nov 2012	0.000	Nov 2013	-		0.000	0.000	12.137	Continuing
Software Development	Various	Exelis:NJ	9.110	1.405	Oct 2011	0.000	Nov 2012	0.000	Nov 2013	-		0.000	0.000	10.515	Continuing
Systems Engineering	Various	Exelis:NJ	6.650	0.550	Nov 2011	0.000	Nov 2012	0.000	Nov 2013	-		0.000	0.000	7.200	Continuing
System Integration	Various	Exelis:NJ	2.765	1.200	Nov 2011	0.000	Nov 2012	0.000	Nov 2013	-		0.000	0.000	3.965	Continuing
Primary Hardware Development	Various	NGC:CA	9.996	2.074	Nov 2011	26.747	Nov 2012	4.442	Nov 2013	-		4.442	0.000	43.259	
Software Development	Various	NGC:CA	9.110	1.405	Nov 2011	3.066	Nov 2012	2.451	Nov 2013	-		2.451	0.000	16.032	
Systems Engineering	Various	NGC:CA	6.650	0.550	Nov 2011	3.963	Nov 2012	1.317	Nov 2013	-		1.317	0.000	12.480	
ILS	Various	NGC:CA	4.410	1.200	Nov 2011	1.419	Nov 2012	0.597	Nov 2013	-		0.597	0.000	7.626	
System Integration	Various	NGC:CA	2.765	1.200	Nov 2011	6.385	Nov 2012	2.221	Nov 2013	-		2.221	0.000	12.571	
Loadset Development	Various	NGC:CA	3.700	0.500	Nov 2011	0.622	Nov 2012	0.460	Nov 2013	-		0.460	0.000	5.282	
		Subtotal	65.148	12.229		42.202		11.488		0.000		11.488	0.000	131.067	

Remarks

Contract type is hybrid CPIF and CPAF.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Loadset Development	FFRDC	JHU/APL:Laurel, MD	0.030	2.998	Nov 2011	1.300	Nov 2012	0.280	Nov 2013	-		0.280	0.000	4.608	Continuing
Systems Engineering	WR	NSWC:Various	0.000	2.424	Nov 2011	8.000	Nov 2012	0.563	Nov 2013	-		0.563	0.000	10.987	Continuing
Program Management Support	WR	NAVEODTECHDIV:Indian Head, MD	7.710	3.720	Nov 2011	1.989	Nov 2012	0.400	Nov 2013	-		0.400	0.000	13.819	Continuing
System Integration	WR	NSWC:Various	0.000	1.938	Nov 2011	0.419	Nov 2012	0.220	Nov 2013	-		0.220	0.000	2.577	Continuing
Training Development	C/CPFF	SDI, GOV'T SOLUTIONS:LaPlata, MD	1.370	3.033	Nov 2011	0.240	Nov 2012	0.000	Nov 2013	-		0.000	0.000	4.643	Continuing
Integrated Logistics Support	WR	NSWC:Various	1.000	8.383	Nov 2011	0.600	Nov 2012	0.600	Nov 2013	-		0.600	0.000	10.583	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604653N: *JT Cntr Radio Controlled IED Elec War (JCREW)*	PROJECT 3177: *Joint Counter Radio-Controlled IED Elec Warfare*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Techniques Development	WR	NSWC:Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	4.600
Configuration Management	WR	NSWC:Various	2.200	1.446	Nov 2011	0.380	Nov 2012	0.180	Nov 2013	-		0.180	0.000	4.206	Continuing
Technical Data	WR	NSWC:Various	2.750	2.831	Nov 2011	0.270	Nov 2012	0.270	Nov 2013	-		0.270	Continuing	Continuing	Continuing
		Subtotal	15.060	26.773		13.198		2.513		0.000		2.513			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	NSWC:Various	16.160	11.000	Nov 2011	4.300	Nov 2012	1.838	Nov 2013	-		1.838	0.000	33.298	Continuing
Operational Test & Evaluation	MIPR	COMOPTEVFOR:Norfolk, VA	2.190	5.800	Mar 2012	1.200	Nov 2012	4.003	Nov 2013	-		4.003	0.000	13.193	Continuing
		Subtotal	18.350	16.800		5.500		5.841		0.000		5.841	0.000	46.491	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	CACI:Fairfax, VA	8.720	4.470	Nov 2011	4.000	Nov 2012	0.732	Nov 2013	-		0.732	0.000	17.922	Continuing
Miscellaneous	WR	NSWC:Various	4.010	0.581	Nov 2011	6.400	Nov 2012	0.300	Nov 2013	-		0.300	0.000	11.291	Continuing
		Subtotal	12.730	5.051		10.400		1.032		0.000		1.032	0.000	29.213	

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	111.288	60.853		71.300		20.874		0.000		20.874			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604653N: *JT Cntr Radio Controlled IED Elec War (JCREW)*	**PROJECT** 3177: *Joint Counter Radio-Controlled IED Elec Warfare*

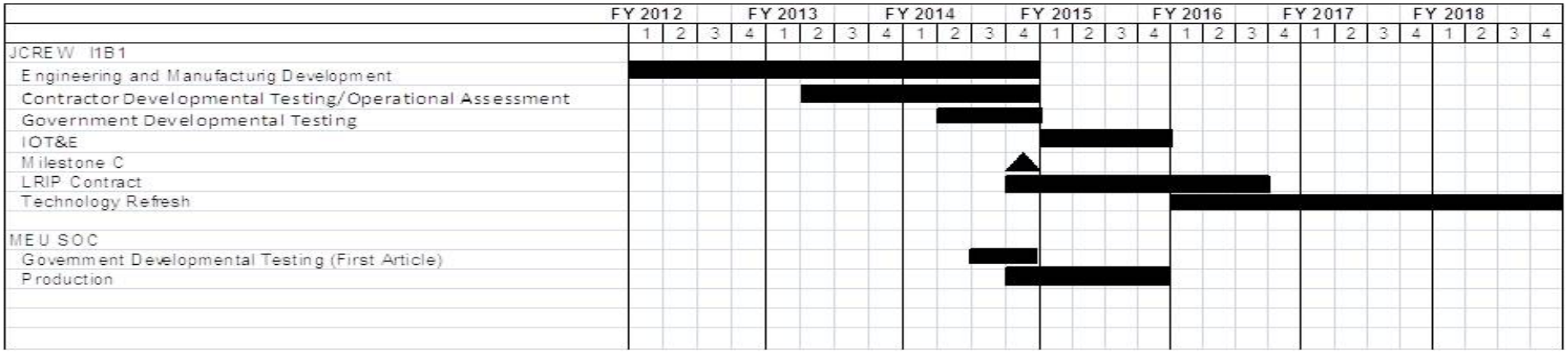


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604653N: *JT Cntr Radio Controlled IED Elec War (JCREW)*	**PROJECT** 3177: *Joint Counter Radio-Controlled IED Elec Warfare*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3177				
JCREW I1B1	1	2012	1	2018
Engineering and Manufacturing Development	1	2012	1	2014
Contractor Developmental Testing/Operational Assessment	2	2013	4	2014
Government Developmental Testing	2	2014	4	2014
IOT&E	1	2015	4	2015
Milestone C	4	2014	4	2014
LRIP Contract	4	2014	3	2016
Technology Refresh	1	2016	4	2018
MEU SOC	1	2012	4	2015
Government Developmental Testing (First Article)	3	2014	4	2014
Production	4	2014	4	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604659N: *(U)Precision Strike Weapons Development Program*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	29.387	3.381	5.654	2.257	-	2.257	0.000	0.000	0.000	0.000	0.000	40.679
3214: *Fuze Development Program*	29.387	3.381	5.654	2.257	-	2.257	0.000	0.000	0.000	0.000	0.000	40.679

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Precision Strike Weapons Development program provides for initial and continuing development of strike weapons consisting of armament, munitions, and weapon subsystems to allow for the horizontal integration among current and future weapon system capabilities to include Anti-Surface Warfare and the weaponization of Unmanned Aerial Systems. This program provides for the development of weapon and weapon system technologies to address urgent requirements for enhanced and alternative weapon system capability requirements that include selectable output weapons, low collateral damage weapons, precision lethality weapons, area weapons, alternative warhead technology, Insenstive Munitions (IM), scaled munitions, DoD fuzing systems, sensors, extended range weapons and precision guided training round technology.

This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	3.450	5.654	2.269	-	2.269
Current President's Budget	3.381	5.654	2.257	-	2.257
Total Adjustments	-0.069	0.000	-0.012	-	-0.012
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.069	0.000			
• Program Adjustments	0.000	0.000	16.963	-	16.963
• Rate/Misc Adjustments	0.000	0.000	-16.975	-	-16.975

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604659N: *(U)Precision Strike Weapons Development Program*	PROJECT 3214: *Fuze Development Program*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3214: *Fuze Development Program*	29.387	3.381	5.654	2.257	-	2.257	0.000	0.000	0.000	0.000	0.000	40.679
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Fuze Development Program provides for the development of alternative and innovative fuze system and fuze sensor technologies to improve the reliability, capability and production characteristics of fuze products. This program also provides for emerging technology insertion to improve the performance and maintainability characteristics of current and future fuze and fuze sensor technologies.

The Hard Target Void Sensing Fuze (HTVSF) is an FY08 Joint Capability Technology Demonstration (JCTD) sponsored by United States Strategic Command in coordination with the United States Air Force and United States Navy. The JCTD was a 27 month risk reduction program that was awarded to two Contractors in 3rd QTR FY08 to perform design, test, and manufacturing activities leading to a down-select to a single Contractor for Engineering Manufacturing Development (EMD) and production. The JCTD was completed in 3rd QTR FY10 and the EMD contract was awarded to a single Contractor in 2nd QTR FY11. HTVSF is designed to prosecute harder, deeper, and more complex targets that exceeded design parameters of existing conventional kinetic strike capabilities. HTVSF will be used only with BLU-109 Joint Direct Attack Munitions.

Note: First test article quantity for HTVSF includes FY 12-Quantity 26 , FY13-Quantity 3, FY14-Quantity 3

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Hard Target Void Sensing Fuze (HTVSF) Hardware Development	3.381	5.654	2.257
Articles:	26	3	3
Description: HTVSF hardware development funding will be used to qualify the fuze booster as part of the BLU-109 explosive train and begin F/A-18E/F software OFP development.			
FY 2012 Accomplishments: Continued F/A-18 E/F integration, began mission planning software, procured additional EMD test assets and conducted testing.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604659N: *(U)Precision Strike Weapons Development Program*	PROJECT 3214: *Fuze Development Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue F/A-18 E/F integration, continue mission planning software, procure additional EMD test assets and conduct testing.Primary Hardware(H/W) development increases over the rate of inflation from FY12 to FY13 is due to the program sustaining a $1.1M reduction in FY12 reducing the Navy's ability to pay its fair share cost of H/W development. The Air Force absorbed the joint cost of development in FY12 and the Navy will resume its fair share of H/W development cost starting in FY13. ***FY 2014 Plans:*** Complete F/A-18 E/F integration, complete mission planning software, achieve Milestone C and Award Low-Rate Initial Production contract.			
Accomplishments/Planned Programs Subtotals	3.381	5.654	2.257

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• PANMC/01450: *General Purpose Bombs*	0.000	0.000	2.000		2.000	4.300	4.386	0.000	0.000	0.000	10.686
• RDTE/ PE 064635F: *Air Force (SDD)*	24.467	9.423	26.721		26.721	4.480	0.000	0.000	0.000	0.000	97.591
• Proc/PE 020803: *Air Force*	0.000	0.130	19.280		19.280	38.500	39.510	41.700	0.000	0.000	139.120

Remarks

D. Acquisition Strategy

The Hard Target Void Sensing Fuze (HTVSF) Joint Capability Technology Demonstration (JCTD) is a risk reduction effort. The JCTD supported two competitively selected sources for development and testing of initial prototyping. Following the JCTD, a down select to a single source occurred, awarding a contract to ATK in FY11. Engineering Manufacturing Development phase is ongoing and Low Rate Initial Production contract award is planned for FY14 and Full Rate Production in FY15.

E. Performance Metrics

MS C is planned for 3rd QTR FY14.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604659N: *(U)Precision Strike Weapons Development Program*	PROJECT 3214: *Fuze Development Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development HTVSF	C/FPIF	ATK:Keyser, WV	2.298	0.093	Jan 2012	0.431	Feb 2013	0.384	Feb 2014	-		0.384	0.000	3.206	3.206
		Subtotal	2.298	0.093		0.431		0.384		0.000		0.384	0.000	3.206	3.206

Remarks

Primary Hardware(H/W) development increases over the rate of inflation from FY12 to FY13 is due to the program sustaining a $1.1M reduction in FY12 reducing the Navy's ability to pay its fair share cost of H/W development. The Air Force absorbed the joint cost of development in FY12 and the Navy will resume its fair share of H/W development cost starting in FY13.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development HTVSF	WR	NAWC WD:China Lake, CA	2.677	0.500	Nov 2011	1.000	Dec 2012	0.351	Dec 2013	-		0.351	0.000	4.528	
Software Development HTVSF	C/CPIF	Boeing:St.Louis, MO	1.679	0.426	Mar 2012	0.350	Mar 2013	0.005	Dec 2013	-		0.005	0.000	2.460	2.460
Integrated Logistic Support HTVSF	WR	NAWC AD:Patuxent River, MD	0.037	0.000		0.023	Nov 2012	0.000		-		0.000	0.000	0.060	
Prior years cost no longer funded in the FYDP	Various	Various:Various	3.947	0.000		0.000		0.000		-		0.000	0.000	3.947	
		Subtotal	8.340	0.926		1.373		0.356		0.000		0.356	0.000	10.995	

Remarks

Software Development increase over the rate of inflation from FY12 to FY13 is for FA-18 H10 HTVSF S/W integration which will be completed in FY14.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation HTVSF	WR	OPTVFOR:Norfolk, VA	0.040	0.020	Nov 2011	0.020	Nov 2012	0.268	Nov 2013	-		0.268	0.000	0.348	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604659N: *(U)Precision Strike Weapons Development Program*	PROJECT 3214: *Fuze Development Program*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation HTVSF	WR	NAWC AD:Patuxent River, MD	0.000	0.578	Nov 2011	0.400	Nov 2012	0.000		-		0.000	0.000	0.978	
Operational Test & Evaluation HTVSF	MIPR	Air Force:Eglin AFB, FL	0.000	0.000		0.674	Nov 2012	0.000		-		0.000	0.000	0.674	
Development Test & Evaluation HTVSF	WR	NAWC WD:China Lake, CA	0.000	0.000		1.400	Nov 2012	0.300	Nov 2013	-		0.300	0.000	1.700	
Operational Test & Evaluation HTVSF	WR	Various:Various	0.000	0.100	Nov 2011	0.100	Nov 2012	0.111	Nov 2013	-		0.111	0.000	0.311	
Prior years cost no longer funded in the FYDP	Various	Various:Various	9.339	0.000		0.000		0.000		-		0.000	0.000	9.339	
		Subtotal	9.379	0.698		2.594		0.679		0.000		0.679	0.000	13.350	

Remarks

FY13 Operational Test & Evaluation for HTVSF at Eglin AFB is for Sled Testing. FY13 Development Test and Evaluation for HTVSF at NAWCWD will be for Safe Separation/ Integration Flight Testing.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	NAWC AD:Patuxent River, MD	0.142	0.019	Jan 2012	0.018	Jan 2013	0.000		-		0.000	0.000	0.179	
Government Support HTVSF	WR	NAWC WD:China Lake, CA	1.531	0.774	Nov 2011	0.894	Nov 2012	0.636	Nov 2013	-		0.636	0.000	3.835	
Government Support HTVSF	WR	NAWC AD:Patuxent River, MD	0.500	0.608	Nov 2011	0.190	Nov 2012	0.117	Nov 2013	-		0.117	0.000	1.415	
Management Support HTVSF	C/FFP	NAWC AD:Patuxent River, MD	0.200	0.263	Dec 2011	0.154	Dec 2012	0.085	Nov 2013	-		0.085	0.000	0.702	0.702
Prior year cost no longer funded in the FYDP	WR	NAWC WD:China Lake, CA	6.997	0.000		0.000		0.000		-		0.000	0.000	6.997	
		Subtotal	9.370	1.664		1.256		0.838		0.000		0.838	0.000	13.128	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604659N: *(U)Precision Strike Weapons Development Program*	PROJECT 3214: *Fuze Development Program*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

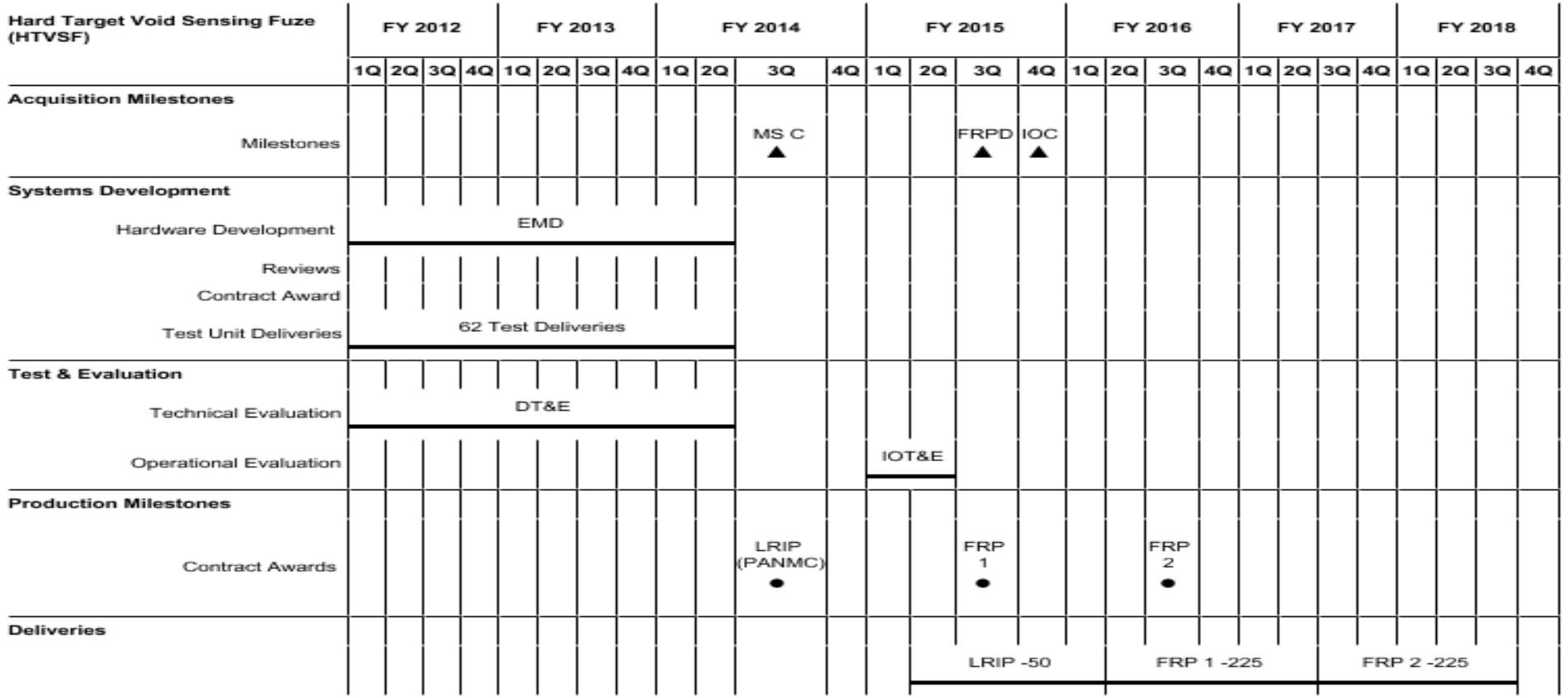
Remarks

FY13 Government Support reduction at NAWCAD reflects the ramping down of the development and transitioning to the Safe Separation/Integration Flight Testing at NAWCWD.

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.387	3.381		5.654		2.257		0.000		2.257	0.000	40.679	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604659N: *(U)Precision Strike Weapons Development Program*	PROJECT 3214: *Fuze Development Program*



2014DON - 0604659N - 3214

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604659N: *(U)Precision Strike Weapons Development Program*	**PROJECT** 3214: *Fuze Development Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Hard Target Void Sensing Fuze (HTVSF)				
Acquisition Milestones: Milestones: Full Rate Production Decision (FRPD)	3	2015	3	2015
Acquisition Milestones: Milestones: Milestone C (MS C)	3	2014	3	2014
Acquisition Milestones: Milestones: IOC	4	2015	4	2015
Systems Development: Hardware Development: Engineering, Manufacturing, and Development Phase (EMD)	1	2012	2	2014
Systems Development: Test Unit Deliveries: 62 Test Deliveries	1	2012	2	2014
Test & Evaluation: Technical Evaluation: Developmental Test and Evaluation (DT&E)	1	2012	2	2014
Test & Evaluation: Operational Evaluation: Intergrational Operational Test and Evaluation (IOT&E)	1	2015	2	2015
Production Milestones: Contract Awards: Low-Rate Initial Production (LRIP) Award (PANMC)	3	2014	3	2014
Production Milestones: Contract Awards: Full Rate Production-1 (FRP) Award (PANMC)	3	2015	3	2015
Production Milestones: Contract Awards: Full Rate Production-2 (FRP) Award (PANMC)	3	2016	3	2016
Deliveries: LRIP Deliveries 50 (PANMC)	2	2015	1	2016
Deliveries: FRP 1 Deliveries 225 (PANMC)	2	2016	2	2017
Deliveries: FRP 2 Deliveries 225 (PANMC)	3	2017	3	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	513.222	39.250	31.549	38.327	-	38.327	39.218	31.479	31.494	32.066	Continuing	Continuing
0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*	29.007	0.772	0.772	0.779	-	0.779	0.781	0.782	0.799	0.814	Continuing	Continuing
2144: *Space & Elec Warfare Engineering*	163.146	9.013	9.085	8.053	-	8.053	8.136	7.932	8.077	8.224	Continuing	Continuing
2356: *Maritime Concept Generation & Development*	0.000	0.000	8.323	17.194	-	17.194	17.750	8.458	8.738	8.888	Continuing	Continuing
2357: *Maritime Battle Center*	320.369	8.618	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	328.987
3319: *Fleet Experimentation*	0.700	20.847	13.369	12.301	-	12.301	12.551	14.307	13.880	14.140	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This Program Element (PE) contains four projects: Maritime Battle Center (MBC), Fleet Experimentation (beginning in FY 2012 with funding moving from MBC), Allied/Coalition Interoperability and Information Dominance (ACIID), and Space and Electronic Warfare (SEW) Engineering. The MBC project (2357) focuses on fleet experimentation in order to eliminate war fighting gaps and validate Navy Concept of Operations (CONOPS) and doctrine. The MBC also manages the Sea Trial program of fleet experimentation that is administered by the Sea Trial Executive Steering Group (STESG). Both MBC and Sea Trial integrate emergent concepts and technologies through experiments, analysis, modeling and simulation to support war fighting capability development. Sea Trial experimentation is dedicated to providing solutions to near term (within the Fiscal Year Defense Plan) war fighting gaps through focused operational agent (Commander Second Fleet, Commander Third Fleet and Commander Naval Network Warfare Command) led experimentation. The flag level Sea Trial Executive Steering Group prioritizes proposed Sea Trial experiments annually. The MBC will also serve as the Navy representative to the Joint Battle Center and the battle labs of other services.

The ACIID and SEW Engineering projects (0798 and 2144 respectively) are systems engineering non-acquisition programs to develop, test, implement technical authority, and validate naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) architectures to support naval missions in the Joint and Coalition Theater. The mission of these projects are carried out by multiple tasks that are used to ensure naval C4ISR Command and Control Warfare (C2W) components of SEW are effectively integrated into service-oriented architecture delivering net-centric warfare capability. Additionally, these projects ensure that (1) the composite operational capabilities of SEW systems (not the individual component systems) conform to the naval C4ISR architecture and enhance war fighting capability as related to the objectives of National Defense Strategy, evolving joint visions and direction, such as net centric capability, and are guided by warfighter requirements; (2) that SEW systems and systems integration efforts involve leading-edge technology transfer of information processing technologies primarily through integration of government and commercial off-the-shelf (GOTS/COTS) products to enhance the Navy's operational capability, interoperability,

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*

warfighter effectiveness, flexible reconfiguration, as well as reduce costs; and (3) that SEW systems integration efforts promote the delivery of Information Dominance and the Navy's contribution to the Global Information Grid (GIG).

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	33.573	31.549	31.665	-	31.665
Current President's Budget	39.250	31.549	38.327	-	38.327
Total Adjustments	5.677	0.000	6.662	-	6.662
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	6.541	0.000			
• SBIR/STTR Transfer	-0.864	0.000			
• Program Adjustments	0.000	0.000	-0.500	-	-0.500
• Rate/Misc Adjustments	0.000	0.000	7.162	-	7.162

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*	29.007	0.772	0.772	0.779	-	0.779	0.781	0.782	0.799	0.814	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Allied/Coalition Interoperability and Information Dominance (ACIID) program advances network centric warfare and Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) interoperability with Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS), North Atlantic Treaty Organization (NATO) and other Allied and Coalition partners. The program determines maritime operational gaps with our allies, identifies Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF) solutions with the potential to fill those gaps, and assesses these solutions and associated concepts of operation in laboratory and at-sea environments. The ACIID program includes integration and testing in support of joint and Allied war fighting capabilities, including interoperability testing of C4ISR equipments. Allied and joint interoperability is critical for future maritime operations, especially as the United States Navy expands Internet Protocol (IP) networking throughout the fleet via Consolidated Afloat Networks and Enterprise Services (CANES), Next Generation Networks (NGEN), Multi-National Information Sharing (MNIS) and with the Global Information Grid (GiG). Currently, IP connectivity with AUSCANNZUKUS and other Allied/Coalition forces is limited, requiring extensive backhaul through ashore infrastructure. Higher bandwidth solutions suitable for use over tactical networks require development and assessment for emerging coalition and joint interoperability requirements, such as Anti-Access Area Denial (A2AD), Network Operations Without Shore (NOWS) and Maritime Domain Awareness (MDA). Increases in data throughput are required for the effective exchange of rich Information Dominance (ID) data sets and services via Service Oriented Architectures within the limitations of High Frequency, Ultra-High Frequency and other portions of the radio frequency spectrum, coupled with appropriate Information Assurance and Computer Network Defense (IA/CND) mechanisms. Development and assessment of potential solutions will integrate improved IP capabilities with the Advanced Digital Network Systems and existing international standards (e.g. Allied Communications Publication 200, NATO Standardization Agreements 5066 and 4691). The continued development and refinement of advanced tactical networking technologies and protocols, as well as automatic link establishment standards, will provide for a significant improvement in data sharing within, and between, coalition maritime elements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Advanced Relay Capabilities	0.772	0.772	0.779
Articles:	0	0	0
FY 2012 Accomplishments: -Developed and refined advanced relay capabilities that promote interoperability with AUSCANNZUKUS, NATO and other Allied/ Coalition forces and supported Anti-Access Area Denial (A2AD) and NOWS.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
-Solutions addressed higher bandwidth technologies, such as wide-band High Frequency (HF), wide-band Ultra-High Frequency (UHF) and broadband directional communications/networking, advanced relay technologies, coalition routing architectures (with an emphasis on cipher-text or "black core" routing), application and service architectures supporting A2AD/NOWS, and IA/CND solutions. Maximized interoperability and network efficiency using multiple, dissimilar bearers and integrated these advanced solutions with High Assurance Internet Protocol Encryptor (HAIPE) devices and Service Oriented Architecture (SOA) in an Anti-Access Area Denial (A2AD)/Network Operations Without Shore (NOWS) coalition networking environment. -Progressed the standardization of Maritime Relayed Line of Sight Network and High Frequency Improvement Program (HFIP) into North Atlantic Treaty Organization (NATO) Standardization Agreements (STANAGs) 4691 and 5066 respectively. -Venues of opportunity, such as Trident Warrior, were exploited to assess and validate the individual technologies, integrated solutions and associated Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF) through experimentation, trials and demonstrations with Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS) and other Allied/Coalition partners.			
FY 2013 Plans: -Continue the development and refinement of advanced relay and communication capabilities that promote interoperability with AUSCANNZUKUS, NATO and other Allied/Coalition forces and support Anti-Access Area Denial (A2AD) and Network Operations Without Shore (NOWS). Solutions will address higher bandwidth technologies, such as wide-band High Frequency (HF), High Data Rate Ultra-High Frequency (UHF) and 3G/4G wireless. -Secure coalition routing architectures incorporating High Assurance Internet Protocol Encryptor (HAIPE) devices that support tactical networking and A2AD will be developed along with distributed Service Oriented Architecture (SOA) applications and services architectures and advanced Information Assurance and Computer Network Defense (IA/CND) solutions. The overall goal is to maximize interoperability and network efficiency using multiple, dissimilar bearers and integrate these advanced solutions into an A2AD/NOWS Allied/Coalition tactical networking environment that would also include tactical data links, such as Link-22. -Continue to progress the NATO standardization of Maritime Relayed Line of Sight Network Standardization Agreements (STANAG 4691) and High Frequency Internet Protocol (STANAG 5066 Edition 3). -Venues of opportunity, such as Trident Warrior (now known as Fleet Experimentation (FLEX)), will be exploited to assess and validate the individual technologies, integrated solutions, and associated DOTMLPF through experimentation, trials and demonstrations with AUSCANNZUKUS and other Allied/Coalition partners.			
FY 2014 Plans: -Continue the development and refinement of advanced networking and communication capabilities that promote Allied interoperability and support A2AD and NOWS. Solutions will address higher bandwidth technologies, such as wide-band HF, High Data Rate UHF and 3G/4G wireless. -Secure routing architectures incorporating HAIPE devices that support tactical networking and A2AD will be developed along with distributed SOA applications and services architectures and advanced IA/CND solutions. The overarching goal is to maximize			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
interoperability and network efficiency using multiple, dissimilar bearers and integrate these advanced solutions into an A2AD/ NOWS Allied/Coalition tactical networking environment that would also include tactical data links, such as Link-22. -Assess Information Warfare interoperability gaps with AUSCANNZUKUS nations, to include Intelligence, Surveillance and Reconnaissance (ISR), Electronic Warfare (EW) and Cyber, in appropriate venues. -Continue to progress North Atlantic Treaty Organization (NATO) standardization of Maritime Relayed Line of Sight Network Standardization Agreements (STANAG 4691) and High Frequency Internet Protocol (STANAG 5066 Edition 3). -Progress Allied Information Warfare (IW) interoperability with other joint and maritime multi-national forums, such as the Combined Communications Electronics Board (CCEB), Multinational Maritime Internet Protocol (IP) Interoperability Steering Group (M2I2) and the Multinational Information Sharing program (MNIS). -Venues of opportunity, such as Fleet Experimentation (FLEX), will be exploited to assess and validate the individual technologies, integrated solutions, and associated Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF) through experimentation, trials and demonstrations with Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS) and other Allied/Coalition partners.			
Accomplishments/Planned Programs Subtotals	0.772	0.772	0.779

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Allied/Coalition Interoperability and Information Dominance (ACIID) is a non-acquisition program that promotes United States Navy interoperability with allied and coalition forces to achieve the Chief of Naval Operations vision by facilitating maritime interoperability in both processes and communications systems, including emerging capabilities, to counter growing high-end asymmetric threats, and is a key enabler of the force multiplying benefits achieved through cooperation among the AUSCANNZUKUS, NATO and other partner nations. Activities include acquiring intellectual capital in emerging technical areas through contracts providing technical engineering expertise and surge capacity for emerging tasks.

E. Performance Metrics

Advanced Relay Capabilities: The ACIID program will employ laboratory testing and at-sea demonstrations to assess specific technologies, operational concepts, and integrated Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF) solutions pertaining to Anti-Access Area Denial, Service Oriented Architectures, Maritime Domain Awareness and other aspects of Information Dominance. These assessments will report on identified capability gaps, link capability gaps to technology/DOTMLPF gaps, identify technologies and DOTMLPF solutions considered ready for deployment, transition to a program of record to enhance Fleet war fighting capability and enhance Allied interoperability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Relay Capabilities	Various	Various:Various	12.129	0.000		0.000		0.189	Jan 2014	-		0.189	0.000	12.318	
Advanced Relay Capabilities	WR	SSC PAC:San Diego	0.853	0.772	Jan 2012	0.772	Jan 2013	0.590	Jan 2014	-		0.590	Continuing	Continuing	Continuing
Interoperability Requirements	Various	Various:Various	3.266	0.000		0.000		0.000		-		0.000	0.000	3.266	
T & E Tools Development	Various	Various:Various	0.429	0.000		0.000		0.000		-		0.000	0.000	0.429	
Systems Int. & Interop. Testing (LBTN)	Various	Various:Various	3.862	0.000		0.000		0.000		-		0.000	0.000	3.862	
Interoperability Validation	Various	Various:Various	2.748	0.000		0.000		0.000		-		0.000	0.000	2.748	
Joint Interoperability	Various	Various:Various	1.174	0.000		0.000		0.000		-		0.000	0.000	1.174	
Testing OTH-T Systems	Various	Various:Various	3.069	0.000		0.000		0.000		-		0.000	0.000	3.069	
		Subtotal	27.530	0.772		0.772		0.779		0.000		0.779			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	Various:Various	1.468	0.000		0.000		0.000		-		0.000	0.000	1.468	
ACQ Workforce Fund	Various	Various:Various	0.009	0.000		0.000		0.000		-		0.000	0.000	0.009	
		Subtotal	1.477	0.000		0.000		0.000		0.000		0.000	0.000	1.477	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.007	0.772		0.772		0.779		0.000		0.779			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2144: *Space & Elec Warfare Engineering*	163.146	9.013	9.085	8.053	-	8.053	8.136	7.932	8.077	8.224	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

As of FY 2014, the Coalition Warrior Interoperability Demonstration (CWID) effort is referred to as Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX).

A. Mission Description and Budget Item Justification

OPNAVINST 3050.23 defines the policy to fuse validated and approved Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) architectures and interoperability requirements with joint requirements, milestones and program decisions. C4ISR integrated architectures are the underpinnings for all C4ISR mission areas and capabilities and, as such, requirements and acquisition processes have been reengineered to use these Integrated Architectures for decisional purposes and strategic planning.

Furthermore, Office of the Secretary of Defense (OSD) has defined key programs/efforts Global Information Grid Baseline Extension, Joint Tactical Radio System, Network Centric Enterprise Services, Information Assurance and standards that will drive and change the Navy's C4ISR integrated architectures and associated business processes for requirements, budgets and acquisition. To that end, the Space and Electronic Warfare provides three main functions: 1) Perform System of Systems and platform technical evaluations to establish the alignment with the N2/N6 Information Dominance vision for the Navy on the whole and identify performance and operational risks associated with the integration of multiple systems to provide a robust, mission based capability. 2) Develop C4ISR/Information Technology (IT)/ Information Dominance (ID) integrated architecture products and 3) Support C4ISR/IT/ID systems engineering processes and standards. The integrated architecture products are used to support the Navy's budget process by providing the critical core architecture and enabling capabilities to the war fighter. The systems engineering processes and standards provide the construct for distributed Command and Control (C2) interoperability requirements analyses to identify capability shortfalls/gaps and for systems engineering to compare/test alternatives in a joint end-to end environment while identifying associated Navy-wide C4ISR/IT/ID implications. Processes include developing and applying criteria for use in Systems Engineering Technical Reviews and providing technical input to governance bodies. This includes Human Systems Integration (HSI) to provide a mission-centered orientation to ensure effective operational employment of fielded capability. As joint concepts and OSD driving efforts/programs are matured/defined the Navy's C4ISR integrated architectures are refined and the supporting C4ISR systems engineer processes and standards work to engineer and enact C4ISR implementations Navy-wide across all C4ISR mission areas.

Products provided:

1) C4ISR/IT/ID integrated architectures

- Integrated Architectures and Standards - Architecture Views (Operational Views, Service Views, Technical Views, System Views)

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*

- Migration roadmaps to the target architectures
- Architecture technical authority, studies, interpretation assistance, and white papers

2) Supporting C4ISR/IT/ID systems engineering processes

- Distributed C2 Interoperability Requirement Analysis - Gaps Analysis, Overlap Analysis, System Priority Lists, C4ISR Metrics and Models, Analysis of Alternatives, Requirements Database, Assessment Repository, Resource Implications Studies, Baseline Performance Models, Mission Task Analysis, HSI assessments.
- End-to-End Systems Engineering and Integrated Design - Operational feasibility studies, technical feasibility studies, technical roadmap engineering validations, Architectures and Assessment traceability matrices.
- Joint and Coalition interoperability trials - Joint End-to-End prototyping trials, and joint/coalition interoperability demonstrations, interoperability assessments and metrics, and interoperability studies via the Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX) formerly Coalition Warrior Interoperability Demonstration (CWID). United States Navy (USN) provides funding to the general CWID operating budget and participates by operating a USN demonstration site.
- Joint cloud enabled, two security domain environment using thin client devices that allow secure and cost effective operations at the point of need. Cloud Computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, apps and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.
- Integration and Interoperability (I&I)- Support Assistant Secretary of the Navy for Research, Development, and Acquisition ASN(RDA) initiatives in development of I&I. Assist in completion of Systems Engineering Technical Reviews and provide recommendations for updates to Acquisition policies and guidance.
- Information Technology Procurement Request (ITPR)- Review of Navy ITPRs for developing systems to ensure adherence to Navy Information Technology (IT) Standards.

3) Compliance and alignment reports with Navy Enterprise Architecture/Data Strategy and ASN(RDA) system engineering policies generated during Systems Engineering Technical Reviews (SETRs).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: C4ISR Systems Engineering	3.231	3.351	3.242
Articles:	0	0	0
FY 2012 Accomplishments: -Continued Navy Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) and Information Dominance Transformation/Strategic Planning within Navy/Joint/Department of Defense Framework: Assessed existing and emerging capabilities; developed and evaluated Navy-wide policies, plans, requirements, and compliance; developed integration and investment strategies; and accelerated 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 Net-Centric Operations/Warfare and Information Dominance capability. -Established, developed, and validated interoperability requirements: Continued to perform SETRs utilizing validated assessment tools, system engineering methodologies and SETR checklists tracing system design to standards and			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
requirements (e.g., Information Assurance, data strategy, architecture, modeling, Open Architecture, Configuration Management, Service Oriented Architecture development, Anti-tamper, etc.) ensuring interoperability compliance to statutory and regulatory directives and guidance. -Ensured continuous improvement of SETR Checklists by incorporating the latest policy, guidance, standards, and specifications. -Performed System of Systems and platform technical evaluations to establish the alignment with the N2/N6 Information Dominance vision and identified performance and operational risks associated with the integration of multiple systems to provide a robust, mission based capability. -Continued to conduct document reviews (of Systems Engineering Plans, Information Support Plans, Interoperability Control Document/Competitive Design Development/Consolidated Programming Document, Information Assurance Strategies, Acquisition Strategies, etc.)for Office of the Chief of Naval Operations, Assistant Secretary of the Navy for Research, Development and Acquisition, and the Program Executive Offices, and other services to ensure sound systems engineering analysis and design principles have been applied to system planning requirements, design, testing, and supportability. -Continued to perform engineering evaluation and provided buy/no-buy decisions for proposed Deviations from specification for afloat platforms to determine performance and operational impacts of the proposed change and their effects on the platforms mission. -Continued to provide engineering evaluation and validation of Business Information Technology (IT) applications and IT infrastructure in order to combine, consolidate, and eliminate unnecessary or underutilized business systems for the Naval Enterprise. -Provided engineering evaluation and validation of programs and ensured adherence to technical standards in the following technical domains: communications, networks, Information Storage and Retrieval/Information Surveillance Reconnaissance/ Information Operations, afloat platforms (both large and small decks), submarines, shore and Maintenance Operations Center capability, command and control, and space systems. -Continued to conduct Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Certifications through design and testing analysis ensuring C4ISR delivery to the platform (shore, surface ship, submarine) was validated to meet the operational need and was interoperable with platform, force level, joint/allied/coalition forces.			
FY 2013 Plans: -Continue Navy C4ISR and Information Dominance Transformation/Strategic Planning within Navy/Joint/Department of Defense Framework: Assess existing and emerging capabilities; develop and evaluate Navy-wide policies, plans, requirements, and compliance; develop integration and investment strategies; and accelerate 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 Net-Centric Operations/Warfare and Information Dominance capability.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
-Continue to establish, develop, and validate interoperability requirements: Perform Systems Engineering Technical Reviews (SETRs) utilizing validated assessment tools, system engineering methodologies and SETR checklists tracing system design to standards and requirements (e.g., Information Assurance (IA), data strategy, architecture, modeling, Open Architecture, Configuration Management, Service Oriented Architectures development, Anti-tamper, etc.) ensuring interoperability compliance to statutory and regulatory directives and guidance. Ensure continuous improvement of SETR Checklists by incorporating the latest policy, guidance, standards, and specifications. -Perform System of Systems and platform technical evaluations to integrate the alignment with the N2/N6 Information Dominance vision and identify performance and operational risks associated with the integration of multiple systems to provide a robust, mission based capability. -Continue to conduct document reviews (of Systems Engineering Plans, Information Support Plans, Interoperability Control Document/Competitive Design Development/Consolidated Programming Document, IA Strategies, Acquisition Strategies, etc.) for Office of the Chief of Naval Operations, Assistant Secretary of the Navy for Research, Development and Acquisition, and the Program Executive Offices, and other services to ensure sound systems engineering analysis and design principles have been applied to system planning requirements, design, testing, and supportability. -Continue to perform engineering evaluation and provide buy/no-buy decisions for proposed Deviations from Specification for afloat platforms to determine performance and operational impacts of the proposed change and their effects on the platforms mission. -Continue to provide engineering evaluation and validation of Business Information Technology (IT) applications and IT infrastructure in order to combine, consolidate, and eliminate unnecessary or underutilized business systems for the Naval enterprise. -Continue to provide engineering evaluation and validation of programs and ensure adherence to technical standards in the following technical domains: communications, networks, Information Storage and Retrieval/Information Surveillance Reconnaissance/Information Operations, afloat platforms (both large and small decks), submarines, shore and Maintenance Operations Center capability, command and control, and space systems. -Continue to conduct Command, Control, Communications, Computers, Intelligence (C4I) Certifications through design and testing analysis ensuring C4I delivery to the platform (shore, surface ship, submarine) is validated to meet the operational need and is interoperable with platform, force level, joint/allied/coalition forces.			
FY 2014 Plans: -Continue Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) and Information Dominance Transformation/Strategic Planning within Navy/Joint/Department of Defense Framework: Assess existing and emerging capabilities; develop and evaluate Navy-wide policies, plans, requirements, and compliance; develop integration and investment strategies; and accelerate innovation, testing, assessment and fielding of material and non-material solutions			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
for enhanced operational capability, joint/allied/coalition interoperability and application/enforcement of enterprise requirements/ architectures/standards toward greater Net-Centric Operations/Warfare and Information Dominance capability. -Continue to establish, develop, and validate interoperability requirements: Continue to perform Systems Engineering Technical Reviews (SETRs) utilizing validated assessment tools, system engineering methodologies and SETR checklists tracing system design to standards and requirements (e.g., Information Assurance, data strategy, architecture, modeling, Open Architecture, Configuration Management, Service Oriented Architecture development, Anti-tamper, etc.) ensuring interoperability compliance to statutory and regulatory directives and guidance. -Continue to ensure continuous improvement of SETR Checklists by incorporating the latest policy, guidance, standards, and specifications. -Continue to perform System of Systems and platform technical evaluations to integrate the alignment with the N2/N6 Information Dominance vision and identify performance and operational risks associated with the integration of multiple systems to provide a robust, mission based capability. -Continue to conduct document reviews (of Systems Engineering Plans, Information Support Plans, Interoperability Control Document/Competitive Design Development/Consolidated Programming Document, Information Assurance Strategies, Acquisition Strategies, etc.) for Office of the Chief of Naval Operations, Assistant Secretary of the Navy for Research, Development and Acquisition, and the Program Executive Offices, and other services to ensure sound systems engineering analysis and design principles have been applied to system planning requirements, design, testing, and supportability. -Continue to perform engineering evaluation and provide buy/no-buy decisions for proposed Deviations from Specification for afloat platforms to determine performance and operational impacts of the proposed changes and their effects on the platform's mission. -Continue to provide engineering evaluation and validation of Business IT applications and IT infrastructure in order to combine, consolidate, and eliminate unnecessary or underutilized business systems for the Naval Enterprise. -Continue to provide engineering evaluation and validation of programs and ensure adherence to technical standards in the following technical domains-communications, networks, Information Storage and Retrieval/Information Surveillance Reconnaissance/Information Operations, afloat platforms (both large and small decks), submarines, shore and Maintenance Operations Center capability, command and control, and space systems. -Continue to conduct Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Certifications through design and testing analysis ensuring C4ISR delivery to the platform (shore, surface ship, submarine) is validated to meet the operational need and is interoperable with platform, force level, joint/allied/coalition forces. -Provide technical support to the Department of the Navy Chief Information Office (DoN CIO) assessment of compliance with Department of Navy Enterprise Architecture (DoN EA) as part of Title 40/Clinger-Cohen ACT confirmation process.			
Title: Coalition Warrior Interoperability Demonstration (CWID) (Now known as CWIX)	1.535	1.475	0.971
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: -Demonstrated cutting-edge industry and government technologies and transitioned them to the end-user, including Non-Governmental Organizations (NGOs), coalition partners, and the joint services. -Provided interoperability between existing and cutting-edge C4ISR systems. Integrated directly with Program Executive Office C4I and the combatant commanders at the Technical Director, Acquisition Program Manager, and Science Advisor levels, and the State and Federal First Responder Agencies at all levels. -Continued with technology selection, experimental objective design, and experiment execution to influence and direct design efforts, to satisfy some war fighter capability gaps. Year-round connectivity was maintained with end-users, vetting capability requirements and ongoing technology efforts relevant to each organization. -Experiment results were directly integrated into developmental design and engineering efforts of individual technologies to accelerate the delivery of needed capability based on Joint Urgent Operational Needs (JUONs). -Utilized operationally-relevant classified laboratory environments for joint/coalition war fighter technology experiments, while real-world field environments were utilized for technologies related to Humanitarian Assistance Disaster Relief, Homeland Security, and Homeland Defense.			
FY 2013 Plans: -Develop coalition and interagency interoperability and information sharing through coalition engagement, technology, demonstrations, and assessments leading to improvements of C4ISR systems within the Navy and in conjunction with Joint Services and Coalition efforts. -Demonstrate cutting-edge industry and government technologies and transition them to the end-user, including NGOs, coalition partners, and the joint services. -Continue to provide interoperability between existing and cutting-edge Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems. Integrate directly with Navy Program Managers (i.e. Program Executive Office Command, Control, Communications, Computers, Intelligence) and the combatant commanders at the Technical Director, Acquisition Program Manager, and Science Advisor levels, and the State and Federal First Responder Agencies at all levels. -Validate technology selection, experimental objective design, and experiment execution to influence and direct design efforts, to satisfy some warfighter capability gaps. Year-round connectivity will be maintained with end-users, vetting capability requirements and ongoing technology efforts relevant to each organization. -Experiment results will continue to be directly integrated into developmental design and engineering efforts of individual technologies to accelerate the delivery of needed capability based on Joint Urgent Operational Needs (JUONs).			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
-Establish operationally relevant classified laboratory environments for joint/coalition war fighter technology experiments, while real-world field environments will be created for emergent naval technologies related to Humanitarian Assistance Disaster Relief, Homeland Security, and Homeland Defense. ***FY 2014 Plans:*** -Develop coalition and interagency interoperability and information sharing through coalition engagement, technology, demonstrations, and assessments leading to improvements of C4ISR systems within the Navy and in conjunction with Joint Services and Coalition efforts. -Leverage Coalition Interoperability and Assurance Validate (CIAV) Future Mission Network (FMN) efforts in order to develop operationally relevant experiments focused on Navy mission enhancement in a Coalition environment. -Develop experiments integrated with North Atlantic Treaty Organization (NATO) and Troop Contributing Nation (TCN) partners in conjunction with the Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX) infrastructure (formerly Coalition Warrior Interoperability Demonstration (CWID)). -Enhance integration and engagement with Pacific Rim Coalition partners by leveraging existing experimentation and exercise venues in order to develop operationally relevant experiments focused on enhancing Navy missions. -Demonstrate cutting-edge technologies and transition them to the end-user, including Coalition Partners, and the Joint Services. -Continue to provide interoperability between existing and cutting-edge C4ISR systems. Integrate directly with Navy Program Managers (i.e. Program Executive Office Command, Control, Communications, Computers, Intelligence and the combatant commanders at the Technical Director, Acquisition Program Manager, and Science Advisor levels. -Validate technology selection, experimental objective design, and execution to influence and direct design efforts and to satisfy warfighter capability gaps in a Coalition setting. -Continue to develop operationally relevant classified laboratory environments for Joint/Coalition war fighter technology experiments. Year-round connectivity will be continued with end-users in order to provide a distributed Coalition experimentation environment focused enhancement of Navy missions.			
Title: Systems Engineering and Integration Revitalization	1.189	1.193	1.072
Articles:	0	0	0
FY 2012 Accomplishments: -Continued to implement system engineering capability recommendations. -Continued to provide increased access to systems engineering training resources. ***FY 2013 Plans:*** -Begin transition of system engineering capability into a System of Systems (SoS) engineering view. -Implement SoS integration certification in support of platform level design.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
-Develop and conduct pilot SoS engineering development training. ***FY 2014 Plans:*** -Develop Integration and Interoperability (I&I) Systems Engineering Technical Reviews (SETR) checklist in support of Assistant Secretary of the Navy for Research, Development, and Acquisition ASN(RDA). -Conduct I&I SETR events to validate and refine I&I checklist items. -Review all Navy Information Technology Procurement Requests (ITPR) for developing systems to ensure adherence to Navy Information Technology (IT) standards and capture and report metric information to support moving to bulk IT procurement to take advantage of economies of scale across the Department of the Navy.			
Title: Systems Engineering Standards and Processes	3.058	3.066	2.768
Articles:	0	0	0
FY 2012 Accomplishments: -Continued to define and implement technical authority for the interfaces between program office systems engineering and enterprise systems engineering and optimized the total value of systems engineering in product delivery. -Continued to develop processes to inject systems engineering discipline into the acquisition cycle earlier. -Continued to incorporate lessons learned from recent and emerging program issues. ***FY 2013 Plans:*** -Develop processes to integrate SoS engineering technical assessments to identify cross system dependencies. -Incorporate lessons learned from prior year system engineering efforts to ensure multi-systems processes are intuitive and meet the mission of the Navy. ***FY 2014 Plans:*** -Continue to develop processes to integrate SoS engineering technical assessments to identify cross system dependencies. -Continue to incorporate lessons learned from prior year system engineering efforts to ensure multi-systems processes are intuitive and meet the mission of the Navy. -Develop Joint cloud-enabled, secure domain environment using virtual desktop technology that allow secure and cost effective operations at the point of need, creating improved efficiencies, enhanced cyber operations and improved capabilities across a range of military operations. -Develop Utility Cloud, Storage Cloud and plan and execute risk reduction for UNCLASSIFIED/SECRET/TOPSECRET/Sensitive Compartmented Information (SCI) Data Cloud providing secure access to other users. -Develop mission effectiveness of a data centric architecture. -Develop secure thin client (enterprise applications) device capability integration with the current Navy enterprise. -Develop the future Navy cloud architecture to inform Navy acquisition programs on cloud technologies.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
-Develop Continental United States (CONUS)/Outside Continental United States (OCONUS) cloud-based capabilities.			
Accomplishments/Planned Programs Subtotals	9.013	9.085	8.053

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Space and Electronic Warfare (SEW) Engineering is a non-acquisition program that develops, tests, implements technical authority, and validates naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR); provides integrated architecture products and supports C4ISR systems engineering processes and standards. Activities include acquiring intellectual capital in emerging technical areas through contracts providing technical engineering expertise and surge capacity for emerging tasks.

E. Performance Metrics

The SEW engineering program will employ rigorous and consistent system engineering practices in an evolving value model to support development and deployment of shipboard, undersea, and land based capabilities based on mission and performance requirements, integrated enterprise architectures, model-validated solutions, and sustainment and supportability needs for the Command and Control, Intelligence, Networks, Communications, Space, and Business Information Technology domains.

Coalition Warrior Interoperability Experimentation (CWIX) Performance Metrics: Three key metrics: (1) Interoperability and compliance with Naval, joint, coalition and other non-governmental organization architectures, systems and equipment; (2) Compliance with Defense Information Services Agency, National Security Agency, and other joint and coalition information assurance and security standards; and (3) war fighter utility assessment across the joint and coalition spectrum. Specific metrics validate performance of individual technologies participating in CWIX.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various	Various:Various	4.554	0.000		0.000		0.000		-		0.000	0.000	4.554	
SEW/C4I Technology Integration	Various	Various:Various	12.985	0.000		0.000		0.000		-		0.000	0.000	12.985	
MDA Prototype SE Support	Various	Various:Various	17.376	0.000		0.000		0.000		-		0.000	0.000	17.376	
Systems Engineering & Integration Revitalization	Various	Various:Various	2.174	0.000		0.000		0.000		-		0.000	0.000	2.174	
Systems Engineering & Integration Revitalization	C/CPFF	ComGlobal:San Diego, CA	0.000	0.565	Feb 2012	0.000		0.000		-		0.000	0.000	0.565	
Systems Engineering & Integration Revitalization	C/CPFF	Unknown:Unknown	0.000	0.000		0.550	Mar 2013	0.485	Jan 2014	-		0.485	Continuing	Continuing	Continuing
Systems Engineering & Integration Revitalization	C/CPFF	METRON:Reston, VA	0.316	0.000		0.000		0.000		-		0.000	0.000	0.316	
Systems Engineering & Integration Revitalization	C/CPFF	SAIC:San Diego, CA	0.316	0.000		0.000		0.000		-		0.000	0.000	0.316	
Systems Engineering & Integration Revitalization	WR	SSC LANT:Charleston, NC	0.133	0.184	Feb 2012	0.180	Feb 2013	0.164	Feb 2014	-		0.164	Continuing	Continuing	Continuing
Systems Engineering & Integration Revitalization	WR	SSC PAC:San Diego, CA	0.343	0.461	Feb 2012	0.467	Feb 2013	0.423	Feb 2014	-		0.423	Continuing	Continuing	Continuing
Systems engineering Standards & Processes	Various	Various:Various	5.588	0.000		0.000		0.000		-		0.000	0.000	5.588	
Systems engineering Standards & Processes	C/CPFF	ComGlobal:San Diego, CA	0.000	1.454	Feb 2012	0.000		0.000		-		0.000	0.000	1.454	
Systems engineering Standards & Processes	C/CPFF	Unknown:Unknown	0.000	0.000		1.389	Mar 2013	1.249	Jan 2014	-		1.249	Continuing	Continuing	Continuing
Systems engineering Standards & Processes	C/CPFF	METRON:Reston, VA	0.813	0.000		0.000		0.000		-		0.000	0.000	0.813	
Systems engineering Standards & Processes	C/CPFF	SAIC:San Diego, CA	0.812	0.000		0.000		0.000		-		0.000	0.000	0.812	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems engineering Standards & Processes	WR	SSC LANT:Charleston, NC	0.342	0.474	Feb 2012	0.462	Feb 2013	0.422	Feb 2014	-		0.422	Continuing	Continuing	Continuing
Systems engineering Standards & Processes	WR	SSC PAC:San Diego, CA	0.884	1.233	Feb 2012	1.200	Feb 2013	1.096	Feb 2014	-		1.096	Continuing	Continuing	Continuing
Systems A&E and Validation	Various	Various:Various	13.188	0.000		0.000		0.000		-		0.000	0.000	13.188	
Distributed C2 Interoperability Requirement analysis	Various	Various:Various	16.583	0.000		0.000		0.000		-		0.000	0.000	16.583	
C4ISR Architecture and Standards	Various	Various:Various	14.268	0.000		0.000		0.000		-		0.000	0.000	14.268	
End-to-End System Engineering and Integrated Design	Various	Various:Various	10.994	0.000		0.000		0.000		-		0.000	0.000	10.994	
Info. Repository/Naval Architecture	Various	Various:Various	4.000	0.000		0.000		0.000		-		0.000	0.000	4.000	
C4ISR Systems Engineering	Various	Various:Various	5.157	0.000		0.000		0.000		-		0.000	0.000	5.157	
C4ISR Systems Engineering	WR	NSWC Dahlgren:Dahlgren, MD	0.000	0.309	Feb 2012	0.311	Feb 2013	0.301	Feb 2014	-		0.301	0.000	0.921	
C4ISR Systems Engineering	MIPR	DISA:Pensacola, FL	0.000	0.088	Feb 2012	0.089	Feb 2013	0.087	Feb 2014	-		0.087	0.000	0.264	
C4ISR Systems Engineering	C/CPFF	ComGlobal:San Diego, CA	2.200	1.747	Feb 2012	1.993	Feb 2013	1.916	Feb 2014	-		1.916	Continuing	Continuing	Continuing
C4ISR Systems Engineering	WR	SSC LANT:Charleston, NC	0.440	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
C4ISR Systems Engineering	WR	SSC PAC:San Diego, CA	1.188	0.963	Feb 2012	0.969	Feb 2013	0.939	Feb 2014	-		0.939	Continuing	Continuing	Continuing
C4ISR Systems Engineering	WR	NAVAIR:Patuxent River, MD	0.088	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C4ISR Systems Engineering	MIPR	CECOM:Fort Monmouth, NJ	0.264	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
C4ISR Systems Engineering	MIPR	AF:Hill AFB, UT	0.220	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	115.226	7.478		7.610		7.082		0.000		7.082			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SEW Eng/CWID	Various	Various:Various	30.171	0.000		0.000		0.000		-		0.000	0.000	30.171	
SEW Eng/CWID	MIPR	Defense Information Systems Agency:Arlington, VA	0.107	0.067	Apr 2012	0.065	Apr 2013	0.040	Apr 2014	-		0.040	Continuing	Continuing	Continuing
SEW Eng/CWID	WR	Joint Interoperability Test Command:Fort Huachuca, AZ	0.720	0.595	Mar 2012	0.573	Mar 2013	0.356	Mar 2014	-		0.356	Continuing	Continuing	Continuing
SEW Eng/CWID	WR	SSC Pacific:San Diego, CA	0.758	0.758	Dec 2011	0.727	Dec 2012	0.506	Dec 2013	-		0.506	Continuing	Continuing	Continuing
SEW Eng/CWID	MIPR	US Northern Command:Peterson AFB, CO	0.115	0.115	Jan 2012	0.110	Jan 2013	0.069	Jan 2014	-		0.069	Continuing	Continuing	Continuing
SEW Eng/JRAE	Various	Various:Various	15.978	0.000		0.000		0.000		-		0.000	0.000	15.978	
		Subtotal	47.849	1.535		1.475		0.971		0.000		0.971			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ACQ Workforce Fund	Various	Various:Various	0.071	0.000		0.000		0.000		-		0.000	0.000	0.071	
		Subtotal	0.071	0.000		0.000		0.000		0.000		0.000	0.000	0.071	

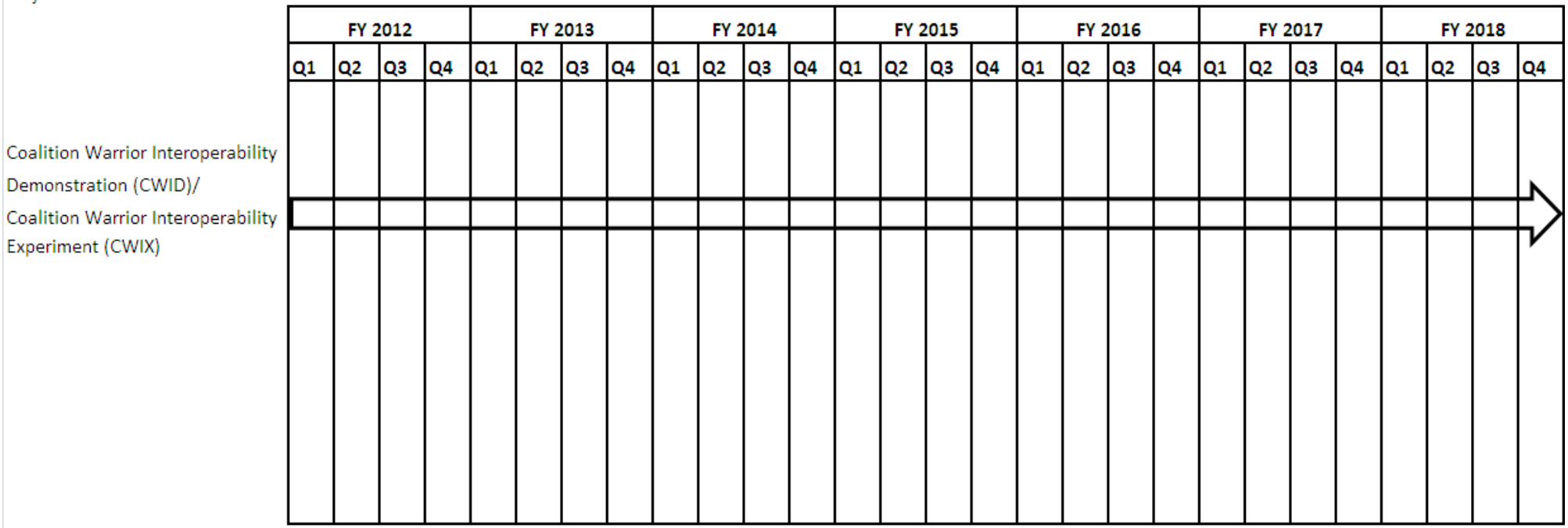
Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	163.146	9.013		9.085		8.053		0.000		8.053			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2144: *Space & Elec Warfare Engineering*

Project 2144



FMB 2014 - 0604707N - 2144

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604707N: *SEW Architecture/Eng Support*	**PROJECT** 2144: *Space & Elec Warfare Engineering*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2144				
Coalition Warrior Interoperability Demonstration/Coalition Warrior Interoperability Experiment (CWID/CWIX): Schedule as directed by the Joint Management Office (JMO) during execution year.	1	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2356: *Maritime Concept Generation & Development*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2356: *Maritime Concept Generation & Development*	0.000	0.000	8.323	17.194	-	17.194	17.750	8.458	8.738	8.888	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

Beginning in FY 2013 this project is funded to replace Project 2357 (Maritime Battle Center), and more accurately reflect the current mission of Navy Warfare Development Command (NWDC) experimentation. Funding projected for Project 2357 will be moved to Project 2356.

A. Mission Description and Budget Item Justification

Funds the development of new or improved war fighting capabilities through the Concept Generation and Concept Development (CG/CD) program and the related experimentation. The priorities for the CG/CD program are to explore near/far-term technological and non-technological solutions to war fighting gaps across all naval warfare areas. The CG/CD experimentation efforts include planning, systems engineering and integration, execution, data collection, analysis, and assessment requirements for a wide range of experiment venues, such as workshops, seminars, wargames, limited objective experiments, limited technical experiments, and live force events. Where appropriate, CG/CD experimentation will be conducted in a joint, or coalition environment.

Also supports the fleet's experimentation program (Fleet Experimentation - FLEX) by providing planning, systems engineering and integration, execution, data collection, and analysis support to the Mission/Warfare Area Office of Primary Responsibility where appropriate and as available. This support conducts experimentation in support of the Comander's Guidance for Fleet Experimentation promulgated by Commander USFF. This program historically does not meet established execution benchmarks. It differs from other Research, Development, Test and Evaluation (RDT&E) programs because it relies upon fleet participation, and thus is scheduled around fleet or staff availability. Because that availability frequently occurs during the spring and summer operational schedules, the overall RDT&E obligation/expenditure rates do not align with OSD practice. As a result, this project's obligation rates do not begin to approach benchmark until the program nears the fiscal year's end while its expenditure rates generally do not approach benchmark until midway through the second year of its appropriation.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: New Accomplishment/Planned Program Entry	0.000	8.323	17.194
Articles:		0	0
Description: The increase in funding from FY 2013 to FY 2014 reflects a new CNO directed effort to establish a CNO Rapid Innovation Cell (CRIC), managed by NWDC and supported by the Office of Naval Research. The CRIC is intended to identify			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2356: *Maritime Concept Generation & Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
new, innovative ideas and technologies outside of the mainstream Navy development and acquisition process, and get them to the Fleet for rapid testing and evaluation. ***FY 2013 Plans:*** -Continue all FY 2012 efforts started under Project 2357 and carry forward. - Continue participation in Joint Forces Command (JFCOM) experimentation continuum - Continue Limited Objective Experiments. - Continue CONOPS Development Experiments. - Continue the Sonar/Radar Data Comparison experiment. - Continue the Millimeter Wave Chaff experiment. - Continue the Surface Action Group Modeling experiment. - Continue the Harpoon Seeker Modeling in an Electronic Attack environment experiment. - Continue the Fast Attack Craft/Fast Inshore Attack Craft experiment. - Continue the multi-year series of Littoral Force Protection experiments. - Continue the final spiral of the multi-year series of Tactical Tomahawk 3rd Party Targeting experiments. - Continue the multi-year series of Surface Ship Periscope Detection experiments. - Continue the multi-year series of Submarine Unmanned Aerial System experiments. - Continue the multi-year series of Submarine Communications at Speed and Depth experiments. - Continue the multi-year series of Mine Countermeasures in Support of Homeland Defense experiments. - Continue the multi-year series of Littoral Combat Ship Mine Warfare Mission Modules experiments. - Continue the multi-year series of SPIKE experiments. - Continue the Sonar Active Target Evaluation experiment. - Continue the multi-year series of Project Guillotine experiments. - Continued the multi-year series of Submarine/Unmanned Underwater Vehicle Communications experiments. - Initiated and execute Sea Trial Experiments, War Games, and Seminars based on the Execution Plan 13, currently being developed. - Initiate and execute experiments in support of the CNO-directed Concept Generation and Concept Development effort. ***FY 2014 Plans:*** -Continue all FY 2013 efforts and carry forward. -Execute the CNO Rapid Innovation Cell (CRIC) projects.			
Accomplishments/Planned Programs Subtotals	0.000	8.323	17.194

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2356: *Maritime Concept Generation & Development*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

There is no acquisition strategy - this is not an acquisition program nor is materiel purchased with this funding. This funding is used to buy people to generate/develop/validate concepts, or to build and analyze the results of experiments focused on improved processes and tactics/techniques/procedures to mitigate identified war fighting gaps. The majority of this funding buys a core group of contractors who provide experiment design, execution and analysis support while the remainder is used to buy specific skill sets that are not part of the core group, and also cover some of the engineering and integration costs associated with certain experiments.

E. Performance Metrics

Maritime Concept Generation and Development:

- Refine concepts and identify key performance levels necessary for implementation.
- Demonstrate feasibility and discriminate among competing concepts and implementation alternatives.
- Understand potential military effectiveness and risk.
- Evaluate how much of the new capability and attendant force structure is needed.
- Learn how to operate the new force and combine it with the legacy force.
- Develop recommended Doctrine, Organization, Training, Materiel, Leadership, and Personnel (DOTMLP) changes.
- Develop fleet war fighting requirements for submission to the OPNAV Navy Capabilities Development Process (NCDP) to inform Navy acquisition decisions.
- Integrate emergent concepts and technologies, leading to rapid introduction of needed war fighting capabilities in the fleet.
- Rapidly mature concepts, technologies, and doctrine.
- Focus on near, mid and long term war fighting challenges to realize increased war fighting effectiveness.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2356: *Maritime Concept Generation & Development*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation	MIPR	Defense Technical Information Center:Ft Belvoir VA	0.000	0.000		2.000	Oct 2012	3.000	Oct 2013	-		3.000	Continuing	Continuing	Continuing
System Test and Evaluation	C/FFP	SPAWARSYSCEN Atlantoic:Charleston SC	0.000	0.000		2.195	Jan 2013	1.500	Jan 2014	-		1.500	Continuing	Continuing	Continuing
System Test and Evaluation	C/FFP	Naval Undesea Warfare Center:Newport RI	0.000	0.000		0.500	Mar 2013	0.300	Mar 2014	-		0.300	Continuing	Continuing	Continuing
System Test and Evaluation	C/FFP	Naval Postgraduate School:Monterey CA	0.000	0.000		0.500	May 2013	0.500	May 2014	-		0.500	Continuing	Continuing	Continuing
System Test and Evaluation	C/FFP	Navy Warfare Development Command:Norfolk VA	0.000	0.000		1.858	Nov 2012	9.315	Nov 2013	-		9.315	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		7.053		14.615		0.000		14.615			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/FFP	Navy Warfare Development Command:Norfolk VA	0.000	0.000		1.270	Oct 2012	2.579	Oct 2013	-		2.579	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		1.270		2.579		0.000		2.579			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		8.323		17.194		0.000		17.194			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2356: *Maritime Concept Generation & Development*

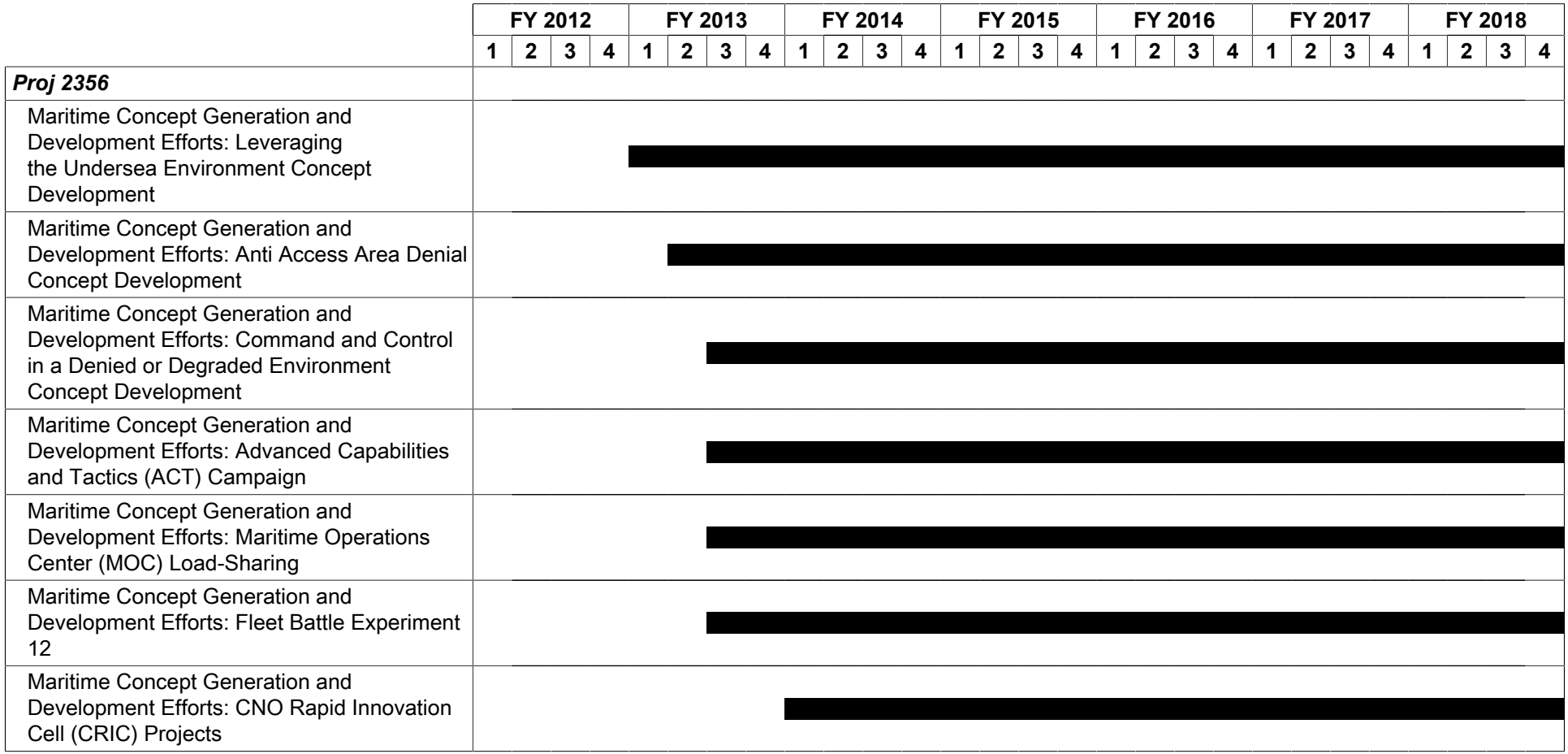


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604707N: *SEW Architecture/Eng Support*	**PROJECT** 2356: *Maritime Concept Generation & Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2356				
Maritime Concept Generation and Development Efforts: Leveraging the Undersea Environment Concept Development	1	2013	4	2018
Maritime Concept Generation and Development Efforts: Anti Access Area Denial Concept Development	2	2013	4	2018
Maritime Concept Generation and Development Efforts: Command and Control in a Denied or Degraded Environment Concept Development	3	2013	4	2018
Maritime Concept Generation and Development Efforts: Advanced Capabilities and Tactics (ACT) Campaign	3	2013	4	2018
Maritime Concept Generation and Development Efforts: Maritime Operations Center (MOC) Load-Sharing	3	2013	4	2018
Maritime Concept Generation and Development Efforts: Fleet Battle Experiment 12	3	2013	4	2018
Maritime Concept Generation and Development Efforts: CNO Rapid Innovation Cell (CRIC) Projects	1	2014	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2357: *Maritime Battle Center*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2357: *Maritime Battle Center*	320.369	8.618	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	328.987
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

Sea Trial funding has been moved to a new project - 3319 Fleet Experimentation. The funding decrease in FY 2012 is due to realignment of funds to the new project.

A. Mission Description and Budget Item Justification

Funds the development of new or improved war fighting capabilities through the Concept Generation and Concept Development (CG/CD) program. The priorities for the CG/CD program are to explore near-/far-term technological and non-technological solutions to war fighting gaps across all naval warfare areas. The CG/CD experimentation efforts include planning, systems engineering and integration, execution, data collection, analysis, and assessment requirements for a wide range of experiment venues, such as workshops, seminars, wargames, limited objective experiments, limited technical experiments, and live force events. Where appropriate, CG/CD experimentation will be conducted in a joint, or coalition environment.

Also supports the fleet's experimentation program (Sea Trial) by providing planning, systems engineering and integration, execution, data collection, and analysis support to the Sea Trial Operational Agents where appropriate and as available. This support is focused on experimentation contained in the annual Sea Trial Execution Plan.

This program historically does not meet established execution benchmarks. It differs from other Research, Development, Test and Evaluation (RDT&E) programs because it relies upon fleet participation, and thus is scheduled around fleet or staff availability. Because that availability frequently occurs during the spring and summer operational schedules, the overall RDT&E obligation/expenditure rates do not align with OSD practice. As a result, this project's obligation rates do not begin to approach benchmark until the program nears the fiscal year's end while its expenditure rates generally do not approach benchmark until midway through the second year of its appropriation.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: FBE Analysis and Core Support	8.618	0.000	0.000
Articles:	0		
Description: Because of the synergistic relationship between Maritime Battle Center experimentation efforts and the fleet's Sea Trial experimentation efforts, funding for both endeavors have been combined under one project, the Maritime Battle Center. The			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2357: *Maritime Battle Center*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Sea Trial aspect of this project's mission is driven by annual priorities. The priorities are further prioritized and approved by the Sea Trial Executive Steering Group (STESG). ***FY 2012 Accomplishments:*** - Continued participation in Joint Forces Command (JFCOM) experimentation continuum - Continued Limited Objective Experiments. - Continued CONOPS Development Experiments. - Continued the Sonar/Radar Data Comparison experiment. - Continued the Millimeter Wave Chaff experiment. - Continued the Surface Action Group Modeling experiment. - Continued the Harpoon Seeker Modeling in an Electronic Attack environment experiment. - Continued the Fast Attack Craft/Fast Inshore Attack Craft experiment. - Continued the multi-year series of Littoral Force Protection experiments. - Continued the final spiral of the multi-year series of Tactical Tomahawk 3rd Party Targeting experiments. - Continued the multi-year series of Surface Ship Periscope Detection experiments. - Continued the multi-year series of Submarine Unmanned Aerial System experiments. - Continued the multi-year series of Submarine Communications at Speed and Depth experiments. - Continued the multi-year series of Mine Countermeasures in Support of Homeland Defense experiments. - Continued the multi-year series of Littoral Combat Ship Mine Warfare Mission Modules experiments. - Continued the multi-year series of SPIKE experiments. - Continued the Sonar Active Target Evaluation experiment. - Continued the multi-year series of Project Guillotine experiments. - Continued the multi-year series of Submarine/Unmanned Underwater Vehicle Communications experiments. - Initiated and executed Sea Trial Experiments, War Games, and Seminars based on the Execution Plan 12, currently being developed. - Initiated and executed experiments in support of the CNO-directed Concept Generation and Concept Development effort.			
Accomplishments/Planned Programs Subtotals	8.618	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2357: *Maritime Battle Center*

D. Acquisition Strategy

There is no acquisition strategy - this is not an acquisition program nor is materiel purchased with this funding. This funding is used to buy people to generate/develop/validate concepts, or to build and analyze the results of experiments focused on improved processes and tactics/techniques/procedures to mitigate identified war fighting gaps. The majority of this funding buys a core group of contractors who provide experiment design, execution and analysis support while the remainder is used to buy specific skill sets that are not part of the core group, and also cover some of the engineering and integration costs associated with certain experiments.

E. Performance Metrics

Maritime Battle Center:

- Refine concepts and identify key performance levels necessary for implementation.
- Demonstrate feasibility and discriminate among competing concepts and implementation alternatives.
- Understand potential military effectiveness and risk.
- Evaluate how much of the new capability and attendant force structure is needed.
- Learn how to operate the new force and combine it with the legacy force.
- Develop recommended Doctrine, Organization, Training, Materiel, Leadership, and Personnel (DOTMLP) changes.
- Develop fleet war fighting requirements for submission to the OPNAV Navy Capabilities Development Process (NCDP) to inform Navy acquisition decisions.
- Integrate emergent concepts and technologies, leading to rapid introduction of needed war fighting capabilities in the fleet.
- Rapidly mature Sea Shield, Sea Strike, Sea Basing, and FORCEnet concepts, technologies, and doctrine.
- Focus on near, mid and long term war fighting challenges to realize increased war fighting effectiveness.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2357: *Maritime Battle Center*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation	MIPR	Defense Technical Information Center:Ft Belvoir VA	248.277	0.000		0.000		0.000		-		0.000	0.000	248.277	248.277
System Test and Evaluation	C/FFP	NAVSEA:Washington DC	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	2.000
System Test and Evaluation	C/FFP	SPAWAR:San Diego CA	2.000	2.012	Jan 2012	0.000		0.000		-		0.000	0.000	4.012	4.012
System Test and Evaluation	C/FFP	SPAWARSYSCEN Atlantic:Charleston SC	3.500	2.270	Mar 2012	0.000		0.000		-		0.000	0.000	5.770	5.770
System Test and Evaluation	C/FFP	SPAWARSYSCEN Pacific:San Diego CA	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	2.000
System Test and Evaluation	C/FFP	Naval Underwater Warfare Center:Newport RI	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	1.000
System Test and Evaluation	C/FFP	Naval Surface Warfare Center:CA, IN, MD, VA	1.500	0.000		0.000		0.000		-		0.000	0.000	1.500	1.500
System Test and Evaluation	C/FFP	Naval Postgraduate School:Monterey CA	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	2.000
System Test and Evaluation	C/FFP	Navy Warfare Development Command:Norfolk VA	3.882	3.000	Jan 2012	0.000		0.000		-		0.000	0.000	6.882	6.882
		Subtotal	266.159	7.282		0.000		0.000		0.000		0.000	0.000	273.441	273.441

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/FFP	Navy Warfare Development	51.063	1.336	Jan 2012	0.000		0.000		-		0.000	0.000	52.399	52.399

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2357: *Maritime Battle Center*

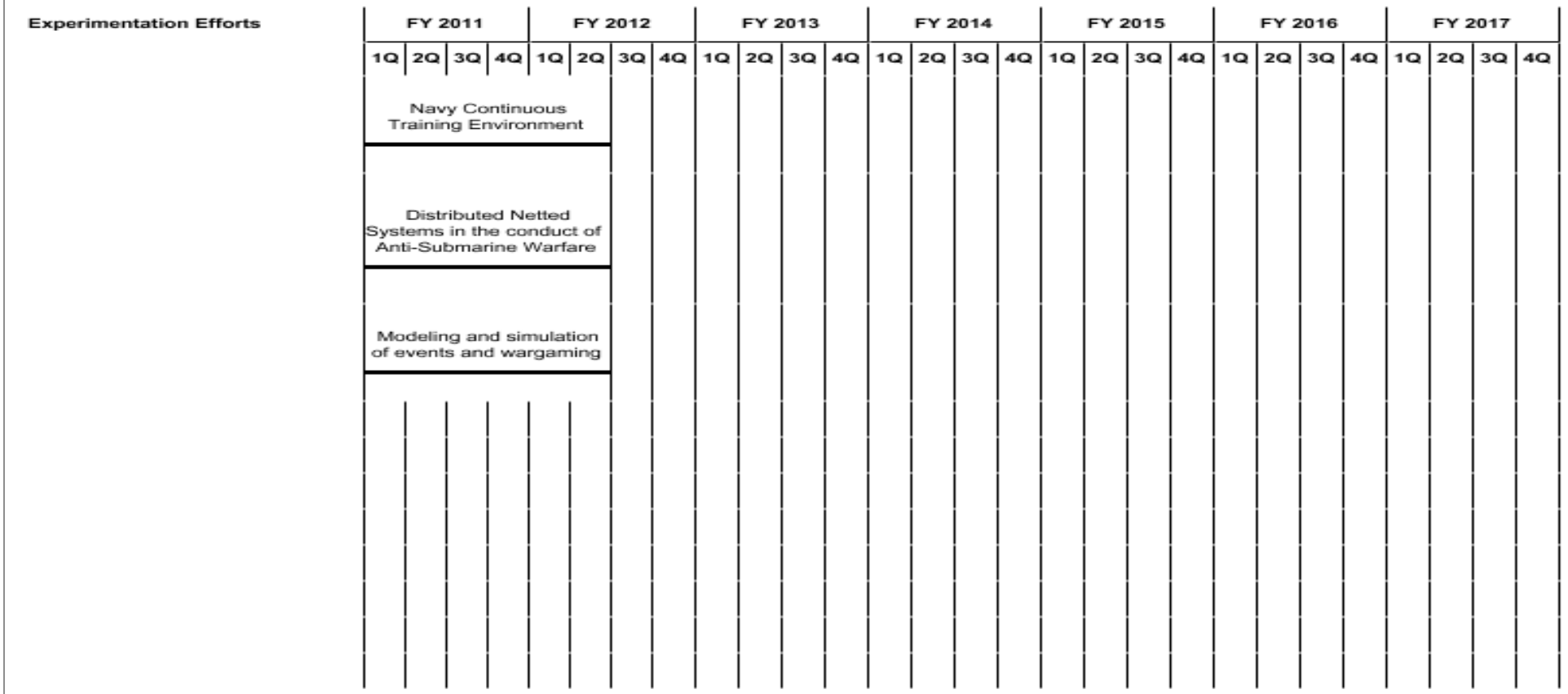
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Command:Norfolk VA													
Program Management	C/FFP	Naval Postgraduate School:Monterey CA	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	1.000
Program Management	C/FP	SPAWAR:San Diego CA	1.999	0.000		0.000		0.000		-		0.000	0.000	1.999	1.999
ACQ Workforce Fund	Various	Various:Various	0.148	0.000		0.000		0.000		-		0.000	0.000	0.148	0.148
		Subtotal	54.210	1.336		0.000		0.000		0.000		0.000	0.000	55.546	55.546

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	320.369	8.618		0.000		0.000		0.000		0.000	0.000	328.987	328.987

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 2357: *Maritime Battle Center*



2013PB - 0604707N - 2357

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604707N: *SEW Architecture/Eng Support*	**PROJECT** 2357: *Maritime Battle Center*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Experimentation Efforts				
Navy Continuous Training Environment	1	2012	2	2012
Distributed Netted Systems in the conduct of Anti-Submarine Warfare	1	2012	2	2012
Modeling and simulation of events and wargaming	1	2012	2	2012

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 3319: *Fleet Experimentation*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3319: *Fleet Experimentation*	0.700	20.847	13.369	12.301	-	12.301	12.551	14.307	13.880	14.140	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

Since FY 2006 the funding for Fleet Experimentation (Sea Trial) has been contained in Project 2357 - Maritime Battle Center. In FY 2012 Project 2357 has been split with the funding for Navy Warfare Development Command (NWDC) experimentation remaining in 2357 while Fleet Experimentation (Sea Trial) funding has been moved to this new project - 3319 Fleet Experimentation. The funding beginning in FY 2012 is due to that realignment and is a transfer from Project 2357.

A. Mission Description and Budget Item Justification

The mission of the Sea Trial (Fleet Experimentation) program is the development of new or improved war fighting capabilities. Sea Trial evaluates and validates emerging Navy concepts, concepts of operations (CONOPS), doctrine and technologies through focused experimentation, rigorous analysis, and assessment and is dedicated to providing solutions to near term (within the Fiscal Year Defense Plan) war fighting gaps. Sea Trial efforts are prioritized by the flag level Sea Trial Executive Steering Group (STESG), approved by Commander, U.S. Fleet Forces, and contained in the Sea Trial annual execution plan.

Sea Trial conducts experiments that examine both technological and non-technological solutions to war fighting gaps across all naval warfare areas. Sea Trial experiments run the gamut from workshops and seminars to fleet experiments, and involve all facets of experimentation including planning, systems engineering and integration, execution, data collection, analysis, and assessment. While Navy-centric, Sea Trial efforts include joint and coalition partners when appropriate.

This program historically does not meet established execution benchmarks. Sea Trial experimentation differs from other Research, Development, Test and Evaluation (RDT&E) programs because it is based upon Fleet operational availability vice independently scheduled through war fighting labs. Because Fleet experimentation frequently must occur during the spring and summer operational schedules, the overall RDT&E obligation/expenditure rates do not align with OSD practice. As a result, Sea Trial's obligation rates do not begin to approach benchmark until the program nears the fiscal year's end while its expenditure rates generally do not approach benchmark until midway through the second year of its appropriation.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Fleet Experimentation	20.847	13.369	12.301
Articles:	0	0	0
Description: Decrease in funding from FY 2012 to FY 2013 is due to completion of the CNO sponsored 4G Demo Load.			
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 3319: *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
- Initiate and complete experiments in support of the CNO-directed Concept Generation and Concept Development program. - Initiate and complete experiments tasked by U.S. Fleet Forces in support of Fleet Experimentation. ***FY 2013 Plans:*** - Initiate and complete experiments in support of the CNO-directed Concept Generation and Concept Development program. - Initiate and complete experiments tasked by U.S. Fleet Forces in support of Fleet Experimentation ***FY 2014 Plans:*** - Initiate and complete experiments in support of the CNO-directed Concept Generation and Concept Development program. - Initiate and complete experiments tasked by U.S. Fleet Forces in support of Fleet Experimentation			
Accomplishments/Planned Programs Subtotals	20.847	13.369	12.301

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

There is no acquisition strategy - this is not an acquisition program nor is materiel purchased with this funding. This funding is used for between 30 and 40 experimental initiatives annually, focused on addressing fleet identified capability gaps, and primarily buys the people to design and execute the experiments and analyze the results.

E. Performance Metrics

Fleet Experimentation:
- Refine concepts and identify key performance levels necessary for implementation.
- Demonstrate feasibility and discriminate among competing concepts and implementation alternatives.
- Understand potential military effectiveness and risk.
- Evaluate how much of the new capability and attendant force structure is needed.
- Learn how to operate the new force and combine it with the legacy force.
- Develop recommended Doctrine, Organization, Training, Materiel, Leadership, and Personnel (DOTMLP) changes.
- Develop fleet war fighting requirements for submission to the OPNAV Navy Capabilities Development Process (NCDP) to inform Navy acquisition decisions.
- Integrate emergent concepts and technologies, leading to rapid introduction of needed war fighting capabilities in the fleet.
- Rapidly mature Sea Shield, Sea Strike, Sea Basing, and FORCEnet concepts, technologies, and doctrine.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 3319: *Fleet Experimentation*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Test and Evaluation	MIPR	Defense Technical Information Center:Ft Belvoir VA	0.000	1.000	Jan 2012	1.350	Oct 2012	1.200	Oct 2013	-		1.200	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	NAVSEA:Washington DC	0.000	2.000	Jun 2012	0.600	Jun 2013	1.500	Oct 2013	-		1.500	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	SPAWAR:San Diego CA	0.000	1.838	Mar 2012	2.000	Oct 2012	1.200	Oct 2013	-		1.200	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	SPAWARSYSCEN Atlantic:Charleston SC	0.000	1.823	Mar 2012	1.250	Jan 2013	0.600	Feb 2014	-		0.600	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	SPAWARSYSCEN Pacific:San Diego CA	0.000	2.300	Mar 2012	2.200	Oct 2012	1.000	Oct 2013	-		1.000	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	Naval Undersea Warfare Center:Newport RI	0.000	0.500	Jan 2012	0.750	Nov 2012	0.700	Mar 2014	-		0.700	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	Naval Surface Warfare Center:CA, IN, MD, VA	0.000	1.000	Jun 2012	0.401	Mar 2013	0.500	Oct 2013	-		0.500	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	Naval Postgraduate School:Monterey CA	0.000	1.500	Jun 2012	1.400	Jan 2013	1.000	Jan 2014	-		1.000	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	Navy Warfare Development Command:Norfolk VA	0.000	0.500	Mar 2012	0.358	Mar 2013	0.500	Oct 2013	-		0.500	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	Naval Research Laboratory:Washington DC	0.000	0.000		0.000		1.000	Oct 2013	-		1.000	Continuing	Continuing	Continuing
System Test and Evaluation	C/FFP	Naval Air Warfare Center:Point Mugu CA	0.000	0.000		0.000		0.600	Jan 2014	-		0.600	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	Fleet Industrial Supply:Norfolk VA	0.000	0.000		0.000		0.200	Oct 2013	-		0.200	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 3319: *Fleet Experimentation*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Test and Evaluation	C/FFP	Naval Air Warfare Center Aircraft Divisiion:Patuxent River MD	0.000	6.609	Apr 2012	0.000		0.200	Dec 2013	-		0.200	Continuing	Continuing	Continuing
System Test and Evaluation	MIPR	Air Force Research Lab:Wright Patterson AFB OH	0.000	0.000		1.000	May 2013	1.000	Dec 2013	-		1.000	Continuing	Continuing	Continuing
		Subtotal	0.000	19.070		11.309		11.200		0.000		11.200			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/FFP	SPAWAR:San Diego CA	0.000	1.527	Jan 2012	0.810	Dec 2012	0.500	Dec 2013	-		0.500	Continuing	Continuing	Continuing
Program Management	C/FFP	Naval Postgraduate School:Montery CA	0.700	0.000		0.750	Nov 2012	0.000		-		0.000	0.000	1.450	1.450
Program Managment	C/FFP	US Fleet Forces Command:Norfolk VA	0.000	0.000		0.500	Oct 2012	0.200	Nov 2013	-		0.200	Continuing	Continuing	Continuing
Program Management	C/FFP	Naval Air Warfare Center Aircraft Division:Patuxent River MD	0.000	0.250	Apr 2012	0.000		0.200	Oct 2013	-		0.200	Continuing	Continuing	Continuing
Program Management	C/FFP	Naval Surface Warfare Command:DahlgrenVA	0.000	0.000		0.000		0.201	Dec 2013	-		0.201	Continuing	Continuing	Continuing
		Subtotal	0.700	1.777		2.060		1.101		0.000		1.101			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.700	20.847		13.369		12.301		0.000		12.301			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 3319: *Fleet Experimentation*	

	All Prior Years	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604707N: *SEW Architecture/Eng Support*	PROJECT 3319: *Fleet Experimentation*

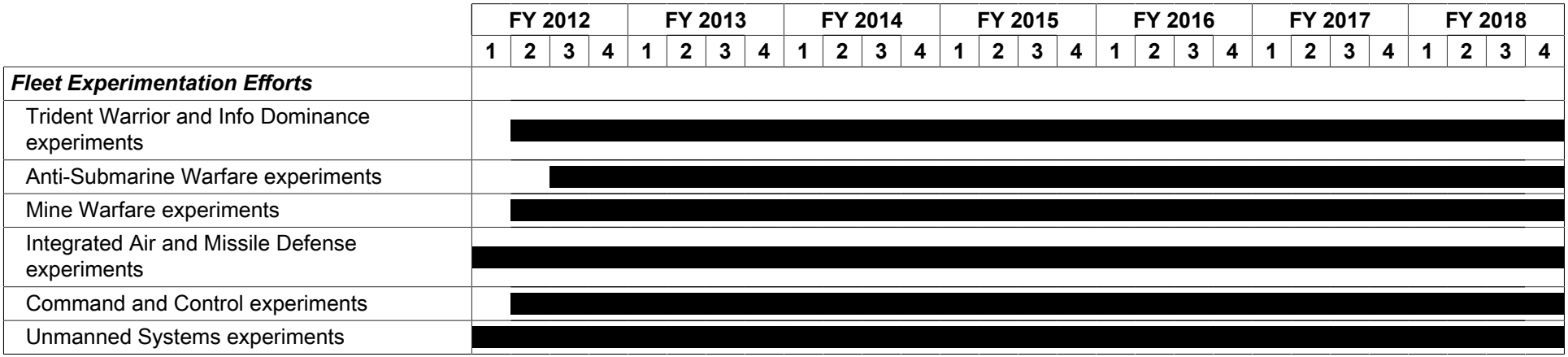


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604707N: *SEW Architecture/Eng Support*	**PROJECT** 3319: *Fleet Experimentation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Fleet Experimentation Efforts				
Trident Warrior and Info Dominance experiments	2	2012	4	2018
Anti-Submarine Warfare experiments	3	2012	4	2018
Mine Warfare experiments	2	2012	4	2018
Integrated Air and Missile Defense experiments	1	2012	4	2018
Command and Control experiments	2	2012	4	2018
Unmanned Systems experiments	1	2012	4	2018

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0604786N: *(U)Offensive Anti-Surface Warfare Weapon Dev*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.000	86.801	135.985	-	135.985	230.997	199.910	202.972	269.422	Continuing	Continuing
3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*	0.000	0.000	86.801	135.985	-	135.985	230.997	199.910	202.972	269.422	Continuing	Continuing
MDAP/MAIS Code(s): P449												

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

The Offensive Anti-Surface Warfare (OASuW) Weapon Development program was previously funded under Program Element (PE) 0605853N, Project Unit (PU) 2221 and assigned to Budget Activity (BA) 06: RDT&E Management Support. In May of 2011, PE 0604786N PU 3337 was established as the principal budget line for the OASuW program assigned as BA 04: Advanced Component Development and Prototypes. The transition from PE 0605853N to PE 0604786N continues the transfer of program with the alignment of funding associated with the OASuW program.

A. Mission Description and Budget Item Justification

OASuW will be an offensive weapon system or systems solution that can be air and/or surface launched in the maritime battle space environment. OASuW will be a vital component of the Joint Force Anti-Surface Warfare capability and incorporate new or emergent technologies to support an increased offensive strike capability. The Analysis of Alternatives has provided recommendations for multiple preferred system concepts and the material solution analysis will continue in FY13 to develop preferred material approaches and acquisition strategies.

This program is funded under Advanced Component Development and Prototypes because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0604786N: *(U)Offensive Anti-Surface Warfare Weapon Dev*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	0.000	86.801	44.256	-	44.256
Current President's Budget	0.000	86.801	135.985	-	135.985
Total Adjustments	0.000	0.000	91.729	-	91.729
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	82.848	-	82.848
• Rate/Misc Adjustments	0.000	0.000	8.881	-	8.881

Change Summary Explanation

Technical: Funding was originally provided for an Offensive Anti-Surface Warfare(OASuW)Weapon system or systems solution that can be air and/or surface launched in the maritime battle space environment, as well as, an interim solution based on the Tomahawk Weapons System to be developed to support accelerated deployment of the Offensive Anti-Surface Warfare Capability.

Due to changing priorities within the Department requirements have been redefined for the OASuW program across the Future Year Defense Plan (FYDP).

Schedule: Changes are due to changing priorities within the Department which have redefined the OASuW requirement across the FYDP. It is deemed a manageable risk to not pursue the OASuW interim solution program through the FYDP.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604786N: *(U)Offensive Anti-Surface Warfare Weapon Dev*	PROJECT 3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*	0.000	0.000	86.801	135.985	-	135.985	230.997	199.910	202.972	269.422	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Funding is provided for an Offensive Anti-Surface Warfare (OASuW) Weapon system or systems solution that can be air and/or surface launched in the maritime battle space environment. OASuW will be a vital component of the Joint Force Anti-Surface Warfare (ASuW) capability and incorporate new or emergent technologies to support an increased offensive strike capability with an Initial Operational Capability (IOC) no later than 2024.

The effort is currently in the Material Solution Analysis Phase of the acquisition cycle scheduled to complete 2nd QTR FY14. Upon completion, the Department of the Navy will make a determination on a preferred material approach, the phase of the acquisition cycle it will enter, and when the OASuW weapon(s) will achieve IOC.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: OASuW Accelerated Deployment	0.000	62.000	0.000
Articles:		0	
Description: FY14 reduction in Accelerated Deployment program are due to changing priorities within the Department and overall reduction in defense funding it was deemed a manageable risk to not pursue the OASuW Interim Solution program through the FYDP.			
FY 2013 Plans: Provide non-recurring engineering, system and software development, integration and testing of capability upgrades on multiple platforms for accelerated offensive surface warfare deployment.			
Title: OASuW Development Program	0.000	24.801	135.985
Articles:		0	0
FY 2013 Plans: Release a Request for Proposal, award for competitive prototyping, and establish a Government program team to manage and support an FY13 Technology Development Phase award(s).			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604786N: *(U)Offensive Anti-Surface Warfare Weapon Dev*	PROJECT 3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Establishment of an official program of record. Prepare to execute a MS-A and subsequent entry into the aquisition process at the Engineering & Manufacturing Development (EMD) phase. Overall intent is to field an OASuW Capability at the earliest opportunity from both the air and surface.			
Accomplishments/Planned Programs Subtotals	0.000	86.801	135.985

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The OASuW effort is scheduled for a Milestone A decision in 1st QTR FY15. Competitive prototyping for Technology Development (TD) phase will be conducted if required in FY15 with TD contract award(s) in FY15.

E. Performance Metrics

The OASuW program is scheduled for a Milestone A decision in FY15.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604786N: *(U)Offensive Anti-Surface Warfare Weapon Dev*	PROJECT 3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPFF	TBD:TBD	0.000	0.000		10.000	Jun 2013	86.835	Feb 2014	-		86.835	Continuing	Continuing	Continuing
Product Development - Accelerated Deployment	C/CPIF	Raytheon Missile Systems:Tucson, AZ	0.000	0.000		31.531	Apr 2013	0.000		-		0.000	0.000	31.531	31.531
		Subtotal	0.000	0.000		41.531		86.835		0.000		86.835			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Support	WR	NAWC AD:Patuxent River,MD	0.000	0.000		6.916	Nov 2012	20.000	Nov 2013	-		20.000	Continuing	Continuing	Continuing
Government Support - Accelerated Deployment	WR	NAWC AD:Patuxent River, MD	0.000	0.000		4.400	Apr 2013	0.000		-		0.000	0.000	4.400	
Government Support - Accelerated Deployment Tomahawk Command and Control System	WR	NAWC AD:Patuxent River, MD	0.000	0.000		2.412	Apr 2013	0.000		-		0.000	0.000	2.412	
Government Support	WR	NAWC WD:China Lake, CA	0.000	0.000		3.085	Nov 2012	15.000	Nov 2013	-		15.000	Continuing	Continuing	Continuing
Government Support - Accelerated Deployment	WR	NAWC WD:China Lake, CA	0.000	0.000		6.857	Apr 2013	0.000		-		0.000	0.000	6.857	
Government Support	WR	NSWC:Various	0.000	0.000		2.000	Nov 2012	2.000	Nov 2013	-		2.000	Continuing	Continuing	Continuing
Government Support - Accelerated Deployment	WR	NSWC:Various	0.000	0.000		5.740	Apr 2013	0.000		-		0.000	0.000	5.740	
Software Development - Accelerated Deployment	C/FFP	NSMA:Navy Sys Mgt Act, VA	0.000	0.000		8.909	Apr 2013	0.000		-		0.000	0.000	8.909	8.909
Development Support - Accelerated Deployment	SS/CPFF	SAIC:San Diego, CA	0.000	0.000		0.750	Apr 2013	0.000		-		0.000	0.000	0.750	0.750
Government Support	Various	OPTVFOR:Norfolk, VA	0.000	0.000		0.500	Nov 2012	1.000	Nov 2013	-		1.000	Continuing	Continuing	Continuing
Government Support - Accelerated Deployment	Various	OPTVFOR:Norfolk, VA	0.000	0.000		0.250	Apr 2013	0.000		-		0.000	0.000	0.250	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604786N: *(U)Offensive Anti-Surface Warfare Weapon Dev*	PROJECT 3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Support	Various	Various:Various	0.000	0.000		1.000	Jan 2013	10.000	Jan 2014	-		10.000	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		42.819		48.000		0.000		48.000			

Remarks

Various NSWC activities: Indian Head, Earle, Dahlgren, Corona, Point Hueneme.
Various Contractor Support contracts: NAWCAD, NAWCWD, JHU.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support - Accelerated Deployment	WR	NAWC WD:China Lake, CA	0.000	0.000		0.500	Apr 2013	0.000		-		0.000	0.000	0.500	
Development Support - Accelerated Deployment	SS/CPFF	SAIC:San Diego, CA	0.000	0.000		0.250	Apr 2013	0.000		-		0.000	0.000	0.250	0.250
		Subtotal	0.000	0.000		0.750		0.000		0.000		0.000	0.000	0.750	

Management Services ($ in Millions)

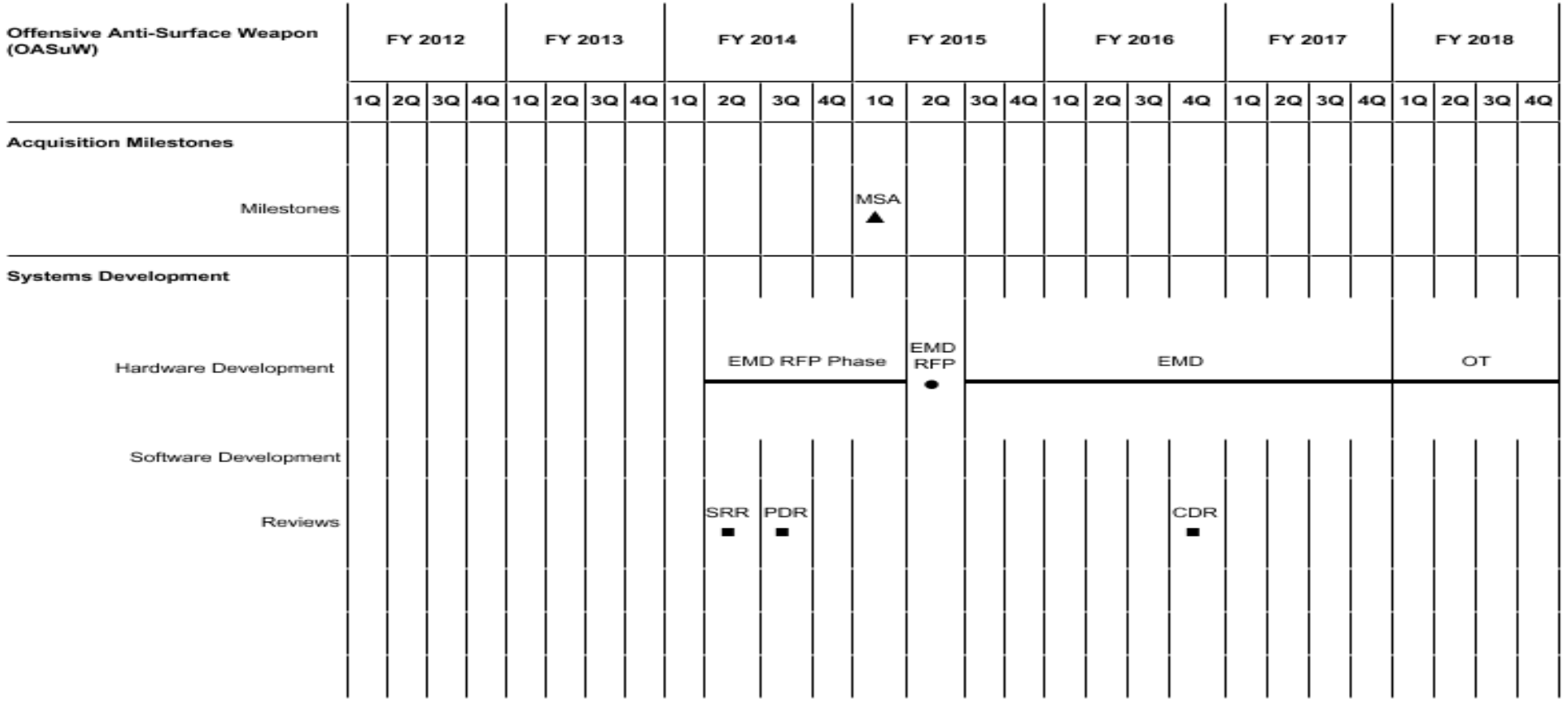
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Support	C/CPFF	NAWC AD:Patuxent River, MD	0.000	0.000		1.000	Dec 2012	1.000	Dec 2013	-		1.000	Continuing	Continuing	Continuing
Government Support - Accelerated Deployment	WR	NAWC AD:Patuxent River, MD	0.000	0.000		0.300	Apr 2013	0.000		-		0.000	0.000	0.300	
Travel	Various	NAWC AD:Patuxent River, MD	0.000	0.000		0.300	Oct 2012	0.150	Oct 2013	-		0.150	Continuing	Continuing	Continuing
Travel - Accelerated Deployment	Various	NAWC AD:Patuxent River, MD	0.000	0.000		0.101	Apr 2013	0.000		-		0.000	0.000	0.101	
		Subtotal	0.000	0.000		1.701		1.150		0.000		1.150			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604786N: *(U)Offensive Anti-Surface Warfare Weapon Dev*	PROJECT 3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		86.801		135.985		0.000		135.985			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604786N: *(U)Offensive Anti-Surface Warfare Weapon Dev*	PROJECT 3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*



2014PB - 0604786N - 3337

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604786N: *(U)Offensive Anti-Surface Warfare Weapon Dev*	**PROJECT** 3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Offensive Anti-Surface Weapon (OASuW)				
Acquisition Milestones: Milestones: Milestone A	1	2015	1	2015
Systems Development: Hardware Development: Engineering & Manufacturing Development RFP Phase	2	2014	1	2015
Systems Development: Hardware Development: Engineering & Manufacturing Development RFP Contract Award	2	2015	2	2015
Systems Development: Hardware Development: Engineering & Manufacturing Development	3	2015	4	2017
Systems Development: Hardware Development: Operational Testing	1	2018	4	2018
Systems Development: Reviews: Production Design Review	3	2014	3	2014
Systems Development: Reviews: System Requirements Review	2	2014	2	2014
Systems Development: Reviews: Critical Design Review	4	2016	4	2016

THIS PAGE INTENTIONALLY LEFT BLANK

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0605812M: *(U)Joint Light Tactical Vehicle(JLTV) EMD*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	44.500	50.362	-	50.362	16.606	33.058	23.938	2.372	Continuing	Continuing
3209: *Joint Light Tactical Vehicle*	0.000	0.000	44.500	50.362	-	50.362	16.606	33.058	23.938	2.372	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This Program Element (PE) funds the Joint Light Tactical Vehicle (JLTV) Family of Vehicles. Funding supports the development and testing of the JLTV Family of Vehicles (FoV), which is being developed as a joint system between the Army and the Marine Corps. International participation will be offered during the Engineering, Manufacturing and
Development (EMD) phase. The JLTV goal is a FoV capable of performing multiple mission roles that will be designed to provide protected, sustained, networked mobility for personnel and payloads across the full Range of Military Operations (RoMO). JLTV objectives include increased protection and performance over the current fleet; minimizing ownership costs by maximizing commonality, fuel efficiency, reliability, and maintaining effective competition throughout the life cycle. Commonality of components, maintenance procedures, training, etc., between vehicles is expected to be inherent in FoV solutions across mission variants to minimize FoV total ownership cost. Unique service requirements have been minimized.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	0.000	44.500	45.000	-	45.000
Current President's Budget	0.000	44.500	50.362	-	50.362
Total Adjustments	0.000	0.000	5.362	-	5.362
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-0.364	-	-0.364
• Rate/Misc Adjustments	0.000	0.000	5.726	-	5.726

Change Summary Explanation

FY14 technical adjustment supports Marine Corps Operational Test & Evaluation Activity.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0605812M: *(U)Joint Light Tactical Vehicle(JLTV) EMD*	PROJECT 3209: *Joint Light Tactical Vehicle*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
3209: *Joint Light Tactical Vehicle*	0.000	0.000	44.500	50.362	-	50.362	16.606	33.058	23.938	2.372	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	17	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

The FY11 NDAA directed the Services to separate the JLTV program into distinct program elements (PE) to provide Congress with increased transparency and allow for more effective oversight. Transition of funding from PE 0603635M to the new JLTV PE 0605812M is effective beginning in FY13. The current program schedule is contained within the 0605812M budget submission.

Hardware requirements for Engineering and Manufacturing Development (EMD) include vehicles, trailers, ballistic hulls, and kits (including armor). The prototypes, twenty-two (22) per vendor, were awarded in FY12 will complete fabrication and be delivered in FY13.

A. Mission Description and Budget Item Justification

Funding supports the development and testing of the JLTV FoV, which is a joint program between the Army and the Marine Corps. The JLTV goal is an FoV capable of performing multiple mission roles that will be designed to provide protected, sustained, networked mobility for personnel and payloads across the full RoMO. JLTV objectives include increased protection and performance over the current fleet; minimizing ownership costs by maximizing commonality, fuel efficiency, and reliability; and maintaining effective competition, throughout the lifecycle. Commonality of components, maintenance procedures, training, etc., among vehicles is expected to be inherent in FoV solutions across mission variants to minimize total ownership cost. Unique service requirements have been minimized. During FY14, major budget activities include performance, Reliability/Availability/Maintainability (RAM), ballistic, limited user testing; as well as analysis and report generation to prepare for MS C in 3Q FY15.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Primary and Ancillary Hardware Development - AM General	0.000	0.379	3.790
Articles:		0	0
FY 2013 Plans: EMD Contractor shakedown testing, delivery of ballistic cabs and rolling chassis, delivery of EMD prototypes, vendor test support as well as vendor and Government systems engineering. Test events to include ballistic cab & chassis, performance, and reliability.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0605812M: *(U)Joint Light Tactical Vehicle(JLTV) EMD*	PROJECT 3209: *Joint Light Tactical Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continuation of vendor support to Government testing as well as vendor systems engineering. Test events to include performance, reliability, live fire, roof crush, and corrosion.			
Title: Primary and Ancillary Hardward Development - Lockheed Martin	0.000	17.392	3.772
Articles:		0	0
FY 2013 Plans: EMD Contractor shakedown testing, delivery of ballistic cabs and rolling chassis, delivery of EMD prototypes, vendor test support as well as vendor and Government systems engineering. Test events to include ballistic cab & chassis, performance, and reliability.			
FY 2014 Plans: Continuation of vendor support to Government testing as well as vendor systems engineering. Test events to include performance, reliability, live fire, roof crush, and corrosion.			
Title: Primary and Ancillary Hardware Development - Oshkosh	0.000	6.804	3.475
Articles:		0	0
FY 2013 Plans: EMD Contractor shakedown testing, delivery of ballistic cabs and rolling chassis, delivery of EMD prototypes, vendor test support as well as vendor and Government systems engineering. Test events to include ballistic cab & chassis, performance, and reliability.			
FY 2014 Plans: Continuation of vendor support to Government testing as well as vendor systems engineering. Test events to include performance, reliability, live fire, roof crush, and corrosion.			
Title: Product Development Systems Engineering	0.000	0.600	0.615
Articles:		0	0
FY 2013 Plans: Begin Government Systems Engineering - Human Systems Integration and Force Protection Integration.			
FY 2014 Plans: Contunue Government Systems Engineering - Human Systems Integration and Force Protection Integration.			
Title: ILS and Facilities Documentation/Analysis and Support Engineering	0.000	0.888	0.903
Articles:		0	0
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0605812M: *(U)Joint Light Tactical Vehicle(JLTV) EMD*	**PROJECT** 3209: *Joint Light Tactical Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Development of logistical documentation, GFE management, and oversight of programmatic and contractual issues related to logistics. ***FY 2014 Plans:*** Logistics support (i.e., training) for the Limited User Test (LUT), development of logistical documentation, GFE management, and oversight of programmatic and contractual issues related to logistics.			
Title: Test and Evaluation Events & Analysis ***Articles:*** ***FY 2013 Plans:*** EMD prototype T&E to include performance, RAM, ballistic, Automatic Fire Extinguisher System, and ballistic cab & chassis testing. ***FY 2014 Plans:*** EMD prototype T&E to include performance, RAM, ballistic, Automatic Fire Extinguisher System, roof crush, Limited User Testing (LUT) and corrosion testing.	0.000 0	13.788 0	31.228 0
Title: Program Management Support ***Articles:*** ***FY 2013 Plans:*** Continue support of program operations within the EMD phase and planning activities for MS C. Key events include the continuation of EMD contract performance and testing. ***FY 2014 Plans:*** Continue support of program operations within the EMD phase and planning activities for MS C. Key events include the continuation of EMD contract performance and testing as well as preparation of analysis and documentation in support of MS C in 3Q FY15.	0.000 0	4.649 0	6.579 0
Accomplishments/Planned Programs Subtotals	0.000	44.500	50.362

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTEN/3209 : *0603635M-JLTV*	45.138	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	151.936
• PMC/5095: *JLTV*	0.000	0.000	0.000		0.000	30.521	99.536	143.062	520.468	1,863.000	2,656.587
• RDTEA/L04: *0603804A-JLTV*	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	87.823
• RDTEA/L50: *0604804A-JLTV*	84.500	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	84.500

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0605812M: *(U)Joint Light Tactical Vehicle(JLTV) EMD*	PROJECT 3209: *Joint Light Tactical Vehicle*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• RDTEA/VU9: *0605812A-JLTV*	0.000	72.295	84.230		84.230	34.700	33.224	26.123	3.281	105.300	359.153
• OPA/D15603: *JLTV*	0.000	0.000	0.000		0.000	178.305	312.866	606.299	846.919	24,760.100	26,704.489

Remarks

D. Acquisition Strategy

JLTV is a Joint Services program with the U.S. Army and Marine Corps as the two main components. The Navy anticipates procuring JLTV vehicles upon successful Low Rate Initial Production (LRIP) testing.

The program will use an evolutionary approach to deliver capabilities in increments based on program priorities. All technologies entering the EMD phase were no less than Technology Readiness Level 6 to achieve Capabilities Development Document (CDD) requirements.

The program revised the acquisition strategy in the first quarter FY 2012 addressing Better Buying Power Initiatives, and reduced the schedule by fifteen months to enable a 33-month Non-Developmental Item approach for EMD with Milestone B approved on 9 August 2012.

Increment I will produce two Mission Role Variant (MRV) configurations (Combat Tactical Vehicle - CTV & Combat Support Vehicle - CSV) and four mission packages (General Purpose, Heavy Guns Carrier, Close Combat Weapons Carrier, and Utility). EMD vendors are fabricating representative mission packages from both MRVs, which the Government will fully test during EMD.

Through a full and open competition, the program awarded three fixed price contracts for the EMD phase. Unless future market research identifies a valid non-EMD vendor capable of delivering the required capabilities, there will be a limited competition between the EMD contractors to enter into the Production and Deployment phase. The winner will be awarded a fixed price type contract with a base LRIP quantity, LRIP options, full rate production options, and a Technical Data Package option.

E. Performance Metrics

Milestone Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0605812M: *(U)Joint Light Tactical Vehicle(JLTV) EMD*	PROJECT 3209: *Joint Light Tactical Vehicle*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development - EMD	C/FFP	AM General:South Bend, IN	0.000	0.000		0.379	Nov 2012	3.790	Nov 2013	-		3.790	0.000	4.169	63.880
Primary Hardware Development - EMD	C/FFP	Lockheed Martin:Grand Prairie, TX	0.000	0.000		17.392	Nov 2012	3.772	Nov 2013	-		3.772	0.000	21.164	65.000
Primary Hardware Development - EMD	C/FFP	Oshkosh:Oshkosh, WI	0.000	0.000		6.804	Nov 2012	3.475	Nov 2013	-		3.475	0.000	10.279	55.878
Systems Engineering - Human Systems Integration	WR	NSWC:Dahlgren, VA	0.000	0.000		0.450	Dec 2012	0.458	Nov 2013	-		0.458	Continuing	Continuing	Continuing
Systems Engineering - Force Protection	WR	NSWC:Carderock, MD	0.000	0.000		0.150	Dec 2012	0.157	Nov 2013	-		0.157	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		25.175		11.652		0.000		11.652			

Remarks

EMD contracts are jointly funded with the Army; contracts were executed in FY12, and USMC funding was provided in PE 0603635M. Target value of the contract includes obligations incurred by both services.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	Various	Various:Various	0.000	0.000		0.588	Dec 2012	0.595	Jan 2014	-		0.595	Continuing	Continuing	Continuing
SPAWAR GFE Management	MIPR	SPAWAR:Charleston, SC	0.000	0.000		0.300	May 2013	0.308	May 2014	-		0.308	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.888		0.903		0.000		0.903			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0605812M: *(U)Joint Light Tactical Vehicle(JLTV) EMD*	PROJECT 3209: *Joint Light Tactical Vehicle*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental, Test & Evaluation (Performance, RAM, Ballistic, Report Generation)	MIPR	Govt Proving Grounds:Various	0.000	0.000		12.873	Jan 2013	28.528	Dec 2013	-		28.528	Continuing	Continuing	Continuing
Developmental, Test & Evaluation (Interoperability)	MIPR	JITC:Ft Huachuca, AZ	0.000	0.000		0.315	Apr 2013	0.000		-		0.000	Continuing	Continuing	Continuing
Operational Testing (Planning, Conduct, Evaluation and Report Generation)	MIPR	Govt Proving Grounds:Various	0.000	0.000		0.000		2.500	Dec 2013	-		2.500	Continuing	Continuing	Continuing
Developmental, Test & Evaluation (Oversight)	WR	MCOTEA:Quantico, VA	0.000	0.000		0.600	Feb 2013	0.200	Jan 2014	-		0.200	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		13.788		31.228		0.000		31.228			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	BAH:McLean, VA	0.000	0.000		2.474	Jan 2013	4.933	Jan 2014	-		4.933	0.000	7.407	
Program Management Support	C/CPFF	Various:Various	0.000	0.000		0.726	Jan 2013	0.716	Jan 2014	-		0.716	0.000	1.442	
Program Management Support	C/CPFF	MITRE:Stafford, VA	0.000	0.000		0.723	Jan 2013	0.730	Jan 2014	-		0.730	0.000	1.453	
Program Management Support	C/FFP	Eagan McAllister:Lexington Park, MD	0.000	0.000		0.500	Mar 2013	0.000		-		0.000	0.000	0.500	
Program Management Support	Various	MCSC:Quantico, VA	0.000	0.000		0.226	Oct 2012	0.200	Oct 2013	-		0.200	0.000	0.426	
		Subtotal	0.000	0.000		4.649		6.579		0.000		6.579	0.000	11.228	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0605812M: *(U)Joint Light Tactical Vehicle(JLTV) EMD*	PROJECT 3209: *Joint Light Tactical Vehicle*	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		44.500		50.362		0.000		50.362			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0605812M: *(U)Joint Light Tactical Vehicle(JLTV) EMD*	**PROJECT** 3209: *Joint Light Tactical Vehicle*

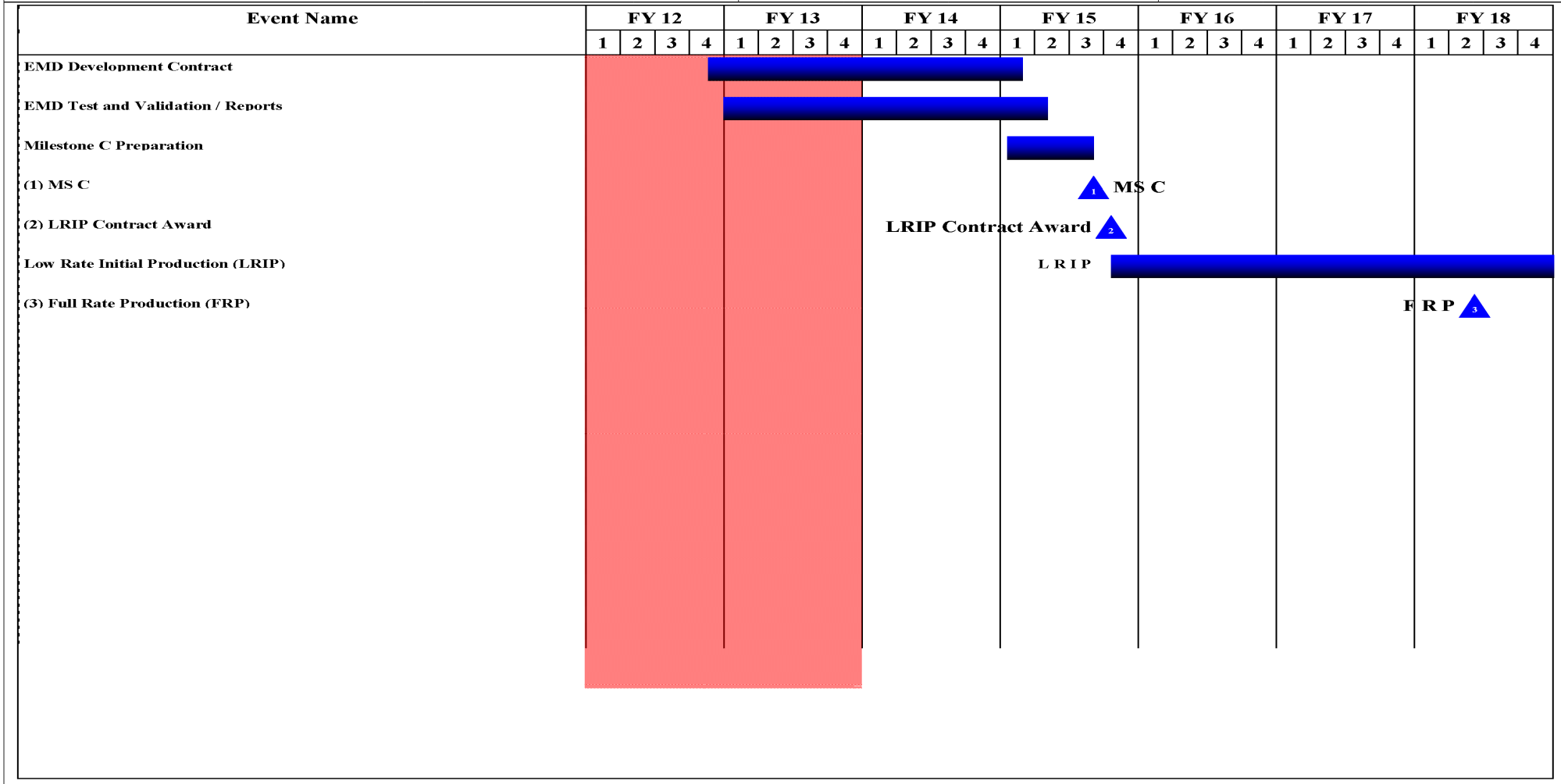


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0605812M: *(U)Joint Light Tactical Vehicle(JLTV) EMD*	**PROJECT** 3209: *Joint Light Tactical Vehicle*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3209				
EMD Contracts	4	2012	1	2015
EMD Government Test Program and Reporting	1	2013	2	2015
MS C Decision	3	2015	3	2015
LRIP Contract Award	4	2015	4	2015
Full Rate Production Decision	2	2018	2	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0303354N: *ASW Systems Development - MIP*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	2.150	1.078	13.172	8.448	-	8.448	9.603	9.476	9.570	9.669	Continuing	Continuing
0490: *Airborne Acoustic Intelligence (AAI)*	2.150	1.078	13.172	8.448	-	8.448	9.603	9.476	9.570	9.669	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The mission of Airborne Acoustic Intelligence (AAI) (CNO Project K-0416) is to provide Sound Pressure Level quality recordings of targets of interest and an associated new technology, rapid prototyping mechanism for the application of state-of-the-art collection sensors. The program will develop and rapidly deploy new technology concepts in hardware and software to effectively address emerging littoral threats and to improve the present Undersea Warfare capability in support of the preparation of the Battlespace and Sea Shield/Sea Trial Initiatives. AAI also provides a measurement analysis capability to reconstruct, analyze, and develop active and target strength measurement validation. The AAI data collection program provides passive and active acoustic and non-acoustic data essential for the design and development of environmental models, sensors, weapons, software algorithms, and tactical decision aids. AAI employs developmental and prototypical hardware installed in uniquely configured Anti Submarine Warfare aircraft to collect data of interest, and specially configured ground support facilities to conduct reconstruction and analysis of this data. AAI includes calibrated recording systems, advanced detection and tracking systems, special sensors, advanced processing systems and techniques and specially derived operational tactics.

This is a Military Intelligence Program.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy					DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 ITEM NOMENCLATURE PE 0303354N: *ASW Systems Development - MIP*		
B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	1.078	13.172	17.986	-	17.986
Current President's Budget	1.078	13.172	8.448	-	8.448
Total Adjustments	0.000	0.000	-9.538	-	-9.538
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-9.507	-	-9.507
• Rate/Misc Adjustments	0.000	0.000	-0.031	-	-0.031

Change Summary Explanation

Technical: Not Applicable

Schedule: Not Applicable

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0303354N: *ASW Systems Development - MIP*	PROJECT 0490: *Airborne Acoustic Intelligence (AAI)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0490: *Airborne Acoustic Intelligence (AAI)*	2.150	1.078	13.172	8.448	-	8.448	9.603	9.476	9.570	9.669	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The mission of Airborne Acoustic Intelligence (AAI) (CNO Project K-0416) is to provide Sound Pressure Level (SPL) quality recordings of targets of interest and an associated new technology, rapid prototyping mechanism for the application of state-of-the-art collection sensors. The program will develop and rapidly deploy new technology concepts in hardware and software to effectively address emerging littoral threats and to improve the present Undersea Warfare capability in support of the preparation of the Battlespace and Sea Shield/Sea Trial Initiatives. AAI also provides an active target strength measurement capability. The AAI data collection program provides passive and active acoustic and non-acoustic data essential for the design and development of environmental models, sensors, weapons, software algorithms, and tactical decision aids. AAI employs developmental and prototypical hardware installed in uniquely configured ASW aircraft to collect data of interest, and specially configured ground support facilities to conduct reconstruction and analysis of this data. AAI includes calibrated recording systems, advanced detection and tracking systems, special sensors, advanced processing systems and techniques and specially derived operational tactics.

This is a Military Intelligence Program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: Systems Engineering / Aircraft Mods Active Acoustic Program	0.500	1.412	0.569
Articles:	0	0	0
FY 2012 Accomplishments: Engineering to support SPL Recording. Post mission processor upgrades for Calibrated Acoustic Intelligence (ACINT). P-8A aircraft calibration unit enhancements. Engineering development of Target Strength processing placed on Hold.			
FY 2013 Plans: Engineering to support SPL Recording. Post mission processor upgrades for Calibrated ACINT. P-8A aircraft calibration unit enhancements. Engineering support of the Active Target Strength sensor program.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0303354N: *ASW Systems Development - MIP*	PROJECT 0490: *Airborne Acoustic Intelligence (AAI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Engineering to support SPL Recording. Post mission processor upgrades for Calibrated ACINT. P-8A aircraft calibration unit enhancements. Engineering support of the Active Target Strength sensor program.			
Title: Data Collection and Analysis	0.400	0.430	0.600
Articles:	0	0	0
FY 2012 Accomplishments: Data collection support at Operational Wings. Ongoing collection of high interest acoustic and non-acoustic data in support of Measurement/Measuring and Signature Intelligence (MASINT)/Office of Naval Intelligence (ONI) threat assessment requirements. Reduction, Analysis and Fleet Rapid Feedback. Conduct airborne special operations support. Essential performance modeling and evaluation for advanced technology sensor systems design and Fleet tactics development.			
FY 2013 Plans: Data collection support at Operational Wings. Ongoing collection of high interest acoustic and non-acoustic data in support of MASINT/ONI threat assessment requirements. Reduction, Analysis and Fleet Rapid Feedback. Conduct airborne special operations support. Essential performance modeling and evaluation for advanced technology sensor systems design and Fleet tactics development.			
FY 2014 Plans: Data collection support at Operational Wings. Ongoing collection of high interest acoustic and non-acoustic data in support of MASINT/ONI threat assessment requirements. Reduction, Analysis and Fleet Rapid Feedback. Conduct airborne special operations support. Essential performance modeling and evaluation for advanced technology sensor systems design and Fleet tactics development.			
Title: Active Measurement Validation	0.178	0.415	0.200
Articles:	0	0	0
FY 2012 Accomplishments: Active Measurement Validation of targets of interest. Provides the acoustic analysis of echo characterization (which includes: signal excess measurements, peak frequency, trend analysis and pulse duration measurements) and target strength.			
FY 2013 Plans: Active Measurement Validation of targets of interest. Provides the acoustic analysis of echo characterization (which includes: signal excess measurements, peak frequency, trend analysis and pulse duration measurements) and target strength.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0303354N: *ASW Systems Development - MIP*	PROJECT 0490: *Airborne Acoustic Intelligence (AAI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Active Measurement Validation of targets of interest. Provides the acoustic analysis of echo characterization (which includes: signal excess measurements, peak frequency, trend analysis and pulse duration measurements) and target strength.			
Title: Product Development	0.000	10.915	7.079
Articles:		0	0
FY 2013 Plans: Initiate Active Target Strength Sensor development program.			
FY 2014 Plans: Continue Active Target Strength Sensor development program.			
Accomplishments/Planned Programs Subtotals	1.078	13.172	8.448

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Airborne Acoustic Intelligence is a CNO Special Project. The included technology developments are primarily in-house with contractor participation through existing vehicles.

E. Performance Metrics

MIP Program.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0303354N: *ASW Systems Development - MIP*	PROJECT 0490: *Airborne Acoustic Intelligence (AAI)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Active Measurement Validation	WR	NAWCAD:PATUXENT RIVER, MD	0.400	0.178	Oct 2011	0.415	Dec 2012	0.200	Dec 2013	-		0.200	0.000	1.193	
Ancillary Hdw Development	WR	NAWCAD:PATUXENT RIVER, MD	0.750	0.400	Oct 2011	0.430	Dec 2012	0.600	Dec 2013	-		0.600	Continuing	Continuing	Continuing
Systems Eng	WR	NAWCAD:PATUXENT RIVER, MD	0.100	0.036	Oct 2011	0.912	Dec 2012	0.146	Dec 2013	-		0.146	Continuing	Continuing	Continuing
Primary Hdw Development	TBD	TBD:TBD	0.000	0.000		10.915	May 2013	7.079	Dec 2013	-		7.079	Continuing	Continuing	Continuing
		Subtotal	1.250	0.614		12.672		8.025		0.000		8.025			

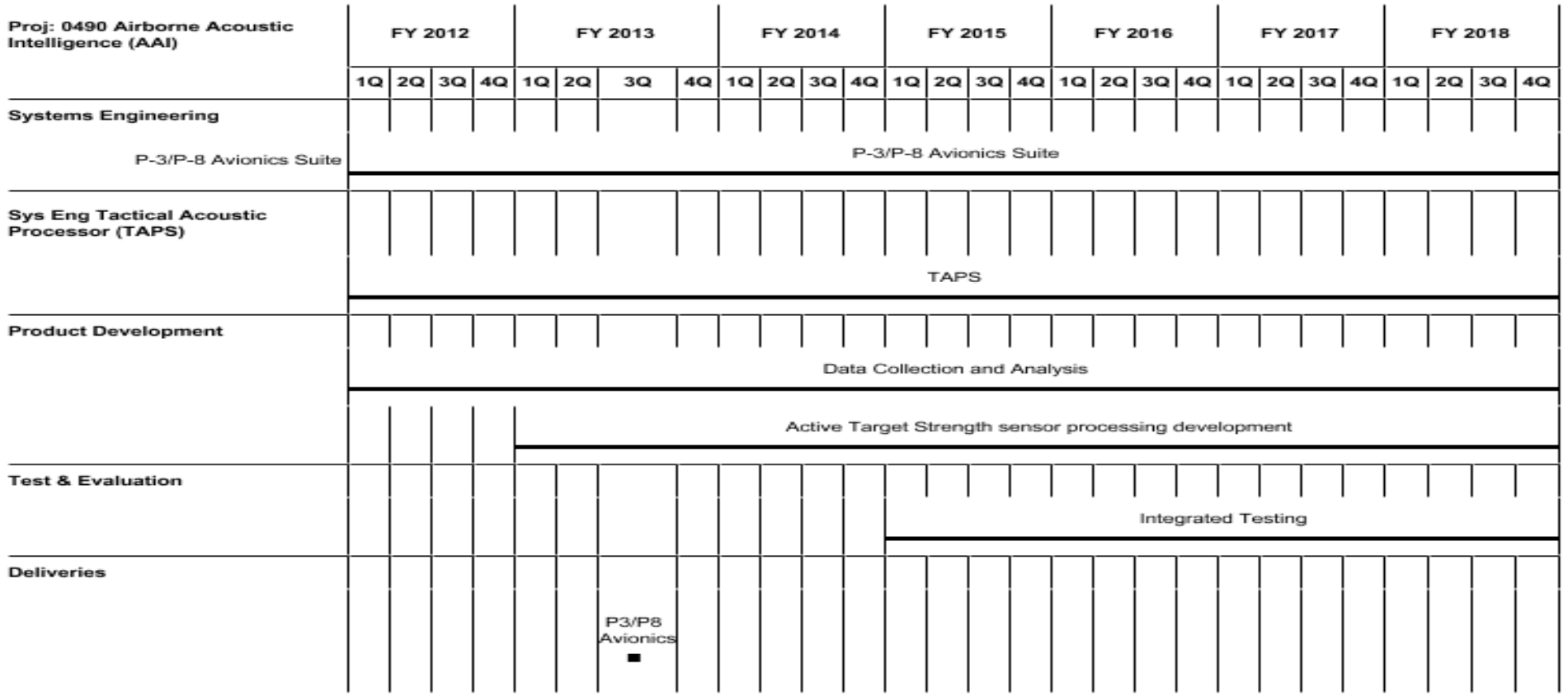
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Mgt & Prof Spt Svcs (Non-FFRDC)	Various	VARIOUS:VARIOUS	0.900	0.464	Dec 2011	0.500	Dec 2012	0.423	Dec 2013	-		0.423	Continuing	Continuing	Continuing
		Subtotal	0.900	0.464		0.500		0.423		0.000		0.423			

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.150	1.078		13.172		8.448		0.000		8.448			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0303354N: *ASW Systems Development - MIP*	PROJECT 0490: *Airborne Acoustic Intelligence (AAI)*



2014PB - 0303354N - 0490

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0303354N: *ASW Systems Development - MIP*	**PROJECT** 0490: *Airborne Acoustic Intelligence (AAI)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj: 0490 Airborne Acoustic Intelligence (AAI)				
Systems Engineering: P-3/P-8 Avionics Suite: P-3/P-8 Avionics Suite	1	2012	4	2018
Sys Eng Tactical Acoustic Processor (TAPS): Sys Eng Tactical Acoustic Processor (TAPS)	1	2012	4	2018
Product Development: Data Collection and Analysis	1	2012	4	2018
Product Development: Active Target Strength sensor processing development	1	2013	4	2018
Test & Evaluation: Technical Evaluation	1	2015	4	2018
Deliveries: P3/P8 Avionics	3	2013	3	2013

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0304270N: *Electronic Warfare Development - MIP*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	11.775	0.643	0.153	-	0.153	0.819	0.766	0.666	0.672	Continuing	Continuing
2260: *Specific Emitter ID*	0.000	0.625	0.643	0.153	-	0.153	0.819	0.766	0.666	0.672	Continuing	Continuing
9999: *Congressional Adds*	0.000	11.150	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	11.150

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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.

This PE is a Military Intelligence Program.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	0.625	0.643	0.658	-	0.658
Current President's Budget	11.775	0.643	0.153	-	0.153
Total Adjustments	11.150	0.000	-0.505	-	-0.505
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	11.150	0.000			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	-0.505	-	-0.505

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2012	FY 2013
Project: 9999: *Congressional Adds*		
Congressional Add: *Southeast Asia Center*	11.150	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0304270N: *Electronic Warfare Development - MIP*

Congressional Add Details ($ in Millions, and Includes General Reductions)

	FY 2012	FY 2013
Congressional Add Subtotals for Project: 9999	11.150	0.000
Congressional Add Totals for all Projects	11.150	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0304270N: *Electronic Warfare Development - MIP*	PROJECT 2260: *Specific Emitter ID*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2260: *Specific Emitter ID*	0.000	0.625	0.643	0.153	-	0.153	0.819	0.766	0.666	0.672	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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 Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: SENSOR FUSION	0.189	0.200	0.048
Articles:	0	0	0
Description: 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. Funding reductions from FY 2013 to FY 2014 reflect realignment of funding to higher Naval priorities. ***FY 2012 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 2013 Plans:*** - Continue all efforts of FY 2012. ***FY 2014 Plans:*** - Continue all efforts of FY 2013.			
Title: SYSTEM AUTOMATION	0.219	0.220	0.052
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0304270N: *Electronic Warfare Development - MIP*	PROJECT 2260: *Specific Emitter ID*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Description: This effort supports development of an autonomous surveillance system capable of providing emitter signal information to a central location. Funding reductions from FY 2013 to FY 2014 reflect realignment of funding to higher Naval priorities. ***FY 2012 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 2013 Plans:*** - Continue all efforts of FY 2012. ***FY 2014 Plans:*** - Continue all efforts of FY 2013.			
Title: TECHNOLOGY REFRESH & COMMUNICATION ENHANCEMENT	0.217	0.223	0.053
Articles:	0	0	0
Description: This effort improves SEI system performance, real-time communication and tactical use of SEI which will be expanded with next generation SEI technology. Funding reductions from FY 2013 to FY 2014 reflect realignment of funding to higher Naval priorities. ***FY 2012 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 2013 Plans:*** - Continue all efforts of FY 2012 ***FY 2014 Plans:*** - Continue all efforts of FY 2013.			
Accomplishments/Planned Programs Subtotals	0.625	0.643	0.153

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0304270N: *Electronic Warfare Development - MIP*	PROJECT 2260: *Specific Emitter ID*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

MIP Program.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0304270N: *Electronic Warfare Development - MIP*	PROJECT 2260: *Specific Emitter ID*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NRL	TBD	Not Specified:Not Specified	0.000	0.625	Jan 2012	0.643	Jan 2013	0.153	Jan 2014	-		0.153	Continuing	Continuing	Continuing
		Subtotal	0.000	0.625		0.643		0.153		0.000		0.153			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.625		0.643		0.153		0.000		0.153			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0304270N: *Electronic Warfare Development - MIP*	PROJECT 2260: *Specific Emitter ID*

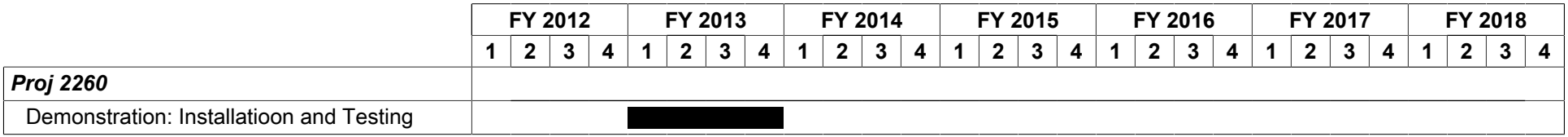


Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0304270N: *Electronic Warfare Development - MIP*	**PROJECT** 2260: *Specific Emitter ID*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2260				
Demonstration: Installatioon and Testing	1	2013	4	2013

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0304270N: *Electronic Warfare Development - MIP*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	11.150	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	11.150
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The programmatic details are a higher classification level.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013
Congressional Add: Southeast Asia Center	11.150	-
FY 2012 Accomplishments: Initiated a remote sensing and data fusion effort to address maritime domain awareness in western Pacific region. Addressed cooperative maritime security issues important to US and partners in the region.		
Congressional Adds Subtotals	11.150	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Not applicable.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0304270N: *Electronic Warfare Development - MIP*	PROJECT 9999: *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Need Item Text	Various	Not Specified:Not Specified	0.000	11.150	Jul 2013	0.000		0.000		-		0.000	0.000	11.150	
		Subtotal	0.000	11.150		0.000		0.000		0.000		0.000	0.000	11.150	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	11.150		0.000		0.000		0.000		0.000	0.000	11.150	

Remarks