Department of Defense
Fiscal Year (FY) 2015 Budget Estimates

March 2014

Navy

Justification Book Volume 2

Research, Development, Test & Evaluation, Navy

Budget Activity 4

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Research, Development, Test and Evaluation, Navy

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, $16,266,335,000, to remain available for obligation until September 30, 2016.

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Department of Defense
FY 2015 President's Budget
Exhibit R-1 FY 2015 President's Budget
Total Obligational Authority
(Dollars in Thousands)

21 Feb 2014

Summary Recap of Budget Activities	FY 2013 (Base & OCO)	FY 2014 Base Enacted	FY 2014 OCO Enacted	FY 2014 Total Enacted	FY 2015 Base
Basic Research	567,496	619,234		619,234	576,339
Applied Research	792,372	859,469		859,469	820,883
Advanced Technology Development	604,615	623,614		623,614	595,014
Advanced Component Development & Prototypes	3,839,612	4,321,104		4,321,104	4,591,812
System Development & Demonstration	4,896,330	4,250,970		4,250,970	5,419,108
Management Support	1,103,563	861,314		861,314	977,151
Operational Systems Development	3,749,489	3,410,624		3,445,050	3,286,028
Total Research, Development, Test & Evaluation	15,553,477	14,946,329		14,980,755	16,266,335
Summary Recap of FYDP Programs					
Strategic Forces	133,392	152,999		152,999	145,185
General Purpose Forces	1,197,495	1,320,713		1,320,713	1,351,064
Intelligence and Communications	1,095,183	659,017		659,017	764,066
Research and Development	11,768,699	11,344,579		11,344,579	12,780,652
Central Supply and Maintenance	89,222	83,973		83,973	62,684
Administration and Associated Activities	2,668				
Classified Programs	1,266,818	1,385,048	34,426	1,419,474	1,162,684
Total Research, Development, Test & Evaluation	15,553,477	14,946,329	34,426	14,980,755	16,266,335
Summary Recap of Non-RDT&E Title FYDP Programs					
Mobility Forces	40,137	44,993		44,993	
Total Research, Development, Test & Evaluation	40,137	44,993		44,993	

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Department of the Navy
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Classified Programs	1,266,818	1,385,048	34,426	1,419,474	1,162,684
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Department of the Navy
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21 Feb 2014

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

Line No	Program Element Number	Item	Act	FY 2013 (Base & OCO)	FY 2014 Base Enacted	FY 2014 OCO Enacted	FY 2014 Total Enacted	FY 2015 Base	Sec
1	0601103N	University Research Initiatives	01	117,855	112,617		112,617	113,908	U
2	0601152N	In-House Laboratory Independent Research	01	16,561	18,230		18,230	18,734	U
3	0601153N	Defense Research Sciences	01	433,080	488,387		488,387	443,697	U
	Basic Research			567,496	619,234		619,234	576,339	
4	0602114N	Power Projection Applied Research	02	92,396	104,513		104,513	95,753	U
5	0602123N	Force Protection Applied Research	02	188,995	170,288		170,288	139,496	U
6	0602131M	Marine Corps Landing Force Technology	02	41,687	47,334		47,334	45,831	U
7	0602235N	Common Picture Applied Research	02	37,643	34,136		34,136	43,541	U
8	0602236N	Warfighter Sustainment Applied Research	02	40,162	49,688		49,688	46,923	U
9	0602271N	Electromagnetic Systems Applied Research	02	73,985	97,690		97,690	107,872	U
10	0602435N	Ocean Warfighting Environment Applied Research	02	54,912	45,685		45,685	45,388	U
11	0602651M	Joint Non-Lethal Weapons Applied Research	02	5,234	6,059		6,059	5,887	U
12	0602747N	Undersea Warfare Applied Research	02	86,091	103,041		103,041	86,880	U
13	0602750N	Future Naval Capabilities Applied Research	02	143,176	169,710		169,710	170,786	U
14	0602782N	Mine and Expeditionary Warfare Applied Research	02	28,091	31,325		31,325	32,526	U
	Applied Research			792,372	859,469		859,469	820,883	
15	0603114N	Power Projection Advanced Technology	03	51,739	48,201		48,201	37,734	U
16	0603123N	Force Protection Advanced Technology	03	16,273	28,286		28,286	25,831	U
17	0603271N	Electromagnetic Systems Advanced Technology	03	60,098	56,179		56,179	64,623	U
18	0603640M	USMC Advanced Technology Demonstration (ATD)	03	117,288	132,336		132,336	128,397	U
19	0603651M	Joint Non-Lethal Weapons Technology Development	03	10,179	11,853		11,853	11,506	U

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

Line No	Program Element Number	Item	Act	FY 2013 (Base & OCO)	FY 2014 Base Enacted	FY 2014 OCO Enacted	FY 2014 Total Enacted	FY 2015 Base	Sec
20	0603673N	Future Naval Capabilities Advanced Technology Development	03	254,987	252,836		252,836	256,144	U
21	0603729N	Warfighter Protection Advanced Technology	03	39,086	40,460		40,460	4,838	U
22	0603747N	Undersea Warfare Advanced Technology	03	9,164				9,985	U
23	0603758N	Navy Warfighting Experiments and Demonstrations	03	45,801	51,463		51,463	53,956	U
24	0603782N	Mine and Expeditionary Warfare Advanced Technology	03		2,000		2,000	2,000	U
		Advanced Technology Development		604,615	623,614		623,614	595,014	
25	0603207N	Air/Ocean Tactical Applications	04	31,357	39,246		39,246	40,429	U
26	0603216N	Aviation Survivability	04	7,970	5,591		5,591	4,325	U
27	0603237N	Deployable Joint Command and Control	04	3,451	3,262		3,262	2,991	U
28	0603251N	Aircraft Systems	04	21,829	10,074		10,074	12,651	U
29	0603254N	ASW Systems Development	04	7,306	6,964		6,964	7,782	U
30	0603261N	Tactical Airborne Reconnaissance	04	4,812	5,257		5,257	5,275	U
31	0603382N	Advanced Combat Systems Technology	04	1,345	1,563		1,563	1,646	U
32	0603502N	Surface and Shallow Water Mine Countermeasures	04	160,710	160,040		160,040	100,349	U
33	0603506N	Surface Ship Torpedo Defense	04	83,709	85,649		85,649	52,781	U
34	0603512N	Carrier Systems Development	04	97,668	80,899		80,899	5,959	U
35	0603525N	PILOT FISH	04	91,528	108,713		108,713	148,865	U
36	0603527N	RETRACT LARCH	04	75,517	9,316		9,316	25,365	U
37	0603536N	RETRACT JUNIPER	04	82,694	77,108		77,108	80,477	U
38	0603542N	Radiological Control	04	706	762		762	669	U
39	0603553N	Surface ASW	04	3,841	2,349		2,349	1,060	U

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40	0603561N	Advanced Submarine System Development	04	500,161	850,062		850,062	70,551	U
41	0603562N	Submarine Tactical Warfare Systems	04	8,505	8,764		8,764	8,044	U
42	0603563N	Ship Concept Advanced Design	04	22,193	17,501		17,501	17,864	U
43	0603564N	Ship Preliminary Design & Feasibility Studies	04	35,737	38,117		38,117	23,716	U
44	0603570N	Advanced Nuclear Power Systems	04	228,861	428,933		428,933	499,961	U
45	0603573N	Advanced Surface Machinery Systems	04	26,642	18,144		18,144	21,026	U
46	0603576N	CHALK EAGLE	04	453,935	518,804		518,804	542,700	U
47	0603581N	Littoral Combat Ship (LCS)	04	374,966	210,217		210,217	88,734	U
48	0603582N	Combat System Integration	04	45,131	4,396		4,396	20,881	U
49	0603595N	Ohio Replacement	04					849,277	U
50	0603596N	LCS Mission Modules	04		161,771		161,771	196,948	U
51	0603597N	Automated Test and Re-Test (ATRT)	04		10,005		10,005	8,115	U
52	0603609N	Conventional Munitions	04	6,717	8,404		8,404	7,603	U
53	0603611M	Marine Corps Assault Vehicles	04	83,182	122,967		122,967	105,749	U
54	0603635M	Marine Corps Ground Combat/Support System	04	8,400	1,489		1,489	1,342	U
55	0603654N	Joint Service Explosive Ordnance Development	04	41,468	34,958		34,958	21,399	U
56	0603658N	Cooperative Engagement	04	50,058	53,572		53,572	43,578	U
57	0603713N	Ocean Engineering Technology Development	04	6,370	7,696		7,696	7,764	U
58	0603721N	Environmental Protection	04	19,194	18,850		18,850	13,200	U
59	0603724N	Navy Energy Program	04	85,577	45,618		45,618	69,415	U
60	0603725N	Facilities Improvement	04	3,116	3,019		3,019	2,588	U

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61	0603734N	CHALK CORAL	04	41,498	124,451		124,451	176,301	U
62	0603739N	Navy Logistic Productivity	04	3,452	3,847		3,847	3,873	U
63	0603746N	RETRACT MAPLE	04	290,796	308,131		308,131	376,028	U
64	0603748N	LINK PLUMERIA	04	153,811	121,189		121,189	272,096	U
65	0603751N	RETRACT ELM	04	115,681	56,358		56,358	42,233	U
66	0603764N	LINK EVERGREEN	04	61,986	55,378		55,378	46,504	U
67	0603787N	Special Processes	04	43,810	48,842		48,842	25,109	U
68	0603790N	NATO Research and Development	04	8,589	7,502		7,502	9,659	U
69	0603795N	Land Attack Technology	04	14,274				318	U
70	0603851M	Joint Non-Lethal Weapons Testing	04	41,191	49,278		49,278	40,912	U
71	0603860N	Joint Precision Approach and Landing Systems - Dem/Val	04	120,491	156,178		156,178	54,896	U
72	0603889N	Counterdrug RDT&E Projects	04	500					U
73	0603925N	Directed Energy and Electric Weapon Systems	04					58,696	U
74	0604112N	Gerald R. Ford Class Nuclear Aircraft Carrier (CVN 78 - 80)	04					43,613	U
75	0604122N	Remote Minehunting System (RMS)	04					21,110	U
76	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	66,196	33,906		33,906	5,657	U
77	0604279N	ASE Self-Protection Optimization	04	725	169		169	8,033	U
78	0604454N	LX (R)	04					36,859	U
79	0604653N	Joint Counter Radio Controlled IED Electronic Warfare (JCREW)	04	42,421	15,874		15,874	15,227	U
80	0604659N	Precision Strike Weapons Development Program	04	5,166	2,257		2,257		U

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Line No	Program Element Number	Item	Act	FY 2013 (Base & OCO)	FY 2014 Base Enacted	FY 2014 OCO Enacted	FY 2014 Total Enacted	FY 2015 Base	Sec
81	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04	26,279	31,256		31,256	22,393	U
82	0604786N	Offensive Anti-Surface Warfare Weapon Development	04	77,609	90,985		90,985	202,939	U
83	0605812M	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	04	35,563	50,362		50,362	11,450	U
84	0303354N	ASW Systems Development - MIP	04	12,077	4,908		4,908	6,495	U
85	0304270N	Electronic Warfare Development - MIP	04	2,841	153		153	332	U
		Advanced Component Development & Prototypes		3,839,612	4,321,104		4,321,104	4,591,812	
86	0603208N	Training System Aircraft	05					25,153	U
87	0604212N	Other Helo Development	05	22,899	25,458		25,458	46,154	U
88	0604214N	AV-8B Aircraft - Eng Dev	05	16,128	33,325		33,325	25,372	U
89	0604215N	Standards Development	05	67,801	68,497		68,497	53,712	U
90	0604216N	Multi-Mission Helicopter Upgrade Development	05	6,035	17,565		17,565	11,434	U
91	0604218N	Air/Ocean Equipment Engineering	05	3,658	4,026		4,026	2,164	U
92	0604221N	P-3 Modernization Program	05	3,170	791		791	1,710	U
93	0604230N	Warfare Support System	05	9,983	9,725		9,725	9,094	U
94	0604231N	Tactical Command System	05	65,416	63,438		63,438	70,248	U
95	0604234N	Advanced Hawkeye	05	125,194	107,041		107,041	193,200	U
96	0604245N	H-1 Upgrades	05	27,724	47,123		47,123	44,115	U
97	0604261N	Acoustic Search Sensors	05	32,507	29,195		29,195	23,227	U
98	0604262N	V-22A	05	44,294	43,084		43,084	61,249	U
99	0604264N	Air Crew Systems Development	05	2,437	9,151		9,151	15,014	U

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100	0604269N	EA-18	05	11,769	11,138		11,138	18,730	U
101	0604270N	Electronic Warfare Development	05	46,851	34,964		34,964	28,742	U
102	0604273N	Executive Helo Development	05	46,203	94,235		94,235	388,086	U
103	0604274N	Next Generation Jammer (NGJ)	05	153,369	157,796		157,796	246,856	U
104	0604280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05	197,819	3,259		3,259	7,106	U
105	0604307N	Surface Combatant Combat System Engineering	05	232,441	206,298		206,298	189,112	U
106	0604311N	LPD-17 Class Systems Integration	05	741	1,214		1,214	376	U
107	0604329N	Small Diameter Bomb (SDB)	05	28,883	24,925		24,925	71,849	U
108	0604366N	Standard Missile Improvements	05	46,966	67,082		67,082	53,198	U
109	0604373N	Airborne MCM	05	60,424	109,354		109,354	38,941	U
110	0604376M	Marine Air Ground Task Force (MAGTF) Electronic Warfare (EW) for Aviation	05	9,647	10,080		10,080	7,832	U
111	0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05	35,872	21,413		21,413	15,263	U
112	0604404N	Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) System	05	99,479	121,673		121,673	403,017	U
113	0604501N	Advanced Above Water Sensors	05	235,176	157,871		157,871	20,409	U
114	0604503N	SSN-688 and Trident Modernization	05	74,091	85,711		85,711	71,565	U
115	0604504N	Air Control	05	5,231	10,754		10,754	29,037	U
116	0604512N	Shipboard Aviation Systems	05	58,179	69,615		69,615	122,083	U
117	0604518N	Combat Information Center Conversion	05	817					U
118	0604522N	Advanced Missile Defense Radar (AMDR) System	05					144,706	U
119	0604558N	New Design SSN	05	81,162	62,446		62,446	72,695	U

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Line No	Program Element Number	Item	Act	FY 2013 (Base & OCO)	FY 2014 Base Enacted	FY 2014 OCO Enacted	FY 2014 Total Enacted	FY 2015 Base	Sec
120	0604562N	Submarine Tactical Warfare System	05	43,555	49,135		49,135	38,985	U
121	0604567N	Ship Contract Design/ Live Fire T&E	05	165,908	187,421		187,421	48,470	U
122	0604574N	Navy Tactical Computer Resources	05	3,552	3,689		3,689	3,935	U
123	0604580N	Virginia Payload Module (VPM)	05		59,120		59,120	132,602	U
124	0604601N	Mine Development	05	6,934	5,041		5,041	19,067	U
125	0604610N	Lightweight Torpedo Development	05	45,907	26,444		26,444	25,280	U
126	0604654N	Joint Service Explosive Ordnance Development	05	7,394	8,897		8,897	8,985	U
127	0604703N	Personnel, Training, Simulation, and Human Factors	05	5,224	4,233		4,233	7,669	U
128	0604727N	Joint Standoff Weapon Systems	05	5,490	442		442	4,400	U
129	0604755N	Ship Self Defense (Detect & Control)	05	78,227	95,604		95,604	56,889	U
130	0604756N	Ship Self Defense (Engage: Hard Kill)	05	52,816	43,303		43,303	96,937	U
131	0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05	125,204	114,799		114,799	134,564	U
132	0604761N	Intelligence Engineering	05		1,984		1,984	200	U
133	0604771N	Medical Development	05	37,426	28,458		28,458	8,287	U
134	0604777N	Navigation/ID System	05	38,949	47,428		47,428	29,504	U
135	0604800M	Joint Strike Fighter (JSF) - EMD	05	639,059	415,727		415,727	513,021	U
136	0604800N	Joint Strike Fighter (JSF) - EMD	05	642,349	440,745		440,745	516,456	U
137	0605013M	Information Technology Development	05	11,540	5,564		5,564	2,887	U
138	0605013N	Information Technology Development	05	64,238	47,807		47,807	66,317	U
139	0605212N	CH-53K RDTE	05	535,552	462,280		462,280	573,187	U
140	0605220N	Ship to Shore Connector (SSC)	05					67,815	U

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141	0605450N	Joint Air-to-Ground Missile (JAGM)	05					6,300	U
142	0605500N	Multi-mission Maritime Aircraft (MMA)	05	391,364	272,352		272,352	308,037	U
143	0204202N	DDG-1000	05	120,842	187,904		187,904	202,522	U
144	0304231N	Tactical Command System - MIP	05	1,072	2,140		2,140	1,011	U
145	0304785N	Tactical Cryptologic Systems	05	21,362	9,406		9,406	10,357	U
146	0305124N	Special Applications Program	05		22,800		22,800	23,975	U
		System Development & Demonstration		4,896,330	4,250,970		4,250,970	5,419,108	
147	0604256N	Threat Simulator Development	06	27,843	43,261		43,261	45,272	U
148	0604258N	Target Systems Development	06	53,171	71,872		71,872	79,718	U
149	0604759N	Major T&E Investment	06	32,989	38,033		38,033	123,993	U
150	0605126N	Joint Theater Air and Missile Defense Organization	06	5,829	1,352		1,352	4,960	U
151	0605152N	Studies and Analysis Support - Navy	06	15,996	5,553		5,553	8,296	U
152	0605154N	Center for Naval Analyses	06	41,573	46,655		46,655	45,752	U
153	0605502N	Small Business Innovative Research	06	289,844					U
154	0605804N	Technical Information Services	06	1,230	637		637	876	U
155	0605853N	Management, Technical & International Support	06	44,635	83,494		83,494	72,070	U
156	0605856N	Strategic Technical Support	06	2,935	3,221		3,221	3,237	U
157	0605861N	RDT&E Science and Technology Management	06	64,317	72,725		72,725	73,033	U
158	0605863N	RDT&E Ship and Aircraft Support	06	130,840	141,778		141,778	138,304	U
159	0605864N	Test and Evaluation Support	06	341,126	301,219		301,219	336,286	U
160	0605865N	Operational Test and Evaluation Capability	06	15,109	16,565		16,565	16,658	U

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161	0605866N	Navy Space and Electronic Warfare (SEW) Support	06	6,091	3,264		3,264	2,505	U
162	0605867N	SEW Surveillance/Reconnaissance Support	06	7,453	7,134		7,134	8,325	U
163	0605873M	Marine Corps Program Wide Support	06	17,352	24,054		24,054	17,866	U
164	0305885N	Tactical Cryptologic Activities	06	2,562	497		497		U
165	0909999N	Financing for Cancelled Account Adjustments	06	2,668					U
		Management Support		1,103,563	861,314		861,314	977,151	
167	0604227N	HARPOON Modifications	07		699		699		U
168	0604402N	Unmanned Combat Air Vehicle (UCAV) Advanced Component and Prototype Development	07	128,135	20,961		20,961	35,949	U
169	0604766M	Marine Corps Data Systems	07		35		35	215	U
170	0605525N	Carrier Onboard Delivery (COD) Follow On	07		1,230		1,230	8,873	U
171	0605555N	Strike Weapons Development	07		13,757		13,757		U
172	0101221N	Strategic Sub & Weapons System Support	07	83,771	98,057		98,057	96,943	U
173	0101224N	SSBN Security Technology Program	07	30,861	31,755		31,755	30,057	U
174	0101226N	Submarine Acoustic Warfare Development	07	1,299	1,464		1,464	4,509	U
175	0101402N	Navy Strategic Communications	07	17,461	21,723		21,723	13,676	U
176	0203761N	Rapid Technology Transition (RTT)	07	21,906	8,561		8,561	12,480	U
177	0204136N	F/A-18 Squadrons	07	150,477	112,618		112,618	76,216	U
178	0204152N	E-2 Squadrons	07	7,871	1,971		1,971		U
179	0204163N	Fleet Telecommunications (Tactical)	07	14,304	23,422		23,422	27,281	U
180	0204228N	Surface Support	07	2,999	2,374		2,374	2,878	U

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181	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07	10,154	12,407		12,407	32,385	U
182	0204311N	Integrated Surveillance System	07	40,658	41,609		41,609	39,371	U
183	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07	6,091	4,382		4,382	4,609	U
184	0204460M	Ground/Air Task Oriented Radar (G/ATOR)	07	70,217	78,208		78,208	99,106	U
185	0204571N	Consolidated Training Systems Development	07	16,798	39,124		39,124	39,922	U
186	0204574N	Cryptologic Direct Support	07	1,610	2,703		2,703	1,157	U
187	0204575N	Electronic Warfare (EW) Readiness Support	07	17,867	19,563		19,563	22,067	U
188	0205601N	HARM Improvement	07	12,586	13,586		13,586	17,420	U
189	0205604N	Tactical Data Links	07	79,362	169,875		169,875	151,208	U
190	0205620N	Surface ASW Combat System Integration	07	24,465	31,863		31,863	26,366	U
191	0205632N	MK-48 ADCAP	07	35,115	10,080		10,080	25,952	U
192	0205633N	Aviation Improvements	07	71,945	78,608		78,608	106,936	U
193	0205658N	Navy Science Assistance Program	07	3,131					U
194	0205675N	Operational Nuclear Power Systems	07	79,229	116,928		116,928	104,023	U
195	0206313M	Marine Corps Communications Systems	07	162,537	160,773		160,773	77,398	U
196	0206335M	Common Aviation Command and Control System (CAC2S)	07					32,495	U
197	0206623M	Marine Corps Ground Combat/Supporting Arms Systems	07	146,255	116,061		116,061	156,626	U
198	0206624M	Marine Corps Combat Services Support	07	56,390	35,647		35,647	20,999	U
199	0206625M	USMC Intelligence/Electronic Warfare Systems (MIP)	07	21,369	33,394		33,394	14,179	U
200	0207161N	Tactical AIM Missiles	07	18,889	15,453		15,453	47,258	U
201	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	2,669	2,613		2,613	10,210	U

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202	0208058N	Joint High Speed Vessel (JHSV)	07	1,759	986		986		U
206	0303109N	Satellite Communications (SPACE)	07	179,029	66,196		66,196	41,829	U
207	0303138N	Consolidated Afloat Network Enterprise Services (CANES)	07	15,510	24,476		24,476	22,780	U
208	0303140N	Information Systems Security Program	07	27,723	23,514		23,514	23,053	U
209	0303150M	WWMCCS/Global Command and Control System	07	71				296	U
211	0305149N	COBRA JUDY	07	14,460					U
212	0305160N	Navy Meteorological and Ocean Sensors-Space (METOC)	07	738	742		742	359	U
213	0305192N	Military Intelligence Program (MIP) Activities	07	7,962	4,799		4,799	6,166	U
214	0305204N	Tactical Unmanned Aerial Vehicles	07	6,956	8,381		8,381	8,505	U
215	0305207N	Manned Reconnaissance Systems	07	28,099					U
216	0305208M	Distributed Common Ground/Surface Systems	07	26,540	5,527		5,527	11,613	U
217	0305208N	Distributed Common Ground/Surface Systems	07	13,453	17,718		17,718	18,146	U
218	0305220N	RQ-4 UAV	07	612,682	375,235		375,235	498,003	U
219	0305231N	MQ-8 UAV	07	83,827	41,713		41,713	47,294	U
220	0305232M	RQ-11 UAV	07	83				718	U
221	0305233N	RQ-7 UAV	07	791	710		710	851	U
222	0305234N	Small (Level 0) Tactical UAS (STUASL0)	07	9,204	5,013		5,013	4,813	U
223	0305239M	RQ-21A	07	22,924	11,122		11,122	8,192	U
224	0305241N	Multi-Intelligence Sensor Development	07		28,851		28,851	22,559	U
225	0305242M	Unmanned Aerial Systems (UAS) Payloads (MIP)	07					2,000	U
226	0308601N	Modeling and Simulation Support	07	5,217	5,116		5,116	4,719	U

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227	0702207N	Depot Maintenance (Non-IF)	07	20,387	28,042		28,042	21,168	U
228	0708011N	Industrial Preparedness	07	64,411	50,933		50,933	37,169	U
229	0708730N	Maritime Technology (MARITECH)	07	4,424	4,998		4,998	4,347	U
9999	9999999999	Classified Programs		1,266,818	1,385,048	34,426	1,419,474	1,162,684	U
		Operational Systems Development		3,749,489	3,410,624		3,445,050	3,286,028	
Total Research, Development, Test & Eval, Navy				15,553,477	14,946,329		14,980,755	16,266,335	

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Budget Activity 02: Applied Research
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12	02	0602747N	Undersea Warfare Applied Res	Volume 1 - 239
13	02	0602750N	(U)Future Naval Capabilities Applied Research	Volume 1 - 249
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19	03	0603651M	JT Non-Lethal Wpns Tech Dev	Volume 1 - 361
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63	04	0603746N	(U)RETRACT MAPLE	Volume 2 - 543
64	04	0603748N	(U)LINK PLUMERIA	Volume 2 - 545
65	04	0603751N	(U)RETRACT ELM	Volume 2 - 547
66	04	0603764N	(U)LINK EVERGREEN	Volume 2 - 549
67	04	0603787N	(U)SPECIAL PROCESSES	Volume 2 - 551
68	04	0603790N	NATO Research and Deve	Volume 2 - 555
69	04	0603795N	Land Attack Tech	Volume 2 - 559
70	04	0603851M	Joint Non-Lethal Weapons Testing	Volume 2 - 563
71	04	0603860N	JT Precision Approach & Ldg Sys	Volume 2 - 571
72	04	0603889N	Counterdrug RDT&E Projects	Volume 2 - 591
73	04	0603925N	Directed Energy and Electric Weapon System	Volume 2 - 595
74	04	0604112N	Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80	Volume 2 - 601
75	04	0604122N	Remote Minehunting System (RMS)	Volume 2 - 615

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

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77	04	0604279N	(U)ASE Self Protection Optimization	Volume 2 - 635
78	04	0604454N	LX (R)	Volume 2 - 643
79	04	0604653N	JT Cntr Radio Controlled IED Elec War (JCREW)	Volume 2 - 649
80	04	0604659N	(U)Precision Strike Weapons Development Program	Volume 2 - 653
81	04	0604707N	SEW Architecture/Eng Support	Volume 2 - 657
82	04	0604786N	(U)Offensive Anti-Surface Warfare Weapon Dev	Volume 2 - 679
83	04	0605812M	(U)Joint Light Tactical Vehicle(JLTV) EMD	Volume 2 - 689
84	04	0303354N	ASW Systems Development - MIP	Volume 2 - 699
85	04	0304270N	Electronic Warfare Development - MIP	Volume 2 - 705

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(U)CHALK CORAL	0603734N	61	04	Volume 2 - 527
(U)CHALK EAGLE	0603576N	46	04	Volume 2 - 295
(U)Joint Light Tactical Vehicle(JLTV) EMD	0605812M	83	04	Volume 2 - 689
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(U)Offensive Anti-Surface Warfare Weapon Dev	0604786N	82	04	Volume 2 - 679
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Electronic Warfare Development - MIP	0304270N	85	04	Volume 2 - 705
Environmental Protection	0603721N	58	04	Volume 2 - 475

Program Element Title	Program Element Number	Line Item	Budget Activity	Page
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JT Cntr Radio Controlled IED Elec War (JCREW)	0604653N	79	04	Volume 2 - 649
JT Precision Approach & Ldg Sys	0603860N	71	04	Volume 2 - 571
JT Service Explosive Ordn Dev	0603654N	55	04	Volume 2 - 433
Joint Non-Lethal Weapons Testing	0603851M	70	04	Volume 2 - 563
LX (R)	0604454N	78	04	Volume 2 - 643
Land Attack Tech	0603795N	69	04	Volume 2 - 559
Marine Corps Assault Vehicles	0603611M	53	04	Volume 2 - 417
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NATO Research and Deve	0603790N	68	04	Volume 2 - 555
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SEW Architecture/Eng Support	0604707N	81	04	Volume 2 - 657
Ship Concept Advanced Design	0603563N	42	04	Volume 2 - 235
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Program Element Title	Program Element Number	Line Item	Budget Activity	Page
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1. Component	FY 2015 NAVY RDT&E CONSTRUCTION PROGRAM	2. Date
NAVY		04 MAR 2014

3. Installation(SA) and Location/UIC: N47609	4. Project Title
NAWS CHINA LAKE CHINA LAKE, CALIFORNIA	SSBN Replacement Launch Test Complex

5. Program Element	6. Category Code	7. Project Number	8. Project Cost ($000)
0603595N	39012	P3237	36,470

9. COST ESTIMATES

Item	UM	Quantity	Unit Cost	Cost($000)
SSBN REPLACEMENT LAUNCH TEST COMPLEX (16,404SF)	m2	1,524		14,510
LAUNCH TEST STAND ENCLOSURE CC39012 (1,615SF)	m2	150	34,104.73	(5,120)
OPERATIONAL SUPPORT BUILDING CC31210 (6,092SF)	m2	566	4,731.62	(2,680)
EARTH BASED ARRESTMENT STRUCTURE CC39012 (8,697SF)	m2	808	6,904.62	(5,580)
SPECIAL COSTS	LS			(920)
OPERATION & MAINTENANCE SUPP INFO (OMSI)	LS			(210)
SUPPORTING FACILITIES				18,580
SPECIAL CONSTRUCTION FEATURES	LS			(2,520)
SITE PREPARATIONS	LS			(1,360)
SPECIAL FOUNDATION FEATURES	LS			(5,490)
PAVING AND SITE IMPROVEMENTS	LS			(2,880)
ELECTRICAL UTILITIES	LS			(3,690)
MECHANICAL UTILITIES	LS			(2,640)
SUBTOTAL				33,090
CONTINGENCY (5%)				1,650
TOTAL CONTRACT COST				34,740
SIOH (5.7%)				1,980
SUBTOTAL				36,720
TOTAL REQUEST ROUNDED				36,720
TOTAL REQUEST				36,470
EQUIPMENT FROM OTHER APPROPRIATIONS (NON ADD)				(49,718)

10. Description of Proposed Construction:

The Launch Test Stand Enclosure (LTSE) will be a high-rise, metal framed, tower-like structure, consisting of metal panel walls, a detachable roof structure, and special foundations. The LTSE will provide a controlled environment for the Launch Test Stand (LTS).

The Operational Support Building (OSB) will provide a controlled environment for the launch control area, Low Fidelity Test Vehicle (LFTV) maintenance, Instrumentation Shop, Communication area and restroom facilities.

The Earth Based Arrestment (EBA) structure will consist of subsurface retaining walls

forming a pit that is approximately 145 feet long, 60 feet wide and 43 feet deep. It will be filled with arresting media to cushion the test vehicle as it lands after test launch.

Special costs include post construction award services. Environmental mitigation includes Desert Tortoise fence and bio-monitoring during construction.

Operations and Maintenance Support Information (OMSI) is included in this project.

Special construction features include fire protection storage tanks, fire pump system and pump house, davit crane, rigging storage building, EBA shield and cover, and Launch Test Vehicle (LTV) stand.

Site Preparation includes clearing and grubbing, excavation and grading, and removal of existing pavement.

Special foundation features include concrete piles, each approximately 80 feet long, which support the launch test stand in the enclosure. The foundation must be capable of supporting the dead and live loads of a 65-ton Trident II (D5) test vehicle during the test launches. The earth-based arresting enclosure (box) will have concrete walls and a soil-cement floor capable of supporting the impact of the test vehicle as it lands in the arresting box after test launch.

Pavement and site improvements include vehicle and crane path, vehicle parking area for approximately 18 vehicles, sidewalk, compacted roads, trash enclosures, satellite hazardous waste accumulation area, LTSE Removable Roof ground support, EBA cover ground support, stormwater drainage, bioswales, and miscellaneous equipment pads.

Electrical utilities include extending the existing overhead power electrical distribution system, transformer, exterior lighting, telephone, fiber optic systems, and Control and Data Acquisition System (CDAS) test equipment infrastructure.

Mechanical utilities include Heating, Ventilation, and Air Conditioning (HVAC) systems for OSB and LTSE, domestic water lines, fire water lines, fire hydrants, underground backflow preventer and meter and water pump house, sanitary sewer lines, sanitary sewer leach field, dosing tank, septic tank, washdown system, washdown system piping, and mechanical yard to house HVAC equipment.

11. Requirement: **Adequate:** **Substandard:**

PROJECT:

Project constructs a new Launch Test Complex (LTC) which will be government owned and contractor operated to support dry launch testing and evaluation of full-scale launch technologies. The project construction will be authorized by 10 U.S.C. Section 2353,

funded from Research, Development, Test, and Evaluation (RDT&E) appropriations, and will have no general utility and utilized solely to meet RDT&E contractual requirements. The facility is being procured by the Government and provided for contractor use in fulfillment of their planned contract obligations.

(New Mission)

REQUIREMENT:

This project enables full-scale testing of a new Trident missile launcher system to demonstrate hardware qualifications, collect launch event information, and to demonstrate performance of the launcher system. This project provides adequate test facilities to conduct qualification testing of full-scale launcher hardware. The project will provide performance and safety data to mitigate the risk of a tactical failure in the fleet.

This project requires construction starting in fiscal year 2015, with equipment outfitting in 2016 and launch testing in 2017.

CURRENT SITUATION:

Currently, there is no capability that exists to support the LTC requirements. The previous full-scale LTV launching and handling facility of this type was the Hunters Point Surface Launch Test Complex (HPSLTC) located at the Hunters Point Naval Shipyard (HPNSY). HPNSY was closed in 1991 by the Base Realignment and Closure (BRAC) Commission.

IMPACT IF NOT PROVIDED:

Failure to provide LTC will result in a delay to the qualification and performance testing of the launch system, which, in turn, would cause a delay in delivery of qualified launcher equipment for the SSBN Replacement.

12. Supplemental Data:

A. Estimated Design Data:

1. Status:	
(A) Date design or Parametric Cost Estimate started	01/2012
(B) Date 35% Design or Parametric Cost Estimate complete	05/2012
(C) Date design completed	02/2014
(D) Percent completed as of September 2013	35%
(E) Percent completed as of January 2014	65%
(F) Type of design contract	Design Bid Build
(G) Parametric Estimate used to develop cost	Yes
(H) Energy Study/Life Cycle Analysis performed	Yes
2. Basis:	
(A) Standard or Definitive Design	No
(B) Where design was previously used	N/A
3. Total cost (C) = (A) + (B) = (D) + (E):	
(A) Production of plans and specifications	$1,600
(B) All other design costs	$500
(C) Total	$2,100

1. Component	FY 2015 NAVY RDT&E CONSTRUCTION PROGRAM	2. Date
NAVY		04 MAR 2014

3. Installation(SA) and Location/UIC: N47609	4. Project Title
NAWS CHINA LAKE CHINA LAKE, CALIFORNIA	SSBN Replacement Launch Test Complex

5. Program Element	6. Category Code	7. Project Number	8. Project Cost ($000)
0603595N	39012	P3237	36,470

(D) Contract $2,050
(E) In-house $50
4. Contract award: 11/2014
5. Construction start: 12/2014
6. Construction complete: 03/2016

B. Equipment associated with this project which will be provided from other appropriations:

Equipment Nomenclature	Procuring Approp	FY Approp or Requested	Cost($000)
Arrestment Media	RDT&E	2015	3,043
Control and Data Acquisition System	RDT&E	2015	4,700
Crawler Crane	RDT&E	2015	6,000
Cross Flow Simulator	RDT&E	2015	1,500
Earth-Based Arrestment Groomer	RDT&E	2015	400
Furniture Furnishings & Equipment	RDT&E	2015	25
Gantry Crane (10 Ton)	RDT&E	2015	125
Gas Generators	RDT&E	2016	15,040
Launcher Test Stand & Support Equipment	RDT&E	2015	8,500
Low Fidelity Test Vehicle & Support Equipment	RDT&E	2015	10,000
Magazine	RDT&E	2015	225
Manlift, Davit and Three Jib Cranes	RDT&E	2015	160

JOINT USE CERTIFICATION:

The Regional Commander certifies that this project has been considered for joint use potential. Unilateral Construction is recommended. This construction will have sole use for the RDT&E contract requirements supporting the SSBN Replacement Launcher qualification.

Activity POC: Project Development Lead Phone No: 760 939 4631

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603207N *I Air/Ocean Tactical Applications*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	443.418	31.357	39.246	40.429	-	40.429	40.974	40.682	43.901	44.610	Continuing	Continuing
2341: *METOC Data Acquisition*	149.620	5.793	6.336	2.518	-	2.518	4.387	4.430	5.084	5.230	Continuing	Continuing
2342.: *METOC Data Assimilation and Mod*	174.428	12.899	15.235	12.582	-	12.582	16.362	18.905	19.451	20.615	Continuing	Continuing
2343: *Tactical METOC Applications*	117.491	9.049	8.908	9.124	-	9.124	14.384	14.149	15.220	15.503	Continuing	Continuing
2344.: *Precise Time and Astrometry*	0.000	2.936	5.914	8.954	-	8.954	2.340	1.179	2.106	1.222	Continuing	Continuing
2363: *Remote Sensing Capability Development*	0.000	-	-	4.988	-	4.988	2.500	1.000	1.000	0.980	Continuing	Continuing
3207: *Fleet Synthetic Training*	1.879	0.680	2.853	2.263	-	2.263	1.001	1.019	1.040	1.060	Continuing	Continuing

The FY 2015 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 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603207N *I 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, the Earth System Prediction Capability projects, and the Remote Sensing Capability Development.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	34.085	42.246	46.862	-	46.862
Current President's Budget	31.357	39.246	40.429	-	40.429
Total Adjustments	-2.728	-3.000	-6.433	-	-6.433
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.463	-			
• Program Adjustments	-	-	6.400	-	6.400
• Rate/Misc Adjustments	-0.001	-	-12.833	-	-12.833
• Congressional General Reductions Adjustments	-2.264	-	-	-	-

Change Summary Explanation

Technical: Added funding to Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program development and Future Mission Capabilities (FMC) efforts in FY15.
Beginning in FY15 the Remote Sensing Capability Development program will collect target data for development of automated algorithms.
Schedule: The schedule for the Remote Sensing Capability Development program is added to reflect the programs development efforts beginning in FY15.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603207N / *Air/Ocean Tactical Applications*	Project (Number/Name) 2341 / *METOC Data Acquisition*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2341: *METOC Data Acquisition*	149.620	5.793	6.336	2.518	-	2.518	4.387	4.430	5.084	5.230	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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 2015 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	5.481	5.984	2.219
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2341 / *METOC Data Acquisition*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continued 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. Continued development of improved data quality control technologies and the automation of data acquisition processes and develop advanced technologies and techniques to improve Geospatial Information and Services (GI&S) capabilities within Navy Meteorological and Oceanographic (METOC) product production centers and throughout the fleet user base. Continued to develop technologies that use tactical detection systems where applicable to characterize undersea and atmospheric environment in the battlespace. Began Through-the-Sensor (TTS) development and demonstration. Developed 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.			
FY 2015 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. Continue the development of techniques to improve delivery of GI&S within Navy METOC product production centers and throughout the fleet user base. Continue TTS development and demonstrate functionality. Develop tools and techniques to support forecaster's processing, analysis and performance assessment processes.			
Title: Tactical Oceanography Capabilities (TOC) / Undersea Warfare (USW)	0.312	0.352	0.299
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2341 / *METOC Data Acquisition*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continued to transition models, algorithms and databases that either calculate accurate acoustic Transmission Loss (TL) or characterize environmental parameters that affect TL and develop TL calculation implementations. Continued 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. ***FY 2015 Plans:*** Continue to transition models, algorithms and databases used to calculate accurate acoustic TL and characterize environmental parameters that affect TL into U.S. Navy ASW TDAs. Continue to develop capabilities to rapidly calculate acoustic TL values within tactical timeframes to include environmental uncertainty quantification of those values for both active and passive sonar systems.			
Accomplishments/Planned Programs Subtotals	5.793	6.336	2.518

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN/0604218N/2345: *FLEET METOC EQUIPMENT*	2.380	2.611	1.224	-	1.224	1.332	0.848	1.310	1.950	Continuing	Continuing
• RDTEN/0603207N/2342: *METOC DATA ASSIMILATION AND MOD*	10.242	10.250	4.937	-	4.937	8.154	8.352	8.709	9.669	Continuing	Continuing
• RDTEN/0604218N/2346: *METOC SENSOR ENGINEERING*	1.278	1.415	0.940	-	0.940	1.194	1.206	1.228	1.260	Continuing	Continuing

Remarks

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.

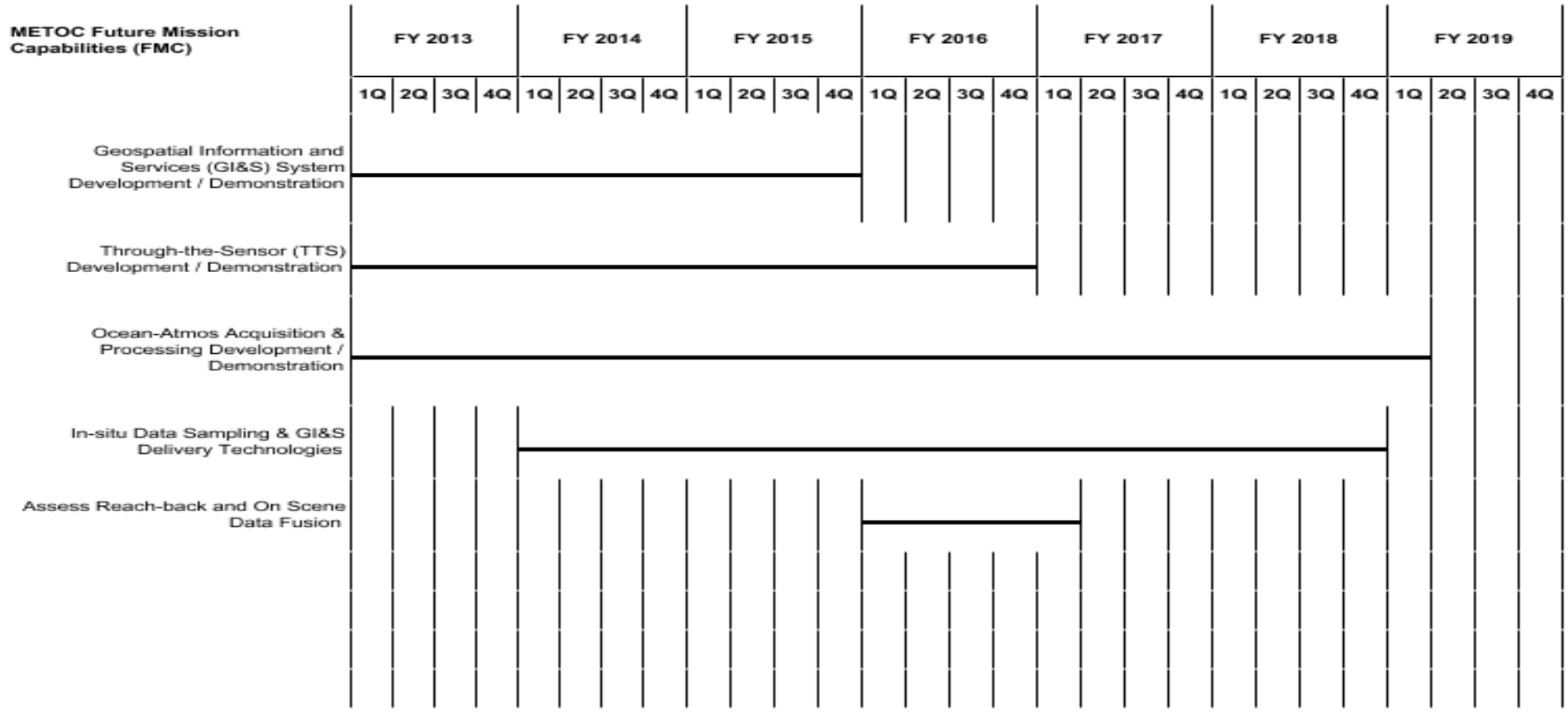
Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2341 / *METOC Data Acquisition*

E. Performance Metrics

Goal: Develop techniques and tools to acquire Meteorological and Oceanographic (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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2341 / *METOC Data Acquisition*



2015OSD - 0603207N - 2341

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603207N / *Air/Ocean Tactical Applications*				Project (Number/Name) 2342. / *METOC Data Assimilation and Mod*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2342.: *METOC Data Assimilation and Mod*	174.428	12.899	15.235	12.582	-	12.582	16.362	18.905	19.451	20.615	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 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 2015 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. Begin research and development of data processing and data assimilation algorithms for the Geostationary Operational Environmental Satellite (GOES-R) launch. Develop Meteorological and Oceanographic (METOC) Decision Support & Predation Tools to improve Electromagnetic and Electro-optical (EM/EO) system performance.
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 2013	FY 2014	FY 2015
Title: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	4.404	4.199	2.521
Articles:	-	-	-

FY 2013 Accomplishments:
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 using data from tactical sensors, remote sensing and undersea sensor systems. Continued to develop Meteorological and Oceanographic (METOC) and Geospatial Information and Services (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 sensing and undersea sensor systems. Continue to develop METOC and GI&S fusion algorithms and demonstrate reach-back capability.

FY 2015 Plans:
Continue development of advanced METOC 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 sensing and undersea sensor

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2342. / *METOC Data Assimilation and Mod*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
systems. Continue to develop METOC and GI&S fusion algorithms and demonstrate capabilities. Develop METOC Decision Support & Predation Tools to improve Electromagnetic and Electro-optical (EM/EO) systems performance.			
Title: Meteorological and Oceanographic (METOC) Space-Based Sensing Capabilities	3.012	2.170	0.642
Articles:	-	-	-
FY 2013 Accomplishments: Continued 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. Began assimilation of Meteorological satellite data from other Federal non-DOD, commercial, and foreign earth observing satellite systems. Prepared to ingest data from Joint Polar Satellite System (JPSS) program satellites.			
FY 2014 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 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.			
FY 2015 Plans: Continue preparation to ingest data from earth observing satellite systems, specifically JASON. Begin research and development of data processing and data assimilation algorithms for the GOES-R launch.			
Title: Tactical Oceanographic Capabilities (TOC) / Undersea Warfare (USW)	2.826	3.881	1.774
Articles:	-	-	-
FY 2013 Accomplishments: Continued decision tool development that assists Undersea Warfare (USW) warfighters to optimally deploy assets equipped with 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 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. Continued development of Reachback Cell (RBC) ocean model assessment toolkit. Continued development of methodologies that			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2342. / *METOC Data Assimilation and Mod*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
characterize and forecast bioacoustic volume attenuation and scatter functions as observed by the Navy's active hull-mounted sonar systems. Continued 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. Begin developing Maritime Patrol Aircraft and submarine-based Through-the-Sensor (TTS) technologies to collect and transmit environmental data for use by Naval Oceanographic Office (NAVOCEANO) to predict Anti-Submarine Warfare (ASW) sensor performance. Transition software 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 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 transition the environmental software components of MIW TDAs in use by the U.S. Navy's Mine Warfare (MIW) Forces and NOe personnel supporting them. Provide technical support to the NAVOCEANO in updating geoacoustic bottom loss & scatter 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. Conduct proof-of-concept at-sea demonstrations of emerging Unmanned Undersea Vehicle (UUV) and Unmanned Surface Vehicle (USV) technologies designed to collect environmental data. ***FY 2015 Plans:*** Continue to develop the underlying acoustic and environmental software components of Navy decision tools that assist Undersea Warfare (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 Atmospheric Master Library (OAML). Continue population/upgrade of oceanographic, acoustic and geoacoustic databases in Combatant Commanders' (COCOM) areas of interest. Continue developing Maritime Patrol Aircraft and submarine-based TTS technologies to collect and transmit environmental data for use by NAVOCEANO to predict ASW sensor performance. Transition software algorithms that capture and communicate variability and uncertainty contained in the output of underlying model and data base components of ASW TDAs. Continue to develop and 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 NAVOCEANO in updating geoacoustic bottom loss			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2342. / *METOC Data Assimilation and Mod*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
& scatter data bases for sonar performance predictions. Conduct proof-of-concept at-sea demonstrations of emerging UUV and USV technologies designed to collect environmental data.			
Title: Earth System Prediction Capability (ESPC)	2.657	4.985	7.645
Articles:	-	-	-

FY 2013 Accomplishments:
Initiated a common model architecture and standards, as well as developed demonstration plans and conducted science workshops and early benchmark testing to meet long range program goal of advanced skillful forecast (relative to averaged climatology) from current operational capability of 7-10 days, to 30 days and longer. Provided the Navy component to match a National research and development (R&D) initiative across the major U.S. National Operational Prediction Centers at Navy, National Oceanic and Atmospheric Administration (NOAA), National Aeronautics and Space Amininstration (NASA), and Department of Energy (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.

FY 2015 Plans:
Continue all efforts from FY2014, less those noted as complete.
Complete a National common environmental computing architecture to improve cross-Agency collaboration.
Continue to develop a greatly more efficient computational architecture to allow for real-time operational prediction.
Complete common environmental model architecture and standards and prediction demonstration plans.
Continue science workshops and 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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2342. / *METOC Data Assimilation and Mod*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Initiate improved scalability and computational performance of a fully coupled global atmosphere / wave / ocean / land / ice prediction system providing daily predictions out to 10 days and weekly predictions out to 30 days. Initiate improved DoD decision support for 30-180 Day lead times.			
Accomplishments/Planned Programs Subtotals	12.899	15.235	12.582

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/4226: *METEOROLOGICAL EQUIPMENT*	17.790	19.118	12.575	-	12.575	14.947	15.834	16.512	16.549	Continuing	Continuing
• RDTEN/0604218N/2345: *FLEET METOC EQUIPMENT*	2.380	2.611	1.244	-	1.244	1.332	0.848	1.310	1.950	Continuing	Continuing
• RDTEN/0603207N/2341: *METOC DATA ACQUISITION*	5.793	6.336	2.518	-	2.518	4.387	4.430	5.084	5.230	Continuing	Continuing
• RDTEN/0604218N/2346: *METOC SENSOR ENGINEERING*	1.278	1.415	0.940	-	0.940	1.194	1.206	1.228	1.260	Continuing	Continuing
• RDTEN/0305160N/0524: *NAVY METOC SUPPORT (SPACE)*	0.738	0.742	0.359	-	0.359	0.645	0.641	0.661	0.680	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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2342. / *METOC Data Assimilation and Mod*

E. Performance Metrics

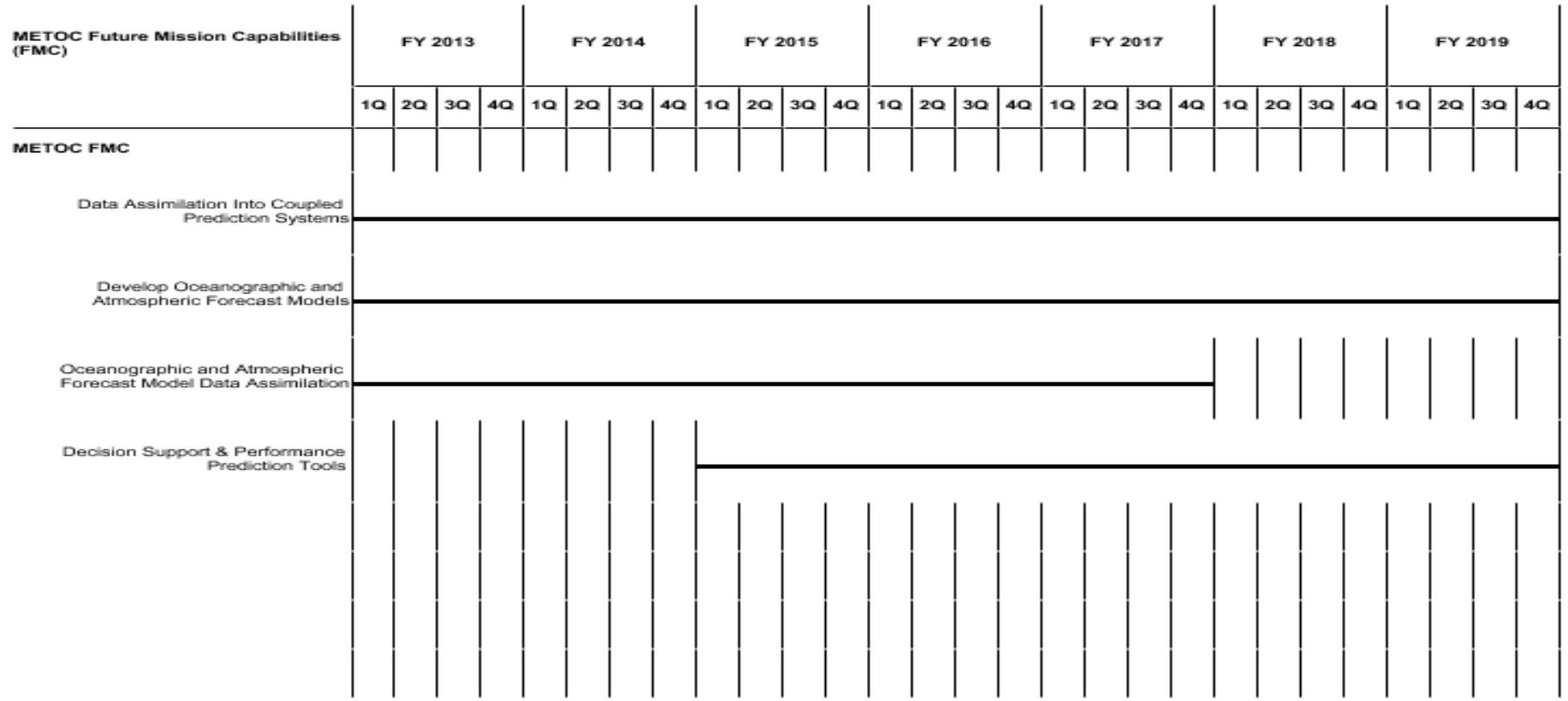
Goal: Develop techniques and tools to assimilate Meteorological and Oceanographic (METOC) data in order to improve the accuracy of global and regional scale meteorological and oceanographic forecast models. Data assimilation is expanded to include new in-situ and remotely-sensed data types, based on 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.

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.

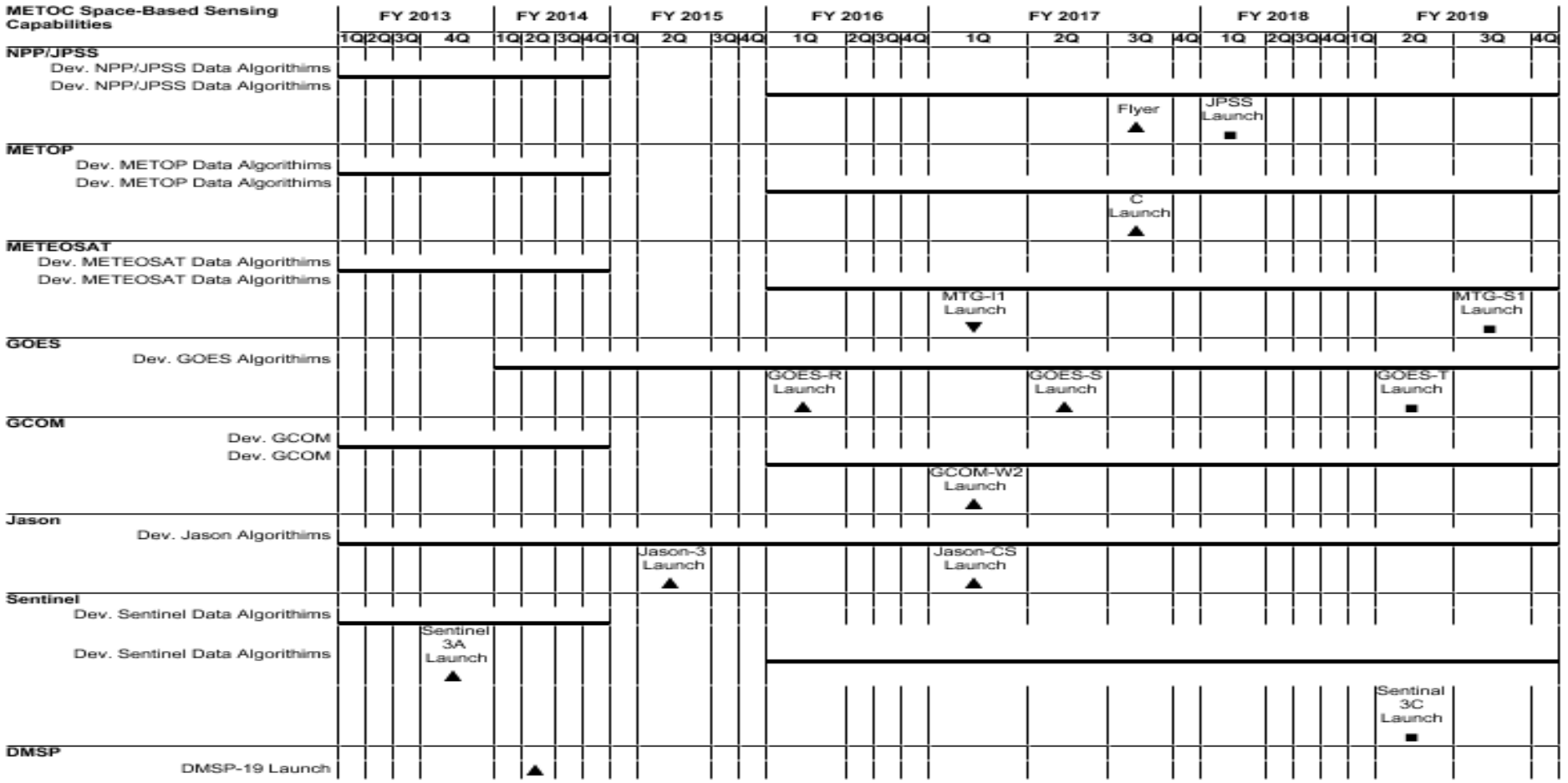
Metrics: Long term trends show a globally averaged gain of skill of 1 day per decade of RDT&E investment, i.e. today's 5-day forecast is as accurate as the 3-day forecast available in the early 1990's. This program will implement new technological approaches to improve 7-14 day predictions to the level 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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2342. / *METOC Data Assimilation and Mod*



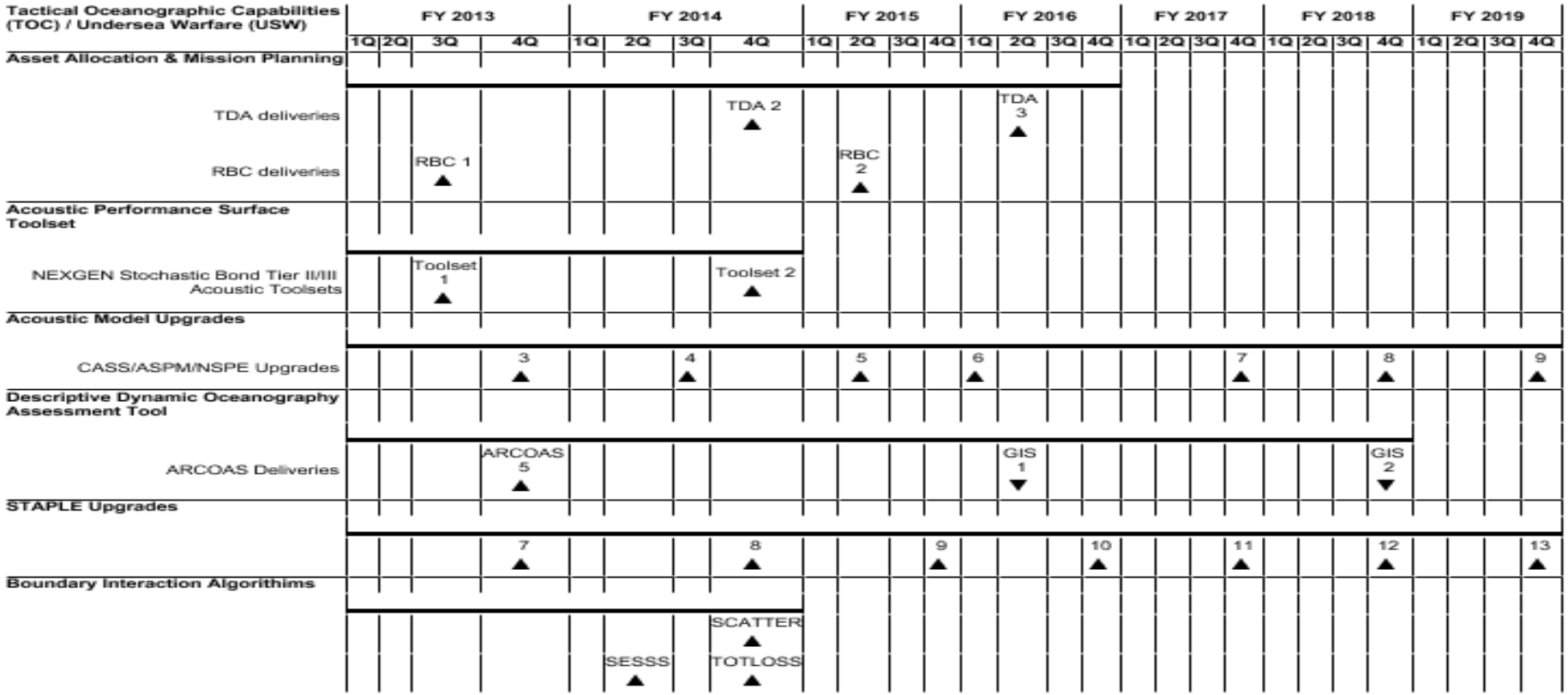
2015OSD - 0603207N - 2342.L39

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2342. / *METOC Data Assimilation and Mod*



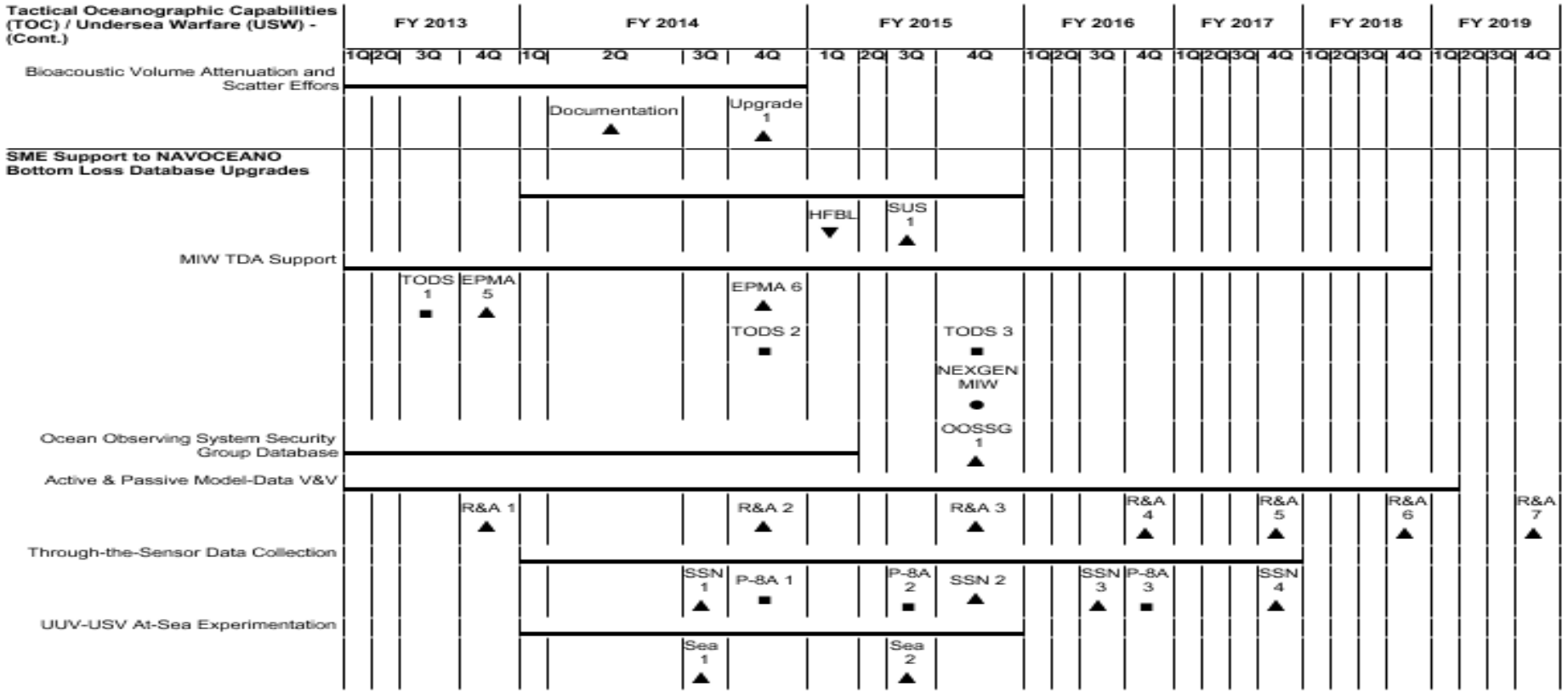
2015OSD - 0603207N - 2342.L39

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2342. / *METOC Data Assimilation and Mod*



2015OSD - 0603207N - 2342.L39

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2342. / *METOC Data Assimilation and Mod*



2015OSD - 0603207N - 2342.L39

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603207N / *Air/Ocean Tactical Applications*	Project (Number/Name) 2343 / *Tactical METOC Applications*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2343: *Tactical METOC Applications*	117.491	9.049	8.908	9.124	-	9.124	14.384	14.149	15.220	15.503	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The Tactical Meteorology and Oceanography (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 Unit to Theater level, to optimize their sensor employment on airborne, surface, and subsurface platforms in support of 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 weapons and sensor systems will perform. 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 development within the Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program of record.

FY 2015 request provides for the achievement of NITES-Next Initial Operational Capability (IOC), the continuation of Fleet Capability Release (FCR)-2 software development efforts including extensive system architecture, and testing efforts and initiation of FCR-3.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Naval Integrated Tactical Environmental System Next Generation (NITES-Next)	9.049	8.908	9.124

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Articles:	-	-	-
FY 2013 Accomplishments: Continued developing Fleet Capability Release-1 (FCR-1) software. Obtained Limited Fielding Decision (LFD) entrance criteria for FCR-1 from Milestone Decision Authority (MDA). Coordinated with Naval Command Operational Test and Evaluation Force (COMOPTEVFOR) for test events. Conducted FCR-1 System Integration Test #1 (SIT). Completed documentation (including Requirements Definition Package (RDP), Cost Analysis Requirements Description (CARD) and Acquisition Program Baseline (APB)) for NITES-Next FCR-2 Build Decision. Completed required documentation in support of the LFD for FCR-1. Developed the Technology Readiness Assessment (TRA) Addendum 1 for FCR-1 and FCR-2. Obtained FCR-2 Build Decision. Generated FCR-2 contract package.			
FY 2014 Plans: Conduct SIT #2, System Qualification Test (SQT), Developmental Test and Evaluation (DT&E), and User Assessment (UA) for FCR-1. Obtain interim authority to test (IATT) for live network testing. Obtain authority to operate (ATO) for FCR-1. Obtain LFD from MDA, and conduct limited fielding of FCR-1 software to a maximum of six ships. Begin sustainment of FCR-1 software. Complete Navy Training System Plan (NTSP) and Independent Logistics Assessment (ILA) for FCR-1. Plan the FCR-2 test activities. Award task order and start development, integration, and testing of FCR-2. Conduct the System Engineering Technical Review (SETR) Build Technical Review (BTR) in support of FCR-2. Begin documentation and preparation (including RDP, TRA Addendum 2, CARD and APB) for FCR-3. Begin planning for contract actions in support of FCR-3.			
FY 2015 Plans: Conduct Initial Operational Test and Evaluation (IOT&E) in support of FCR-1 Fielding Decision (FD). Conduct FCR-1 FD with the MDA and achieve Initial Operational Capability (IOC). Continue developing, integrating, and testing FCR-2 software. Continue documentation and preparation for FCR-3 (including RDP, TRA Addendum 2, CARD and APB). Continue planning contract in support of FCR-3. Plan for SIT and SQT for FCR-2.			
Accomplishments/Planned Programs Subtotals	9.049	8.908	9.124

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Acquisition, management and contracting strategies are to support the Tactical Meteorology & Oceanography (METOC) Applications project to continue the development of state-of-the-art software capabilities that provide sensor, communication, and weapon system performance assessments across open ocean and littoral

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*

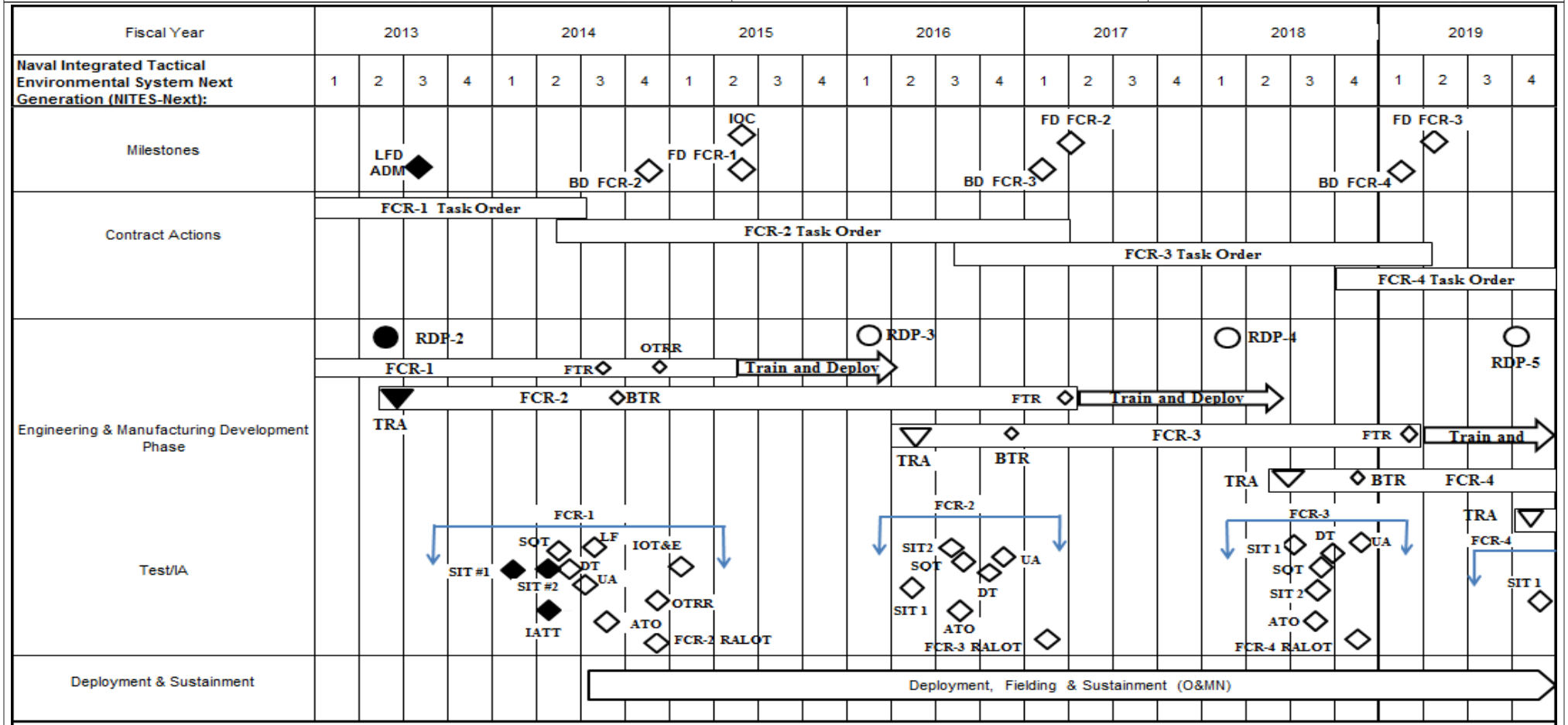
operating environments, all with management oversight incorporating these into the Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program under Joint Capabilities Integration and Development System (JCIDS) by the Department of the Navy (DoN).

E. Performance Metrics

Goal: Develop METOC future Operational Effects Decision Aid (OEDA) capabilities for Navy and Marine Corps war fighters in order to facilitate the characterization and prediction of the battlespace.

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

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2343 / *Tactical METOC Applications*



Acronyms: OTRR = Opertional Test Readiness Review. RDP = Requirements Definition Package. FCR = Fleet Capability Release. TRA = Technology Readiness Assessment. BD = Build Decision. FD = Fielding Decision. Limited Fielding Decision = LFD. IOC= Initial Operational Capability. IATO = Interim Authority to Operate. ATO = Authority to Operate. LF = Limited Fielding. UA = User Assessment. BTR = Build Technical Review. Field Technical Reivew = FTR. SIT = System Integration Test. RALOT - Risk Assessment Level of Testing. DT = Developmental Test. ADM - Acquisition Decision Memorandum.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603207N / *Air/Ocean Tactical Applications*				Project (Number/Name) 2344. / *Precise Time and Astrometry*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2344.: *Precise Time and Astrometry*	-	2.936	5.914	8.954	-	8.954	2.340	1.179	2.106	1.222	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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'. Starting in FY15, the PTA research and development for astrometry will focus on improvements to the USNO Navy Precision Optical Interferometer (NPOI) at Flagstaff, AZ. It is necessary for maintenance of the Celestial Reference Frame (CRF). Four 1.8m telescopes will be added to the array in order to extend and expand the number of stars in the catalog to fainter stars of 9th magnitude.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2344. / *Precise Time and Astrometry*

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 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 2013	FY 2014	FY 2015
Title: Precise Timing and Astronomy	2.936	5.914	8.954
Articles:	-	-	-

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 Accomplishments:
Master Clock (MC) and Time Distribution: Four Navy Rb Fountains (NRF2-5) are now located in the National Master Clock Facility and have demonstrated excellent prediction -of and agreement- with USNO Universal Time Clock (UTC). Time from NRF2-5 are now included in the USNO MC time scale and being reported to the Bureau International des Poids et Mesures (BIPM) for inclusion in the international coordinated UTC. One Navy Rb Fountain has been completed and shipped to the Alternate Master Clock facility (December 2012). One more Rb Fountain will be completed and sent to the AMC facility by July 2013. Approximately 12 months are needed to verify the performance of the two Rb Fountains once they are in place at the AMC.

Earth Orientation: Very Long Baseline Interferomtry System (VLBI) Software (SW) correlator design and development completed. The new 15-station SW Correlator was procured (OPN-funded), delivered and installed in September 2012. It will replace the Hardware (HW) correlator. The Initial Operation Capability (IOC) for the SW Correlator was completed on 7 February 2013. The preliminary version of the Graphical User Interface (GUI) has been delivered. The SW correlator is used for processing the daily National Radio Astronomy Observatory Earth Orientation Parameter (NRAO EOP) intensive series, from the Very Long Baseline Array (VLBA) Mauna Kea, HI, and Pie Town, NM, antennas. In addition, one of the International VLBI Service (IVS) EOP intensive experiments (using the Kokee Park, HI, and Wettzell, Germany, antennas) is correlated on both the SW and HW correlators for intercomparison. Plans for replacement and upgrade of the VLBI radio telescope at Kokee Park HI are progressing. The Kokee Park telescope replacement contract and the Kokee Park Telescope project manager contract is in preparation at Fleet Logistics Center (FLC), Philadelphia, and are expected to be awarded in July 2013.

FY 2014 Plans:
* Initial Operating Capability (IOC) completed for Rb Fountains at USNO Alternate Master Clock facility
* Develop test optical fiber link
* Achieve Final Operating Capability (FOC) for the SW Correlator operations

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2344. / *Precise Time and Astrometry*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
* Contract award for the VLBI Receiver Electronics for the radio telescope Kokee Park, HI * Preliminary Design Review (PDR) for Earth Orientation Parameters (EOP) Automation * Begin site preparations for the Kokee Park radio telescope * Lab demonstration of Optical Fiber timing link * Begin Critical Time Dissemination Activities			
FY 2015 Plans: * Full Operating Capability (FOC) for Rb Fountains at AMC * IOC Kokee Park radio telescope * Begin Navy Precision Optical Interferometer (NPOI)/1.8m telescope installation efforts/activities * Continue Optical Fiber timing link activities * Continue work on EOP automation * Continue Critical Time Dissemination Activities			
Accomplishments/Planned Programs Subtotals	2.936	5.914	8.954

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/0305112N/LI 8126: *Oceanography (USNO Astrometric Telescope Subsystem funds for purchase of Software Correlator*	1.156	0.290	-	-	-	-	-	-	-	-	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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2344. / *Precise Time and Astrometry*

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2344. / *Precise Time and Astrometry*

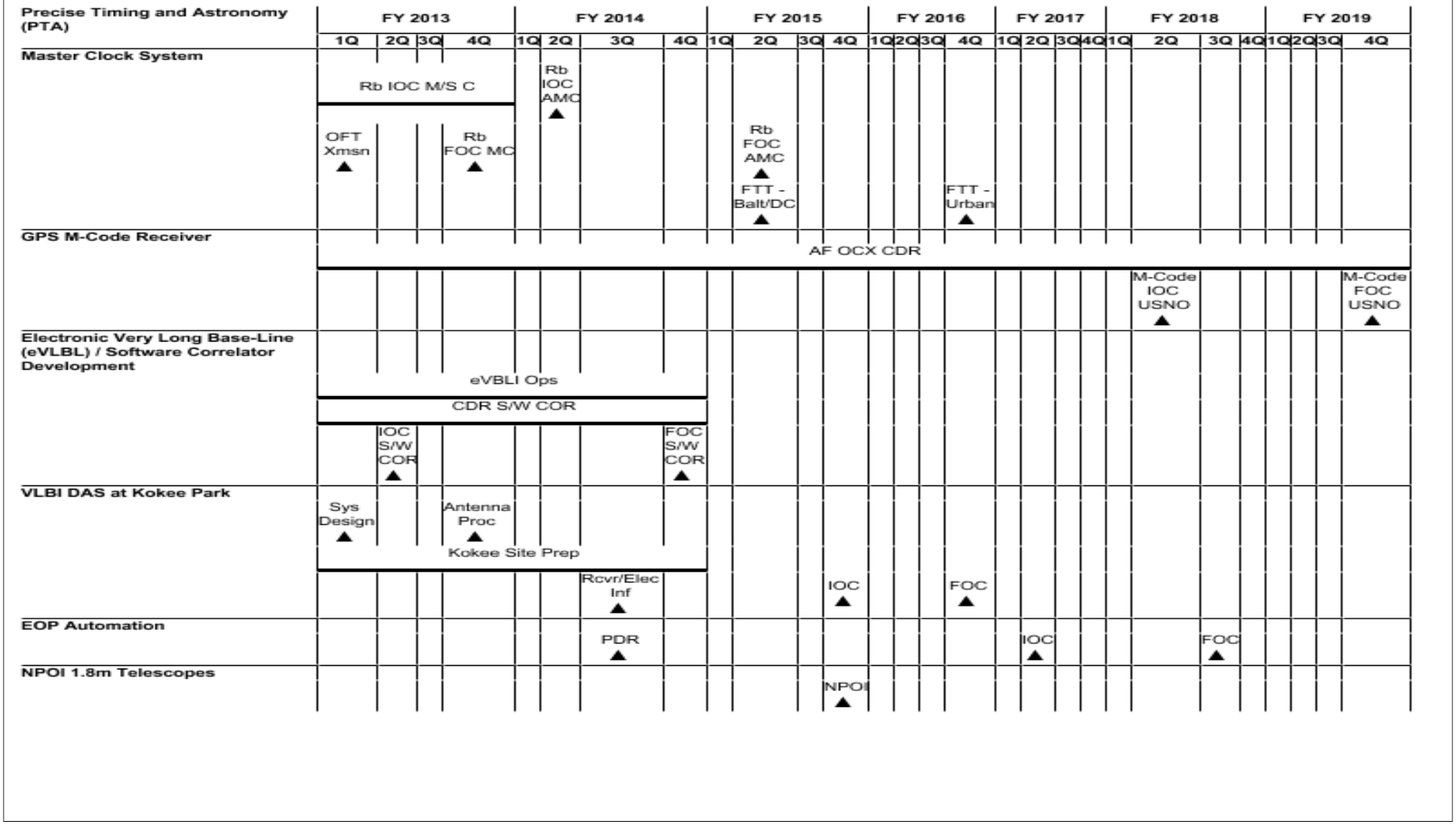


Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2344. / *Precise Time and Astrometry*

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603207N / *Air/Ocean Tactical Applications*	Project (Number/Name) 2363 / *Remote Sensing Capability Development*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2363: *Remote Sensing Capability Development*	-	-	-	4.988	-	4.988	2.500	1.000	1.000	0.980	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Remote Sensing Capability Development characterized the ocean environment using a variety of remote sensing techniques that provide that capability to discriminate atypical oceanographic phenomena from the natural environment that will greatly improve undersea dominance capabilities. The Naval Oceanographic Office will employ oceanographic data to refine and extend environmental characterization of the phenomena and disseminate data to the Fleet.

FY 2015 request provides for collecting target data for development of automated algorithms.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Remote Sensing Capability Development	-	-	4.988
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: Collect remote sensing and ground truth data in various weather and sea states to broaden the range of environmental conditions and reduce uncertainty in environmental prediction. Enhance software to automate tools for tasking, reduce false alarms in environmental detection algorithms, and automate tools for analysis and dissemination to increase area coverage, reduce timelines, and decrease analyst workload.			
Accomplishments/Planned Programs Subtotals	-	-	4.988

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2363 / *Remote Sensing Capability Development*

D. Acquisition Strategy

Seeking approval from ASN/RDA as a Rapid Development and Deployment (RDD) project. The RDD will transition to an ACAT Level Program of Record in FY16.

E. Performance Metrics

Collection of performance metrics will begin upon approval of RDD.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 2363 / *Remote Sensing Capability Development*

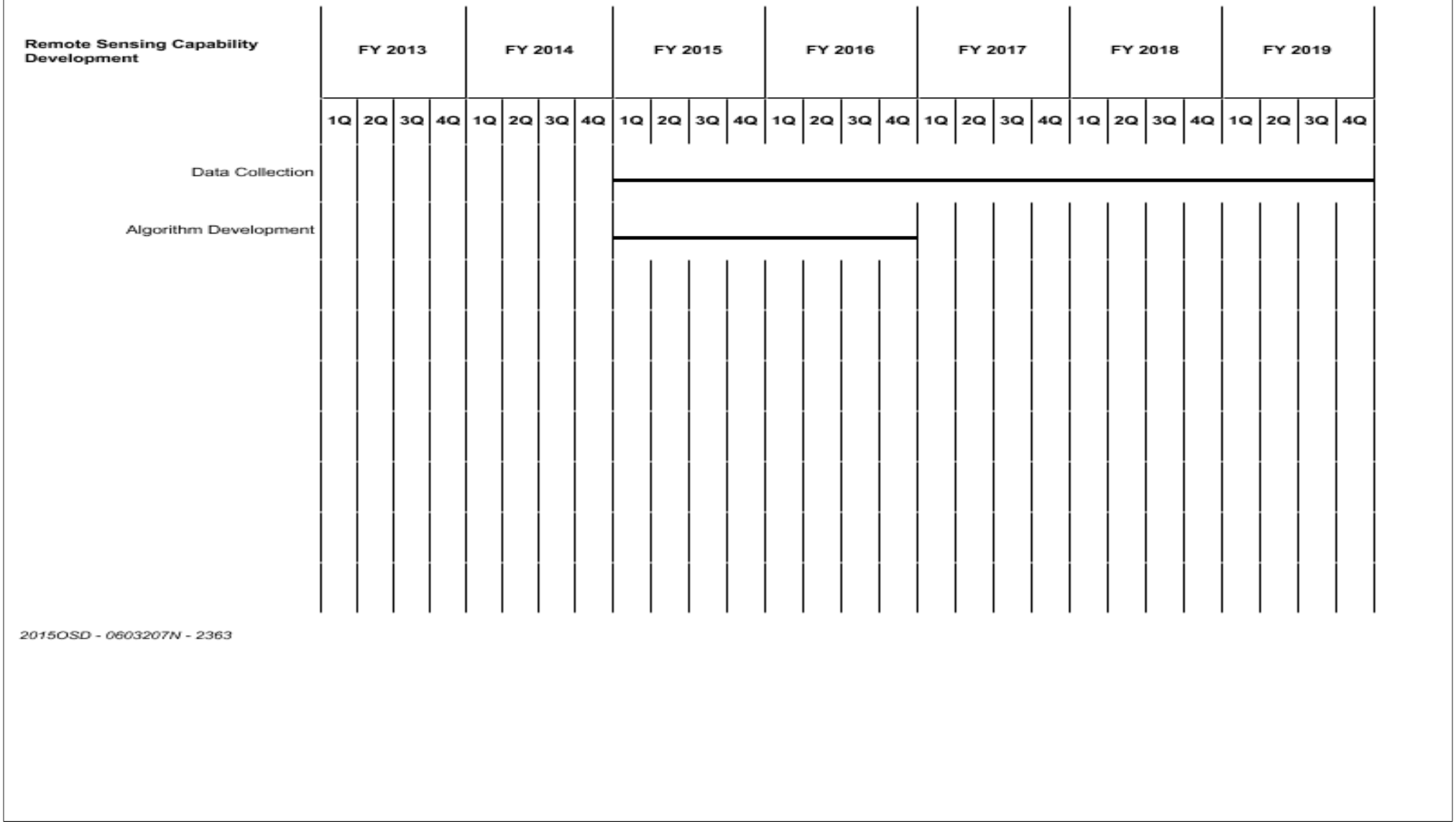

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603207N / *Air/Ocean Tactical Applications*	Project (Number/Name) 3207 / *Fleet Synthetic Training*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3207: *Fleet Synthetic Training*	1.879	0.680	2.853	2.263	-	2.263	1.001	1.019	1.040	1.060	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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) Fleet Synthetic Training (FST) at Sea effort 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 2013	FY 2014	FY 2015
Title: Fleet Synthetic Training	0.680	0.970	0.600
Articles:	-	-	-
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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 3207 / *Fleet Synthetic Training*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2013 Accomplishments:*** Developed meteorological and oceanographic environmental databases for a 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 (EDCSS). 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 2014 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 * Research Modeling on Demand capability using High Performance Computing at Defense Shared Resource Center ***FY 2015 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 (EDCSS interface in support of environmental product generation * Implement "modeling on demand" capability			
Title: Ballistic Missile Defense (BMD) Fleet Synthetic Training (FST) at Sea	-	1.883	1.663
Articles:	-	-	-
Description: Develop a distributed training capability to provide simulation data via a satellite network to the ship underway to stimulate the combat systems and operators. Coordinate efforts with NAVSEA, SPAWAR, and NAVAIR. ***FY 2013 Accomplishments:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 3207 / *Fleet Synthetic Training*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A ***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 and operators. * 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. ***FY 2015 Plans:*** * Finalize development, test, certification and demonstration of the capability. * Test and certification of the capability will be conducted FY 2015.			
Accomplishments/Planned Programs Subtotals	0.680	2.853	2.263

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 protype cabability to provide simulation data to the ship underway to stimulate combat systems and operators.

5) NWDC, in FY15 will finalize development, test, certify, and demonstrate capability for BMD FST at Sea.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603207N / *Air/Ocean Tactical Applications*	**Project (Number/Name)** 3207 / *Fleet Synthetic Training*

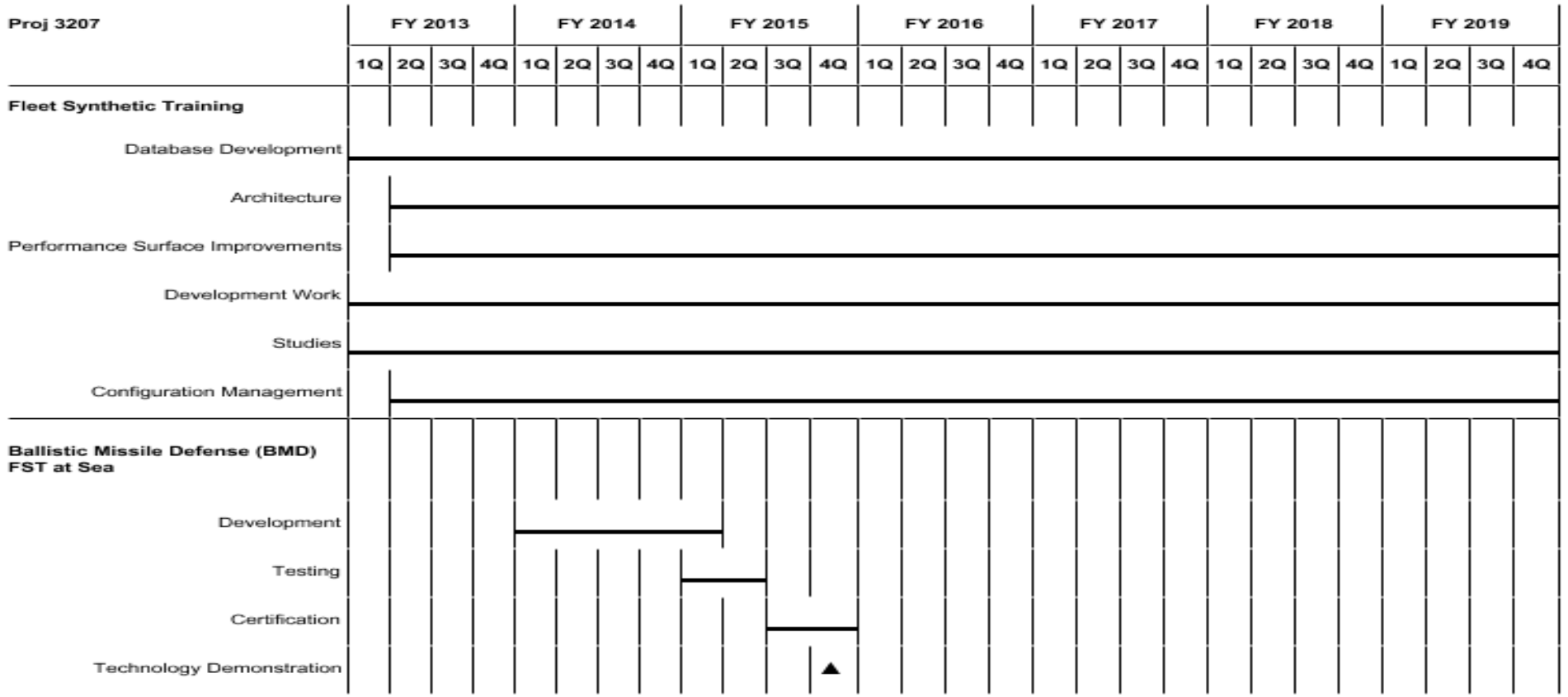

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603216N *I Aviation Survivability*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	158.642	7.970	5.591	4.325	-	4.325	5.728	5.989	6.035	6.153	Continuing	Continuing
0584: *Acft Protective Clothing*	87.268	4.545	2.461	1.388	-	1.388	2.605	2.691	2.721	2.774	Continuing	Continuing
0591: *Acft Survivability, Vulnerability & Safety*	39.561	1.486	1.447	1.359	-	1.359	1.490	1.552	1.561	1.591	Continuing	Continuing
0592: *Acft & Ordnance Safety*	31.032	1.289	1.068	1.045	-	1.045	1.050	1.135	1.137	1.160	Continuing	Continuing
1819: *CV Acft Fire Suppress System*	0.781	0.650	0.615	0.533	-	0.533	0.583	0.611	0.616	0.628	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	8.783	5.591	5.750	-	5.750
Current President's Budget	7.970	5.591	4.325	-	4.325
Total Adjustments	-0.813	-	-1.425	-	-1.425
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.108	-			
• Rate/Misc Adjustments	-	-	-1.425	-	-1.425
• Congressional General Reductions Adjustments	-0.705	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603216N *I Aviation Survivability*

Change Summary Explanation

Technical: Not applicable.

0584- Advanced Helmet Vision System (AHVS) and Laboratory Testing ended in 4Qtr FY13 due to low acuity and excessive heating during laboratory testing. AHVS Safety of Flight Testing was removed due to the low acuity and excessive heating failure that occurred during laboratory testing.
1819- Fire Fighting schedule included for 1st Qtr FY13 thru 4th Qtr FY19.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603216N / *Aviation Survivability*	Project (Number/Name) 0584 / *Acft Protective Clothing*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0584: *Acft Protective Clothing*	87.268	4.545	2.461	1.388	-	1.388	2.605	2.691	2.721	2.774	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Advanced Technology Crew Station	3.478	1.575	0.831
Articles:	-	-	-
FY 2013 Accomplishments: Improved manufacturability of digital, high resolution (4 megapixel) night cameras. Begin development of high resolution (4 megapixel) displays. Continued 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. Explore development of integrated short wave infrared and near infrared cameras.			
FY 2015 Plans: Continue development and testing of 4+ megapixel cameras and displays. Begin integration into fully digital night vision goggle. Integrate head/neck injury model into protection flight equipment testing.			
Title: Advanced Integrated Life Support System	1.067	0.886	0.557
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603216N / *Aviation Survivability*	**Project (Number/Name)** 0584 / *Acft Protective Clothing*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Worked jointly with Air Force and Army to expand the anthropometric database. Used injury data and Navy aircrew anthropometry to further improve aircrew accommodation (seating and protective personal equipment) and injury analysis / mitigation. Finished 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. ***FY 2015 Plans:*** Continue 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	4.545	2.461	1.388

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

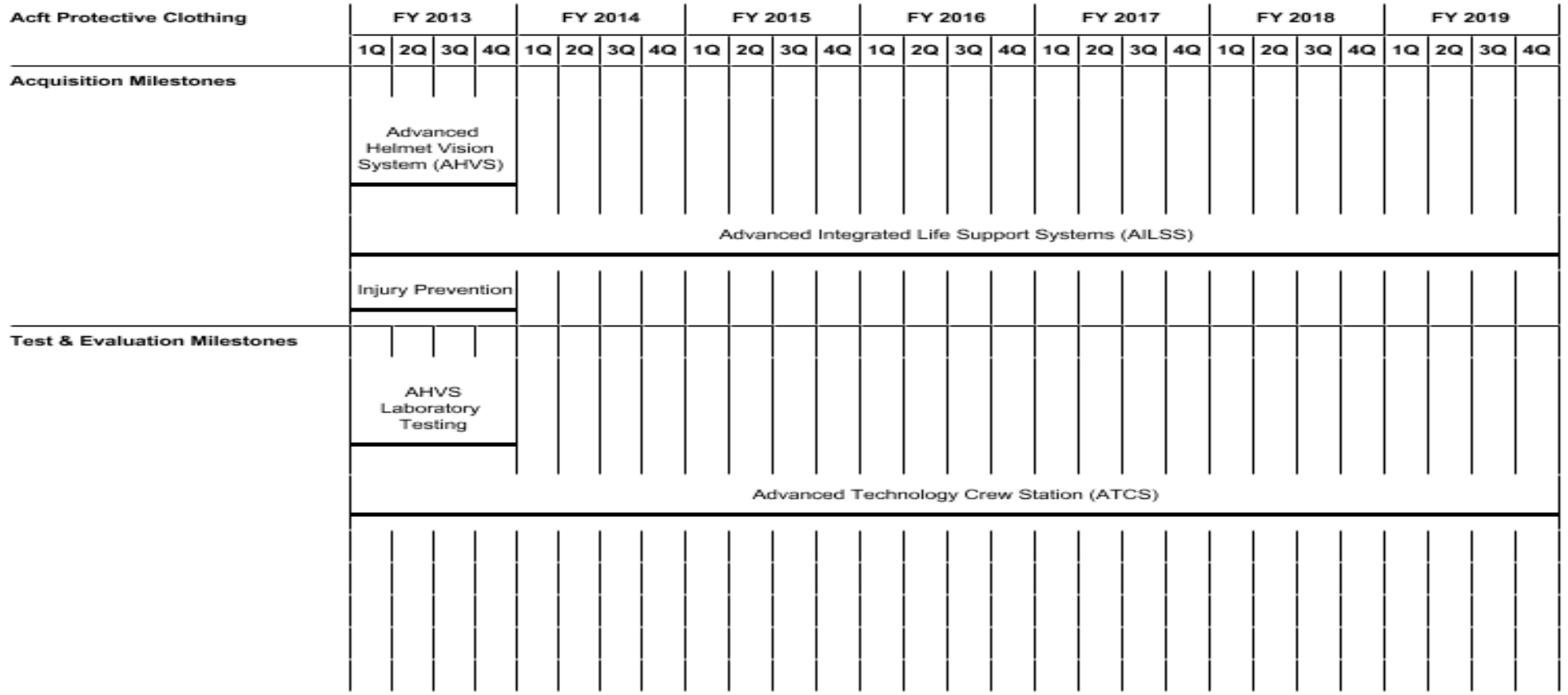
D. Acquisition Strategy

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603216N / *Aviation Survivability*	**Project (Number/Name)** 0584 / *Acft Protective Clothing*



2015DON - 0603216N - 0584

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603216N / *Aviation Survivability*	Project (Number/Name) 0591 / *Acft Survivability, Vulnerability & Safety*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0591: *Acft Survivability, Vulnerability & Safety*	39.561	1.486	1.447	1.359	-	1.359	1.490	1.552	1.561	1.591	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Technology Requirements	0.240	0.215	0.190
Articles:	-	-	-
FY 2013 Accomplishments: Updated program master plan based on trade studies to determine future technology requirements. Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, 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.			
FY 2015 Plans: Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, threat systems analysis, and updates to the Survivability Master Plan.			
Title: Technology Design & Development	0.926	0.782	0.761
Articles:	-	-	-
FY 2013 Accomplishments: Evaluated equipment/technologies to reduce infrared footprint of operational platforms. Evaluated alternate transparent armor materials for canopy upgrades. Develop platform specific gearbox polymer modifications. Developed biofuels-compatible fuel bladders for testing. Developed alternate O2 bottles.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603216N / *Aviation Survivability*	**Project (Number/Name)** 0591 / *Acft Survivability, Vulnerability & Safety*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** Assess technologies to address shortfalls identified as part of the OPNAV Aircraft Survivability Investment Strategy project, with emphasis on acoustic and infrared signature reduction of operational platforms. Develop polymer applications for self-sealing fuel and lubricant systems to meet stated operational requirements. Conduct asymmetric threats modeling and analyses based on accumulated combat field assessments.			
Title: Technology Test & Evaluation	0.320	0.450	0.408
Articles:	-	-	-
FY 2013 Accomplishments: Performed live fire testing on platform specific gearbox polymer modifications. Performed live fire test on biofuels-compatible fuel bladder. Performed 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. ***FY 2015 Plans:*** Perform testing on candidate signature reduction materials/hardware. Perform testing to validate asymmetric threats modeling results.			
Accomplishments/Planned Programs Subtotals	1.486	1.447	1.359

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

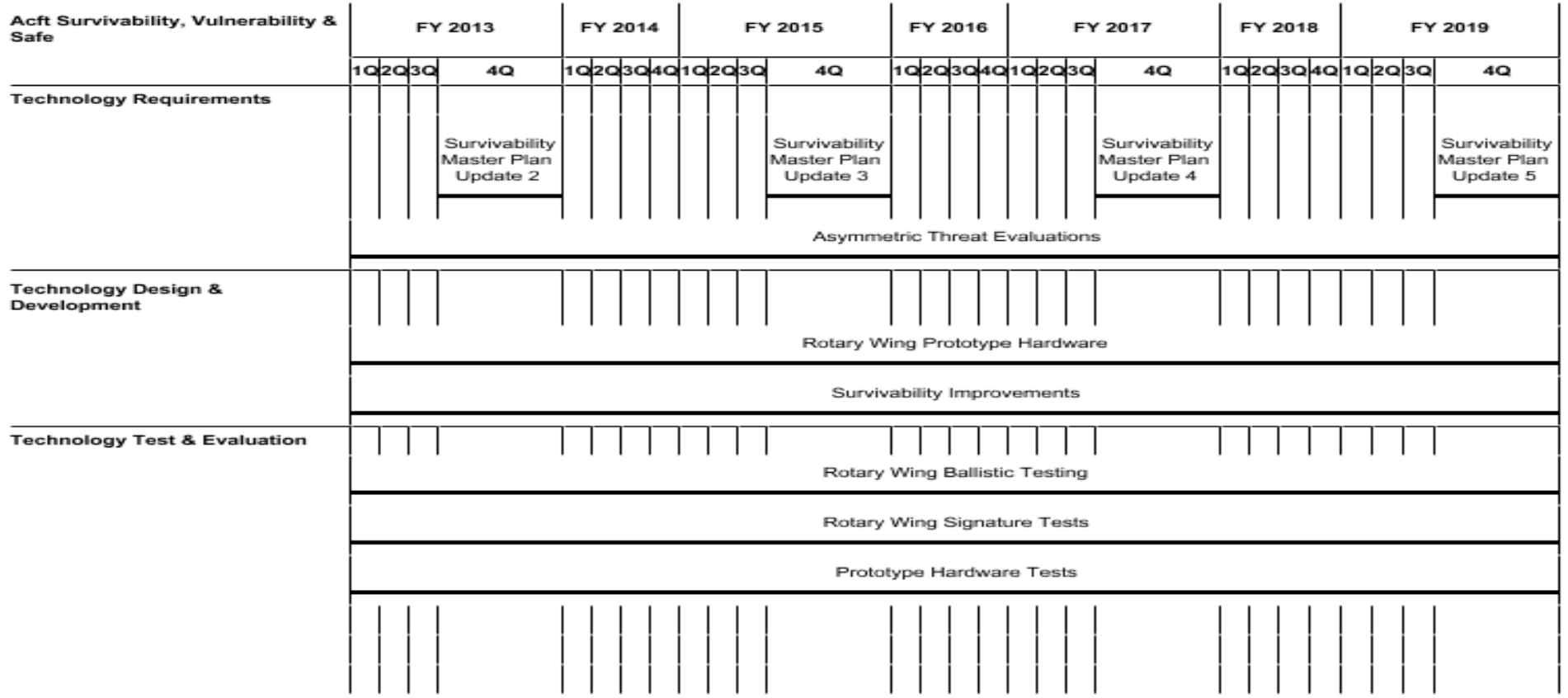
Primary Hardware Development will be performed under either a Cost Plus Fixed Fee or a Firm Fixed Price contract.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603216N / *Aviation Survivability*	**Project (Number/Name)** 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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603216N / *Aviation Survivability*	**Project (Number/Name)** 0591 / *Acft Survivability, Vulnerability & Safety*



2015DON - 0603216N - 0591

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603216N / *Aviation Survivability*	Project (Number/Name) 0592 / *Acft & Ordnance Safety*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0592: *Acft & Ordnance Safety*	31.032	1.289	1.068	1.045	-	1.045	1.050	1.135	1.137	1.160	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Insensitive Munitions (IM)	1.289	1.068	1.045
Articles:	-	-	-

FY 2013 Accomplishments:

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

Improve Air-Launched Weapons: Continued IM technical evaluation/demonstration for Bomb Live Unit 110 in support of current transition efforts and the PMA 201 plan of action and milestones. Continued IM evaluation for Tomahawk tandem (Joint Multi-Effects Warhead System) warhead, and initiate demonstration. Continued minimum smoke propellant demonstration for rockets (transition out of Joint Service IM Technology Program).

Advanced Containment/Case/Warhead Materials: Continued 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: Finalized Advanced Anti-Radiation Guided Missile (AARGM) container IM testing for PMA 242. Initiated shape charge jet test/evaluation for NAVAIR priority IM weapons. Initiate Sidewinder Block III container design/demonstration to support PMA 259 transition. Continued 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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603216N / *Aviation Survivability*	**Project (Number/Name)** 0592 / *Acft & Ordnance Safety*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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.			
FY 2015 Plans: Improve Air-to-Air Demonstration: Continue Sidewinder warhead/rocket motor technology risk reduction evaluation in support of PMA 259 FY16 planned block II+/III transition. Continue IM technology evaluation for metal matrix composite rocket motor IM demonstration in support of future Navy rocket transitions. Improve Air-Launched Weapons: Continue minimum smoke (MS) propellant demonstration of a cast/cure MS composite propellant that will meet -65 degree requirement for fixed-wing platforms in the current Hellfire configuration. Conduct booster/ explosive transition testing and system demonstrations for JIMTP transition explosive for the PMA-201 planned BLU 110 upgrade. Advanced Containment/Case/Warhead Materials: Initiate a Mk 135 rocket motor nozzle design/demonstration to improve operational performance in the hybrid Mk 135, enabling both improved IM and operational performance of the Tomahawk missile. Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Continue shape charge jet (SCJ) barrier evaluation/ demonstration for SCJ mitigation in air-launched systems. Advanced Energetic Materials: Finalize evaluation of coated explosive material premix for safe production scale manufacture of C-139 explosive (affordable, high-performance IM explosive) and testing for new production research department explosive (elimination of browning effect).			
Accomplishments/Planned Programs Subtotals	1.289	1.068	1.045

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603216N / *Aviation Survivability*	**Project (Number/Name)** 0592 / *Acft & Ordnance Safety*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

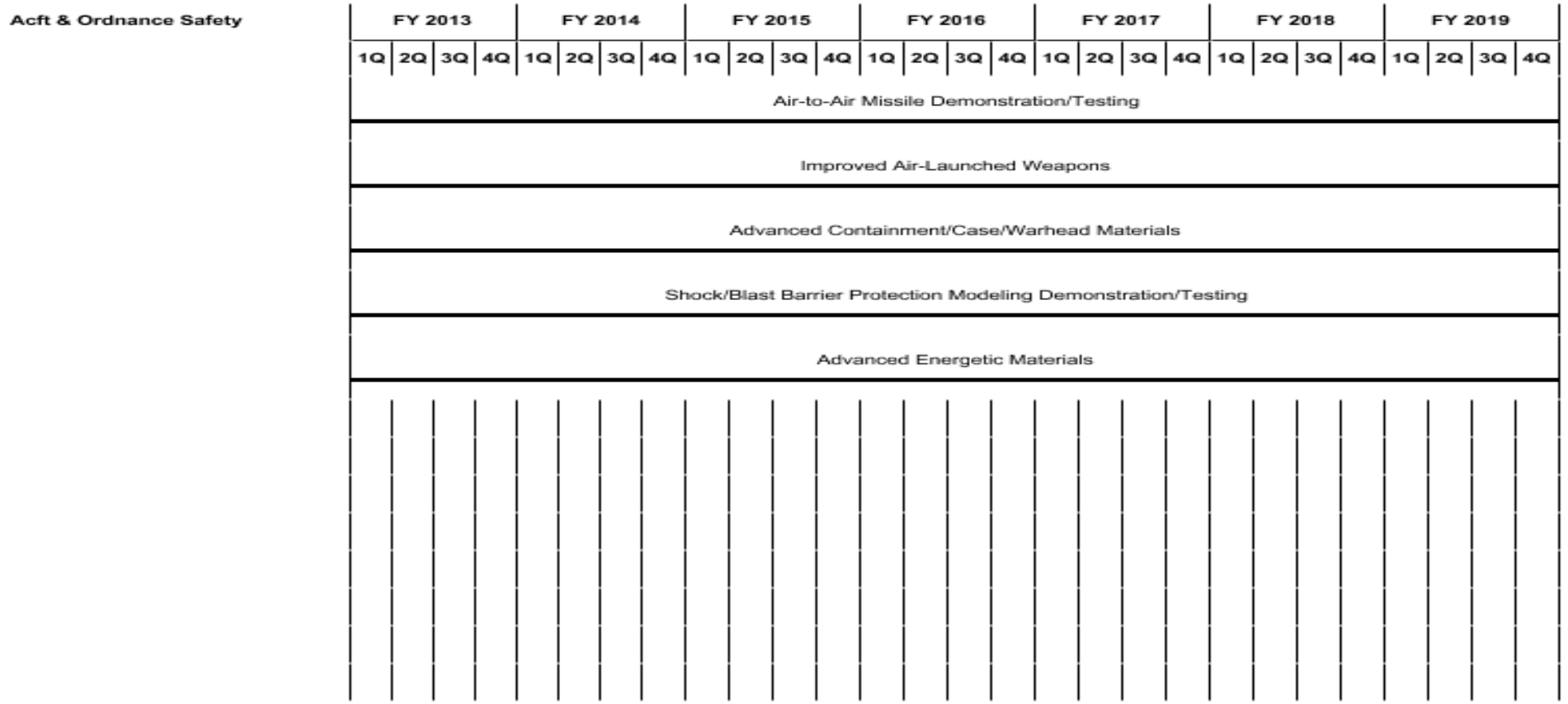
D. Acquisition Strategy

All planned programs are accomplished via civilian labor and use of government testing facilities.

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603216N / *Aviation Survivability*	**Project (Number/Name)** 0592 / *Acft & Ordnance Safety*



2015DON - 0603216N - 0592

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603216N / *Aviation Survivability*	Project (Number/Name) 1819 / *CV Acft Fire Suppress System*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
1819: *CV Acft Fire Suppress System*	0.781	0.650	0.615	0.533	-	0.533	0.583	0.611	0.616	0.628	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Fire-Fighting	0.650	0.615	0.533
Articles:	-	-	-

FY 2013 Accomplishments:

Continued development of Aqueous Film Forming Foam application nozzle and procedures for Electromagnetic Aircraft Launch System (EMALS). Researched means to prevent aircraft loss due to lithium ion battery runaway casualty. Initiated 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. Concluded evaluation of the effectiveness of and economies afforded by intermittent weapons cooling streams (vice constant). Developed 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 deck firefighters from weapons in mishap scenarios. Perform risk analysis tools survey and capability gap assessment in support of mishap scenario task.

FY 2015 Plans:

Continue research to prevent aircraft loss and ship storage concerns due to Li-ion battery runaway casualty. Conclude research into thermal imaging camera usage in weapons cooling analysis and provide guidance for flight deck usage and training. Conduct research and testing of lightweight aircraft tiedown chains. Continue work on EMALS fire suppression procedures and equipment. Conduct research into commercial product or development to replace the existing flight deck crash-fire-rescue boot. Continue

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603216N / *Aviation Survivability*	**Project (Number/Name)** 1819 / *CV Acft Fire Suppress System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
research into finding battery-operated rescue saw. Continue research and testing for development of procedures and training for helicopter rollover rescue aboard air-capable ships.			
Accomplishments/Planned Programs Subtotals	0.650	0.615	0.533

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

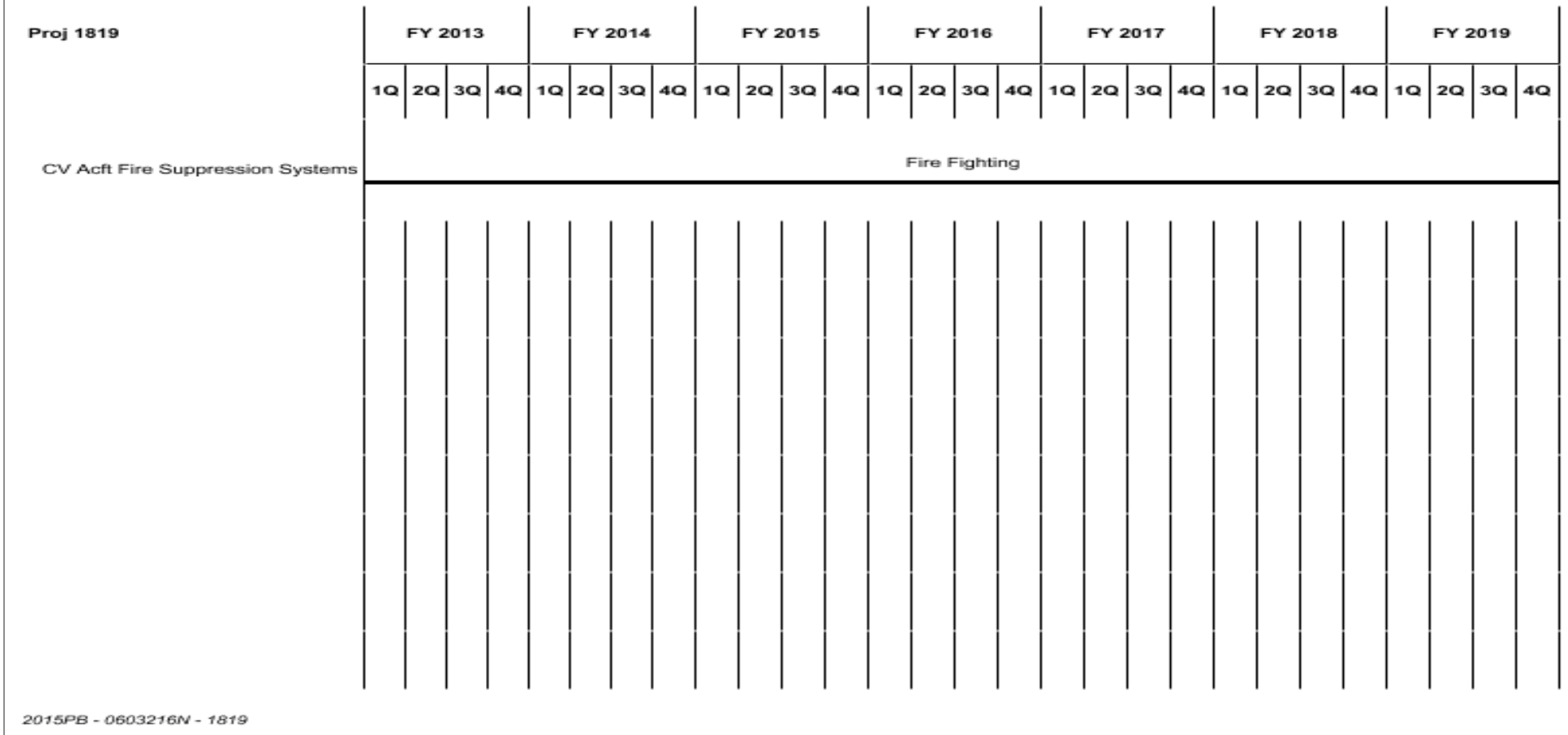
D. Acquisition Strategy

This is a non-ACAT program. Procurement strategy is determined by market survey and cooperative opportunities.

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603216N / *Aviation Survivability*	**Project (Number/Name)** 1819 / *CV Acft Fire Suppress System*



2015PB - 0603216N - 1819

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603237N *I Deployable JT Cmd & Control*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	221.212	3.451	3.262	2.991	-	2.991	3.101	3.138	3.213	3.295	90.074	333.737
3050: *Deployable JT Command and Control*	221.212	3.451	3.262	2.991	-	2.991	3.101	3.138	3.213	3.295	90.074	333.737

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	3.773	3.262	3.433	-	3.433
Current President's Budget	3.451	3.262	2.991	-	2.991
Total Adjustments	-0.322	-	-0.442	-	-0.442
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.007	-			
• Rate/Misc Adjustments	-	-	-0.442	-	-0.442
• Congressional General Reductions Adjustments	-0.315	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603237N / *Deployable JT Cmd & Control*	Project (Number/Name) 3050 / *Deployable JT Command and Control*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3050: *Deployable JT Command and Control*	221.212	3.451	3.262	2.991	-	2.991	3.101	3.138	3.213	3.295	90.074	333.737
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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.

FY15 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 2013	FY 2014	FY 2015
Title: Systems Engineering & Integration	1.508	1.325	1.164
Articles:	-	-	-
FY 2013 Accomplishments: Provided system enhancements to communications system. Evaluated and tested Super High Frequency (SHF) Satellite Communications (SATCOM) terminals to deliver required Wideband Gapfiller System (WGS) capability. Evaluated baseband upgrades to the Rapid Response Kit (RRK) to improve performance. Evaluated and tested upgrades to wireless extension of services and tactical radios. Participation in Combined Endeavor 13 exercise was used as a risk reducer to validate capabilities in an operational environment prior to fielding.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603237N / *Deployable JT Cmd & Control*	**Project (Number/Name)** 3050 / *Deployable JT Command and Control*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Provide system enhancements to C2, develop solutions to extend Unified Communication Requirements to DJC2, and develop an Internet Protocol (IP) Satellite Communication (SATCOM) failover capability. Validate solutions through regression testing and participate in operational exercise as a risk reduction effort. Obtain prototype equipment and conduct trades studies per the system engineering guidelines. Conduct engineering design reviews and prepare Engineering Change Proposals and Integrated Logistic Support (ILS) products as required. ***FY 2015 Plans:*** Continue to undertake development efforts for the infrastructure and communication subsystems as well as information technology enhancements. Additionally, obsolescence and security posture enhancements will be addressed.			
Title: DJC2 RDT&E Test Bed	1.943	1.937	1.827
Articles:	-	-	-
FY 2013 Accomplishments: Incorporated fixes to the network system and validated through regression testing to support spiral 1.3.3 fielding decision. Conducted engineering studies to evaluate and select a Virtual Desktop Infrastructure and Application Virtualization software solution for the system. These enhancements make the system easier to use and also increase the security posture. Evaluated options and developed solution for providing distance support capability to fielded systems. ***FY 2014 Plans:*** Develop and test software improvements to increase performance and security posture of system. Validate through regression testing to support fielding decision. Develop, design and integrate new information technology into DJC2. Evaluate options for a mobile Collaborative Information Environment (CIE) architecture to allow the use of tablets or other mobile devices within the DJC2 system. ***FY 2015 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	3.451	3.262	2.991

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN /2804: *DJC2*	8.469	3.249	1.205	-	1.205	2.254	1.133	2.348	2.414	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603237N / *Deployable JT Cmd & Control*	**Project (Number/Name)** 3050 / *Deployable JT Command and Control*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost

Remarks

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603237N / *Deployable JT Cmd & Control*	**Project (Number/Name)** 3050 / *Deployable JT Command and Control*

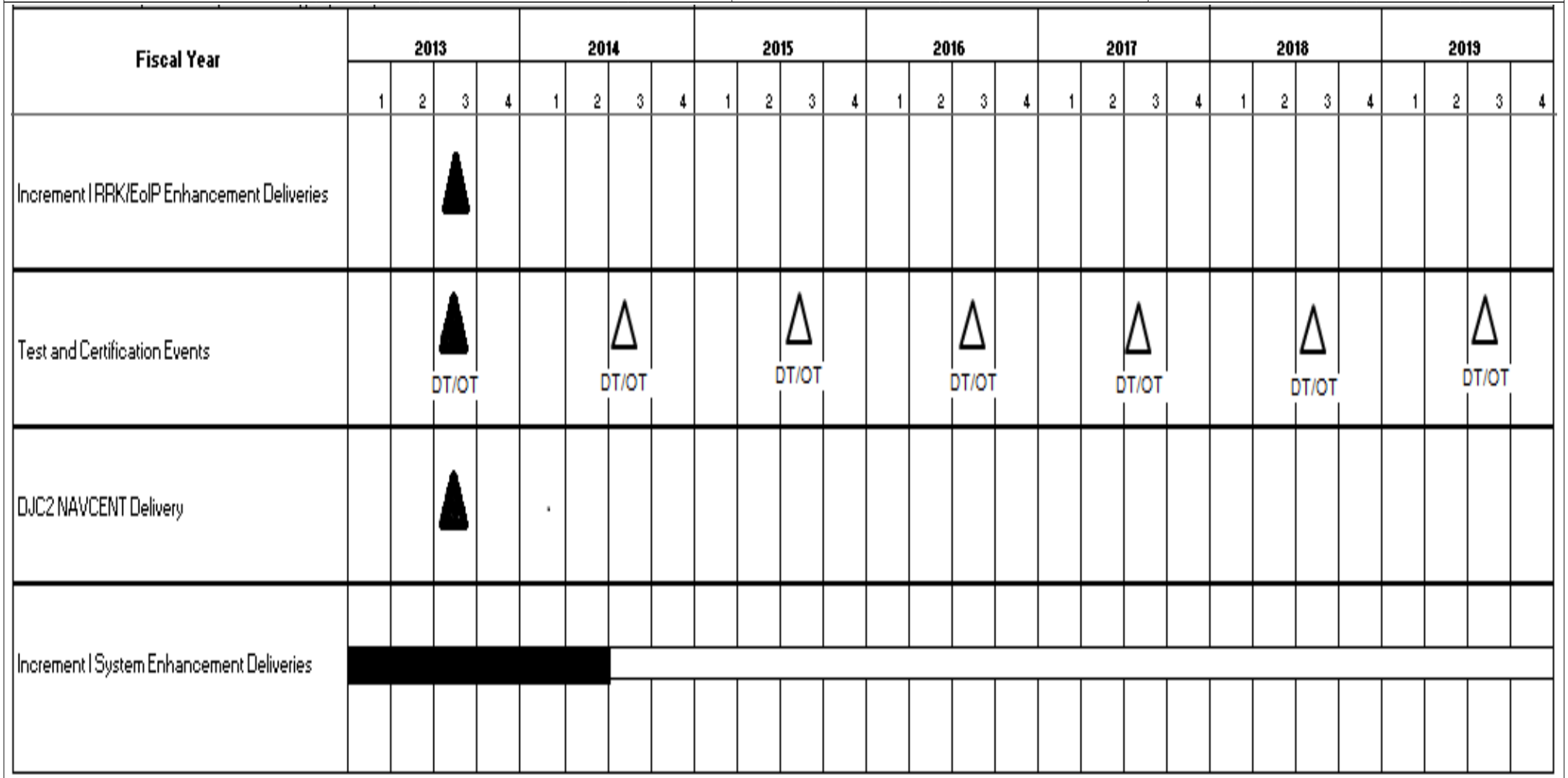


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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603251N *I (U)AIRCRAFT SYSTEMS*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	10.011	21.829	10.074	12.651	-	12.651	10.000	-	-	-	-	64.565
2777: *Highly Integrated Photonics (HIP)*	0.000	17.724	-	10.000	-	10.000	10.000	-	-	-	-	37.724
3331: *C-2 System Development*	10.011	4.105	0.074	2.651	-	2.651	-	-	-	-	-	16.841
9999: *Congressional Adds*	0.000	-	10.000	-	-	-	-	-	-	-	-	10.000

The FY 2015 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 Research, Development, Test and Evaluation, Navy 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	24.512	0.074	2.651	-	2.651
Current President's Budget	21.829	10.074	12.651	-	12.651
Total Adjustments	-2.683	10.000	10.000	-	10.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.668	-			
• Rate/Misc Adjustments	0.002	-	10.000	-	10.000
• Congressional General Reductions Adjustments	-2.017	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603251N *I (U)AIRCRAFT SYSTEMS*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2013	FY 2014
Project: 9999: *Congressional Adds*		
Congressional Add: *Highly Integrated Photonics (HIP) - Cong*	-	10.000
Congressional Add Subtotals for Project: 9999	-	10.000
Congressional Add Totals for all Projects	-	10.000

Change Summary Explanation

Technical: Not applicable.

Schedule:

2777 - Developmental & Architectural Studies extended into 1st Qtr FY16. Reviews for PDR/CDR delayed until 4th Qtr FY14 and 3rd Qtr FY15. Design review extended until 4th Qtr FY16. Contractor Demo delayed until 3rd Qtr FY15.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603251N / *(U)AIRCRAFT SYSTEMS*	Project (Number/Name) 2777 / *Highly Integrated Photonics (HIP)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2777: *Highly Integrated Photonics (HIP)*	-	17.724	-	10.000	-	10.000	10.000	-	-	-	-	37.724
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

FY14 Congressional Add 2777C is applicable to the project schedule.

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 2013	FY 2014	FY 2015
Title: Highly Integrated Photonics Naval Networking	17.724	-	10.000
Articles:	-	-	-
Description: The overarching objective of this activity is to develop and demonstrate a highly integrated Local Area Network 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 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 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 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603251N / *(U)AIRCRAFT SYSTEMS*	**Project (Number/Name)** 2777 / *Highly Integrated Photonics (HIP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Development and demonstration of highly integrated local area network for naval platforms. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** Continue development and demonstration of highly integrated local area network for naval platforms. Fabrication of hardware, integration, and start of testing in platform representative environments. Testing will include engineering unit testing, integration for risk reductions, and environmental testing of the link components.			
Accomplishments/Planned Programs Subtotals	17.724	-	10.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

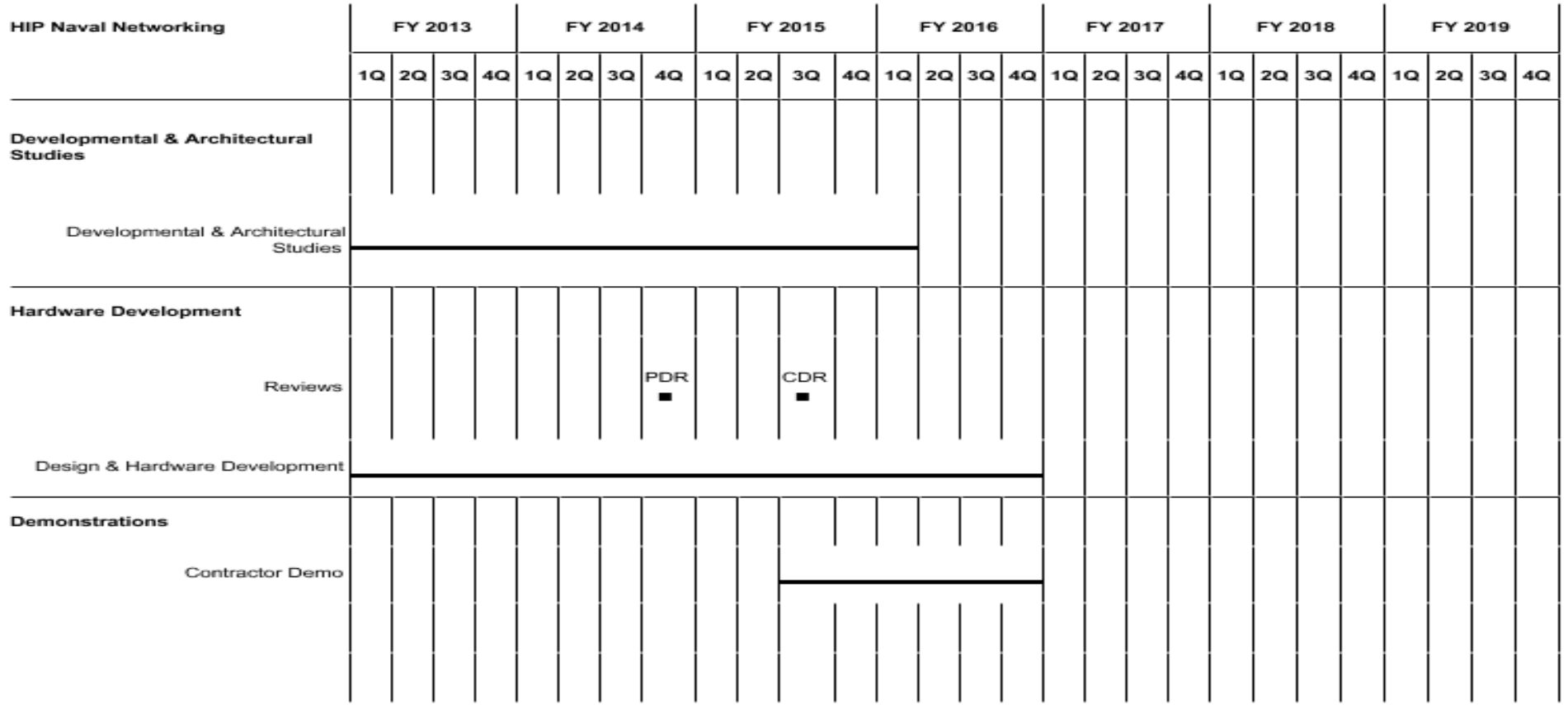
D. Acquisition Strategy

Highly Integrated Photonics Naval Networking strategy began as a joint effort with Defense Advanced Research Projects Agency 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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603251N / *(U)AIRCRAFT SYSTEMS*	**Project (Number/Name)** 2777 / *Highly Integrated Photonics (HIP)*



2015PB - 0603251N - 2777

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603251N / *(U)AIRCRAFT SYSTEMS*	Project (Number/Name) 3331 / *C-2 System Development*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3331: *C-2 System Development*	10.011	4.105	0.074	2.651	-	2.651	-	-	-	-	-	16.841
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Critical Brake Upgrade	4.105	0.074	2.651
Articles:	-	-	-
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 2013 Accomplishments: 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.			
FY 2015 Plans: Funding is for on-going efforts to complete development, design, integration and test of anti-skid brake system for the C-2A aircraft.			
Accomplishments/Planned Programs Subtotals	4.105	0.074	2.651

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• APN/0556: *C-2A Series*	-	-	-	-	-	4.448	4.525	4.582	4.669	3.289	21.513

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603251N / *(U)AIRCRAFT SYSTEMS*	**Project (Number/Name)** 3331 / *C-2 System Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost

Remarks

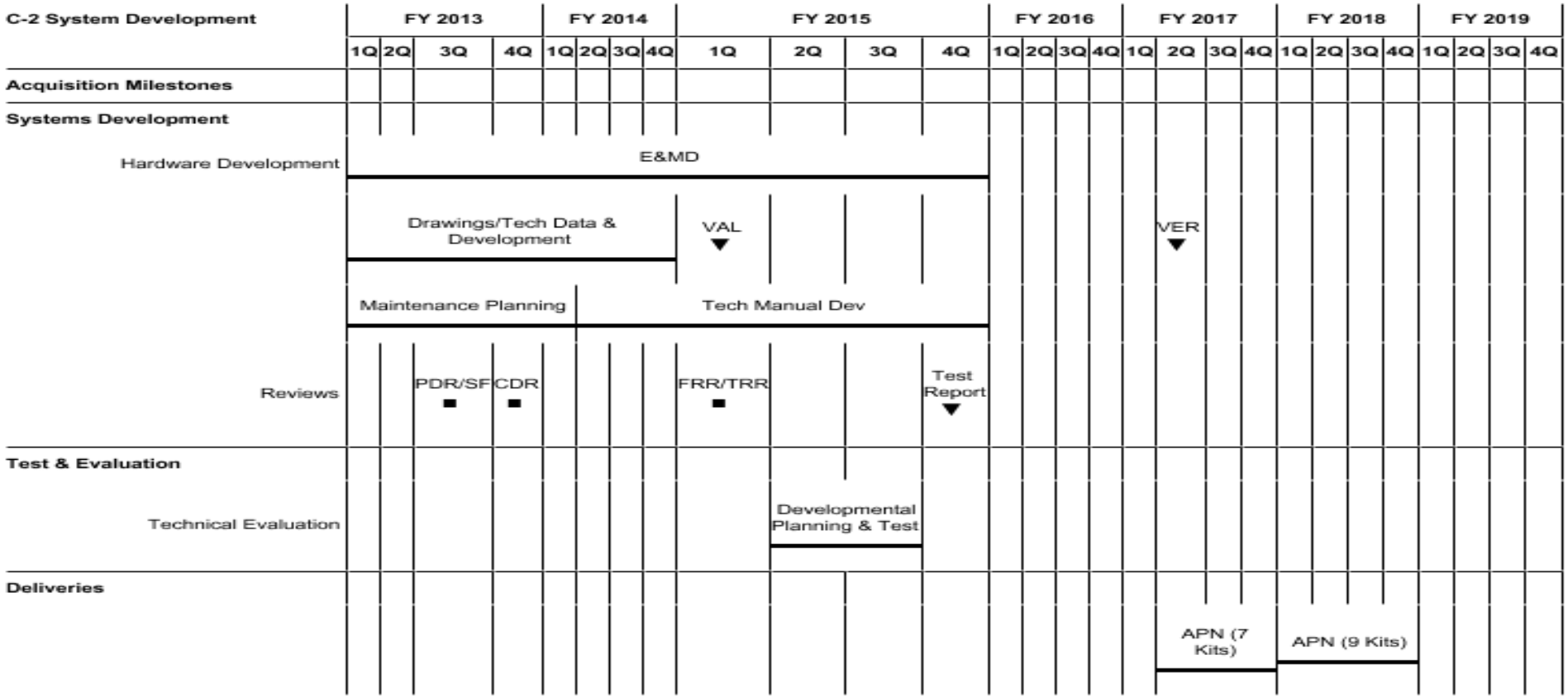
D. Acquisition Strategy

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603251N / *(U)AIRCRAFT SYSTEMS*	**Project (Number/Name)** 3331 / *C-2 System Development*



2015PB - 0603251N - 3331

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603251N / *(U)AIRCRAFT SYSTEMS*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
9999: *Congressional Adds*	-	-	10.000	-	-	-	-	-	-	-	-	10.000
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This Congressional Add 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)	FY 2013	FY 2014
Congressional Add: Highly Integrated Photonics (HIP) - Cong	-	10.000
FY 2013 Accomplishments: N/A		
FY 2014 Plans: N/A		
Congressional Adds Subtotals	-	10.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603254N *I ASW Systems Development*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	110.781	7.306	6.964	7.782	-	7.782	7.150	7.304	7.241	7.391	Continuing	Continuing
1292: *Adv ASW Sensors & Proc*	103.223	5.095	4.601	5.577	-	5.577	4.937	5.044	5.024	5.126	Continuing	Continuing
3222: *Advanced High Altitude ASW*	7.558	2.211	2.363	2.205	-	2.205	2.213	2.260	2.217	2.265	Continuing	Continuing

The FY 2015 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.

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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	8.090	7.964	8.141	-	8.141
Current President's Budget	7.306	6.964	7.782	-	7.782
Total Adjustments	-0.784	-1.000	-0.359	-	-0.359
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.156	-			
• Program Adjustments	-	-	-0.242	-	-0.242
• Rate/Misc Adjustments	0.002	-	-0.117	-	-0.117
• Congressional General Reductions Adjustments	-0.630	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603254N *I ASW Systems Development*

Schedule:
1292. New Over-the-horizon (OTH) Communications (Comms) added for commencement in FY19.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603254N / *ASW Systems Development*	Project (Number/Name) 1292 / *Adv ASW Sensors & Proc*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
1292: *Adv ASW Sensors & Proc*	103.223	5.095	4.601	5.577	-	5.577	4.937	5.044	5.024	5.126	Continuing	Continuing
Quantity of RDT&E Articles	0.000	100.000	100.000	100.000	-	100.000	100.000	100.000	100.000	100.000		

The FY 2015 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 (OTH) 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 Rapid Capability Insertion (RCI) 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 2013	FY 2014	FY 2015
Title: System performance assessments	5.095	4.601	5.577
Articles:	100.000	100.000	100.000

FY 2013 Accomplishments:

System performance assessed for Multi-static Active Coherent ASW algorithms and other Acoustic and Non-Acoustic system enhancements. The test articles, which consisted of passive/active sensors/components and associated processors, supported at-sea trial and experiments.

FY 2014 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. 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.

FY 2015 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603254N / *ASW Systems Development*	**Project (Number/Name)** 1292 / *Adv ASW Sensors & Proc*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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	5.095	4.601	5.577

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

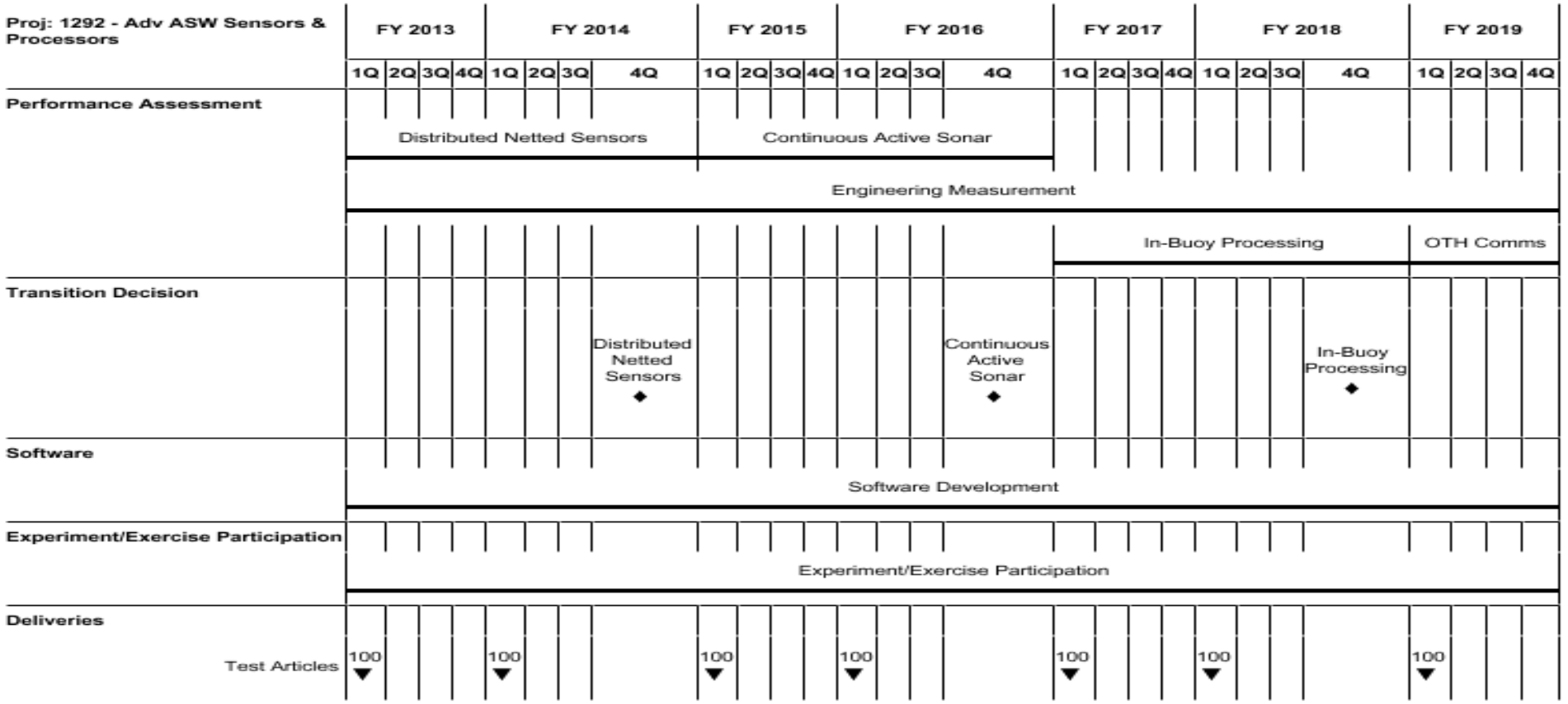
D. Acquisition Strategy

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603254N / *ASW Systems Development*	**Project (Number/Name)** 1292 / *Adv ASW Sensors & Proc*



2015OSD - 0603254N - 1292

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603254N / *ASW Systems Development*	Project (Number/Name) 3222 / *Advanced High Altitude ASW*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3222: *Advanced High Altitude ASW*	7.558	2.211	2.363	2.205	-	2.205	2.213	2.260	2.217	2.265	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Advanced High Altitude Anti-Submarine Warfare (Adv HAASW) program performs research, analyses, and early prototype demonstration activities for new technologies to support future Air Anti-Submarine Warfare (ASW) programs for P-8A and other platforms. Emphasis is placed on evaluation of technologies and prototype systems in realistic operating environments with a focus new sensors and system components.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Research, analyses, and early prototype demonstration activities	2.211	2.363	2.205
Articles:	-	-	-
FY 2013 Accomplishments: Researched and analyzed areas focused on future acoustic and non-acoustic technologies which supported future programs to better perform the ASW mission at higher altitudes such as, Sonobuoy Enhancements; RADAR Intelligence, Surveillance, and Reconnaissance and Periscope Detection; Tactical ASW LIDAR Detection Systems; Data Fusion; and Miniature Magnetic Anomaly Detectors.			
FY 2014 Plans: FY14 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 2015 Plans: FY15 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	2.211	2.363	2.205

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

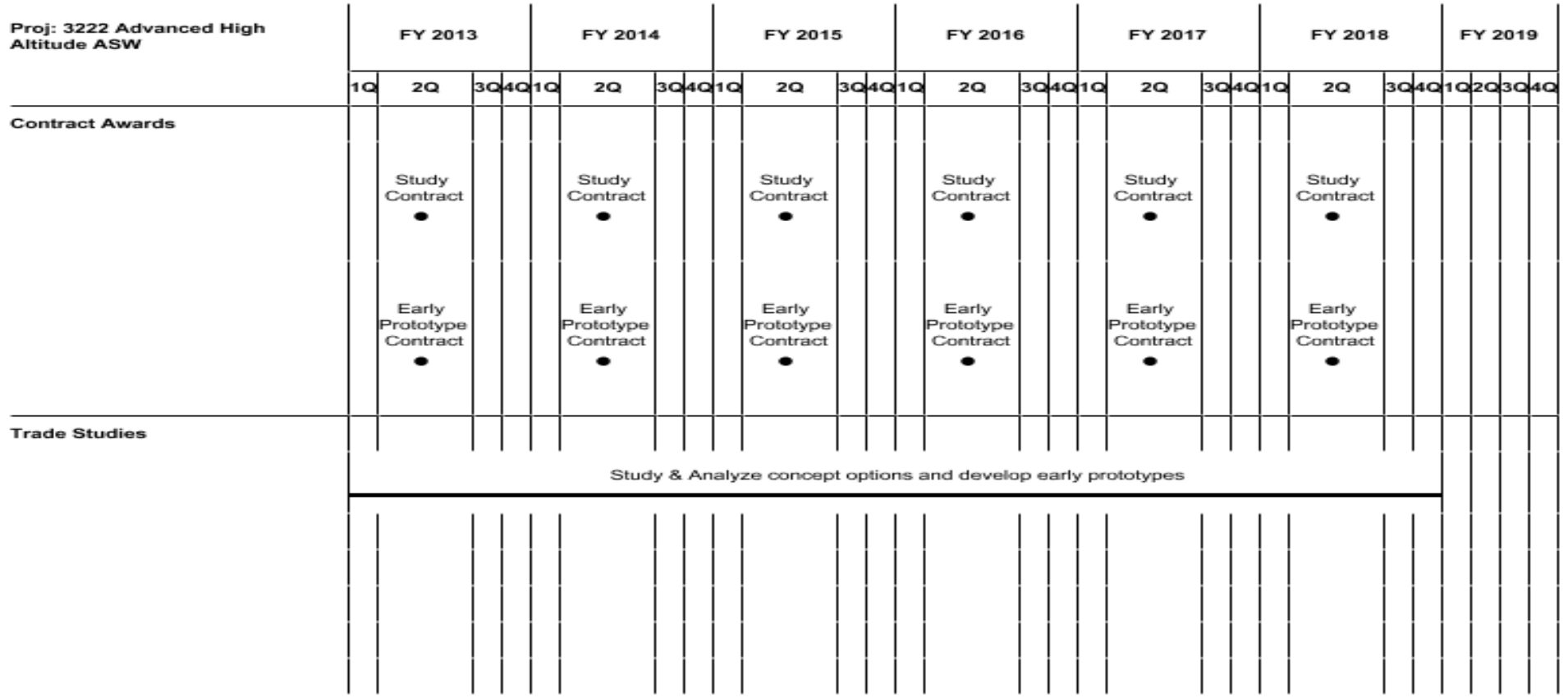
Develop modifications to incorporate capability into current sonobuoy sensors and integration into Air ASW platforms, P-8A as the lead aircraft.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603254N / *ASW Systems Development*	**Project (Number/Name)** 3222 / *Advanced High Altitude ASW*

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603254N / *ASW Systems Development*	**Project (Number/Name)** 3222 / *Advanced High Altitude ASW*



2015OSD - 0603254N - 3222

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603261N *I Tactical Airborne Reconnaissance*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	53.932	4.812	5.257	5.275	-	5.275	3.451	3.476	3.489	3.585	Continuing	Continuing
2467: *UAV Conops*	53.932	4.812	5.257	5.275	-	5.275	3.451	3.476	3.489	3.585	Continuing	Continuing

The FY 2015 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 Systems (UAS) Strategy integrating UAS 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	5.301	5.257	5.743	-	5.743
Current President's Budget	4.812	5.257	5.275	-	5.275
Total Adjustments	-0.489	-	-0.468	-	-0.468
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	-0.264	-	-0.264
• Rate/Misc Adjustments	-	-	-0.204	-	-0.204
• Congressional General Reductions Adjustments	-0.489	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603261N / *Tactical Airborne Reconnaissance*	Project (Number/Name) 2467 / *UAV Conops*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2467: *UAV Conops*	53.932	4.812	5.257	5.275	-	5.275	3.451	3.476	3.489	3.585	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 UAS 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 UAS 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 UAS 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) UAS 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 2013	FY 2014	FY 2015
Title: Studies and Demonstrations	0.749	1.031	1.253
Articles:	-	-	-
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 2013 Accomplishments: Continued development of the UAS modeling and simulation of Fleet CONOPS Scenarios. Demonstrated Joint-Service (Army/ Navy) UAS interoperability. This was a lab-based, Hardware-In-The-Loop (HWIL), Payload control demonstration. Developed			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603261N / *Tactical Airborne Reconnaissance*	**Project (Number/Name)** 2467 / *UAV Conops*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
an imagery quality lab that has helped to determine how to effectively specify, procure and employ sensors across the portfolio of Unmanned Aircraft Systems (UAS). ***FY 2014 Plans:*** Conduct studies, demonstrations, and testing to validate the Naval Interoperability profiles. Provide government engineering support, program office travel, and contract support services. ***FY 2015 Plans:*** Continue development of the UAS modeling and simulation of Fleet Concept of Operations scenarios. Demonstrate Manned/ Unmanned interoperability.			
Title: Shipboard Concept of Operations	0.487	-	-
Articles:	-	-	-
Description: Conduct studies, demonstrations, and exercises. Validate the Naval Interoperability Profiles. ***FY 2013 Accomplishments:*** Conducted studies, demonstrations, and exercises to validate the Naval Interoperability profiles. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A			
Title: Engineering and Program Support	0.872	-	-
Articles:	-	-	-
Description: Provide government engineering support, program office travel, and contract support services for Naval Unmanned Systems Cross Functional Team, Office of Secretary of Defense UAS task force and other services on common UAS solutions. ***FY 2013 Accomplishments:*** Provided government engineering support, program office travel, and contract support services for Naval Unmanned Systems Cross Functional Team. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603261N / *Tactical Airborne Reconnaissance*	**Project (Number/Name)** 2467 / *UAV Conops*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A			
Title: North Altantic Treaty Organization (NATO) Standardization Agreements and Interoperability	0.958	-	-
Articles:	-	-	-
Description: Conduct Concept of Operations studies for interoperability and development of standards across Naval Unmanned Systems and NATO emphasizing standardization and interoperability. Continue to develop Unmanned System Interoperability profiles and Navy implementation conventions for Naval Unmanned Aircraft Systems (UAS) Family of Systems Architecture. ***FY 2013 Accomplishments:*** Completed development of standards across Naval Unmanned Systems and NATO emphasizing standardization and interoperability. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A			
Title: Architecture Support/Common Ground Station	1.746	2.000	1.824
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 2013 Accomplishments:*** Supported the revision and configuration management of Unmanned Aircraft Systems (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. ***FY 2015 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.			
Title: Naval Interoperability & Standardization	-	2.226	2.198
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603261N / *Tactical Airborne Reconnaissance*	**Project (Number/Name)** 2467 / *UAV Conops*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Description: Increase Naval Unmanned Systems interoperability emphasizing Naval, Joint Service, and international standardization. ***FY 2013 Accomplishments:*** N/A ***FY 2014 Plans:*** Develop Unmanned Systems Interoperability profiles and Navy implementation conventions for Naval UAS Family of Systems (FoS) Architecture. Support Office of Secretary of Defense (OSD) Joint Service and North Atlantic Treaty Organization (NATO) coalition interoperability efforts. Provide government engineering support, program office travel, and contract support services. ***FY 2015 Plans:*** Continue to 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	4.812	5.257	5.275

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

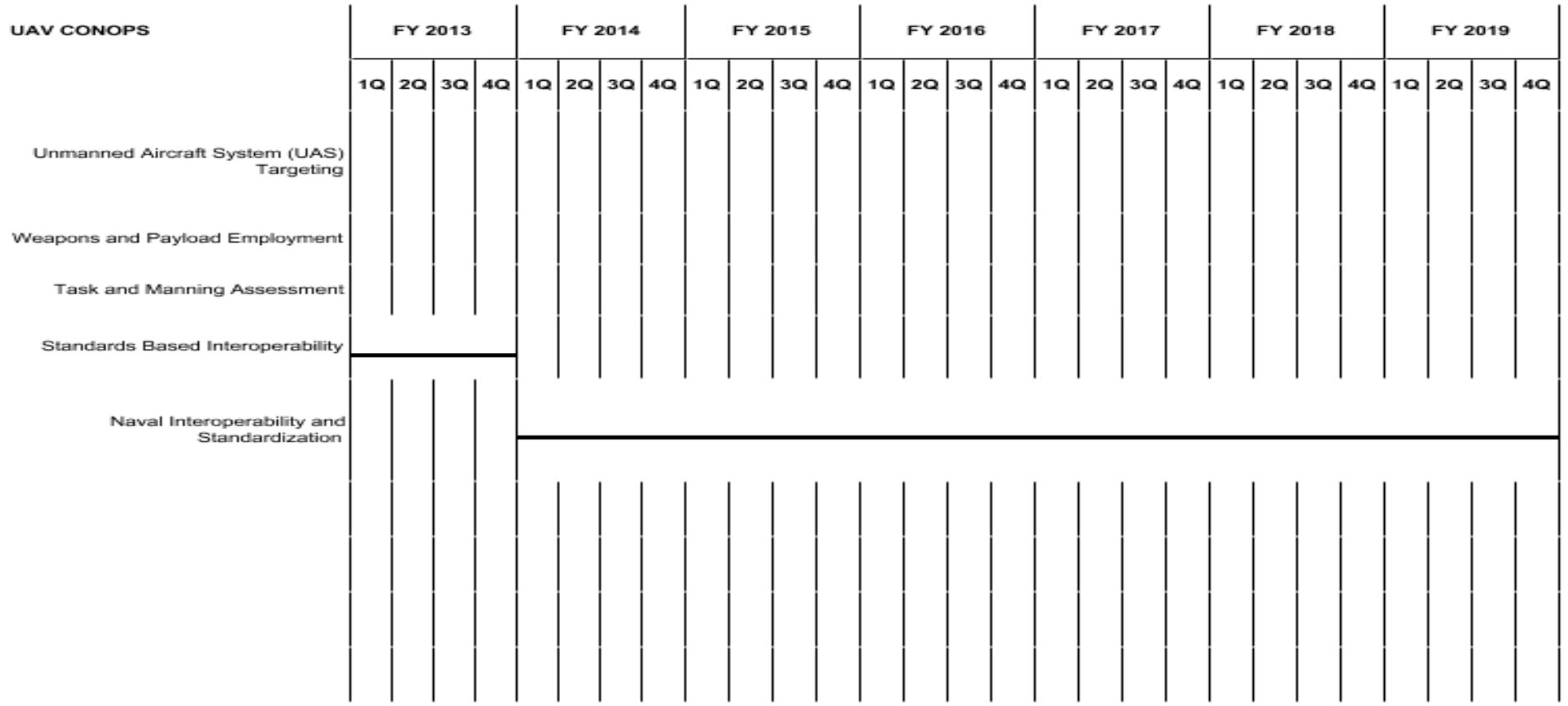
D. Acquisition Strategy

The program office will leverage existing Government facilities (e.g., Joint Technology Center/System Integration Laboratory and Naval Unmanned Aircraft Systems (UAS) Program of Record assets as available) to develop and demonstrate Naval UAS Concept of Operations. 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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603261N / *Tactical Airborne Reconnaissance*	**Project (Number/Name)** 2467 / *UAV Conops*



2015DON - 0603261N - 2467

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603382N *I Advanced Combat Systems Tech*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	61.228	1.345	1.563	1.646	-	1.646	1.718	1.748	1.780	1.814	Continuing	Continuing
0324: *Adv Combat System Technology*	61.228	1.345	1.563	1.646	-	1.646	1.718	1.748	1.780	1.814	Continuing	Continuing
MDAP/MAIS Code: 180												

The FY 2015 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 an 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 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603382N *I Advanced Combat Systems Tech*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	1.506	1.570	1.733	-	1.733
Current President's Budget	1.345	1.563	1.646	-	1.646
Total Adjustments	-0.161	-0.007	-0.087	-	-0.087
• Congressional General Reductions	-	-0.007			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.035	-			
• Rate/Misc Adjustments	-	-	-0.087	-	-0.087
• Congressional General Reductions Adjustments	-0.126	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603382N / *Advanced Combat Systems Tech*	Project (Number/Name) 0324 / *Adv Combat System Technology*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0324: *Adv Combat System Technology*	61.228	1.345	1.563	1.646	-	1.646	1.718	1.748	1.780	1.814	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Align the Naval Enterprise Across All Domains to Implement OA	0.230	0.265	0.272
Articles:	-	-	-
FY 2013 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.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0324 / *Adv Combat System Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** Establish transition of programs to fully utilize the principles and practices of OA in accordance with the ASN(RDA) approved Naval OSA Strategy of November 2012. Transition the sustainment of the OSA initiative from a unique OA Executive forum to a permanent organization; the Systems Engineering Stakeholders Group. Continue to coordinate and develop the quarterly OA Report to Congress, annual budget submission and financial reporting for this project. By FY-15 the Naval OSA Strategy will need to be revisited and updated to stay current with changes in best practices to include all other activities as the SESG, DASN RDT&E or ASN(RDA) directs.			
Title: Change the Naval and Marine Corps Cultures to Institutionalize OA Principle	0.293	0.337	0.373
Articles:	-	-	-
FY 2013 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 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 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. ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0324 / *Adv Combat System Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue with direct engagement with programs to improve OA principles and practices through stakeholder management, communications, mentoring, training, and curriculum adjustment. Establish and maintain communication and transparency across programs to highlight new opportunities for enterprise product reuse and improved interoperability. Sustain a strong message to the public and industry on the value of OA for cost-effective management of the acquisition portfolio.			
Title: OA Systems Engineering Leadership	0.295	0.340	0.375
Articles:	-	-	-
FY 2013 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 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.			
FY 2015 Plans: Key activities of the third year of the strategy include; inter-program alignment toward the use of common technical frameworks. Establish transition of programs to fully utilize the principles and practices of OA in accordance with the ASN(RDA) approved Naval OSA Strategy of November 2012. Establish collaboration and cooperation incentives, and improve techniques for finding and using modular capabilities. Complete the transformation of oversight and governance of programs that are implementing or have implemented OA principles and practices through mechanisms such as Community of Interest forums, Technical Authority, Technical Warrant Holders and Product DASN engagments.			
Title: Knowledge Products for Implementing OSA	0.527	0.621	0.626
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0324 / *Adv Combat System Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** Evolve the Program Managers OSA Workbook and other associated knowledge products to position Naval Programs to take advantage of consistent business and technical practices. Establish collaboration forums so that best practices can be shared so that the OA related knowledge products are kept up to date with the latest innovations being used in program execution. This includes working with outside organizations such as DISA's Forge.mil as well as the Navy's NSERC/NARS environments. Ensure that DAU is addressing training on OSA as directed to them under the Better Buying Power implementation memo that assigns DASN RDT&E the lead for providing baseline information for curriculum development. Continue to develop new training on OA, including deployment of Naval unique training on OA throughout the SYSCOMs and PEOs.			
Accomplishments/Planned Programs Subtotals	1.345	1.563	1.646

C. Other Program Funding Summary ($ in Millions)

N/A

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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603382N / *Advanced Combat Systems Tech*	**Project (Number/Name)** 0324 / *Adv Combat System Technology*

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603502N *I Surface & Shallow Water MCM*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	1,156.475	160.711	160.040	100.349	-	100.349	75.597	95.719	107.065	117.218	Continuing	Continuing
0260: *Remote Minehunting Systems*	453.315	37.069	31.837	-	-	-	-	-	-	-	-	522.221
1233: *Surface MCM Mid-life Upgrade*	148.704	28.483	35.306	14.109	-	14.109	14.971	11.372	8.691	8.813	Continuing	Continuing
1234: *Unmanned Surface Vehicle (USV)*	0.000	-	-	36.465	-	36.465	15.624	17.692	13.426	14.536	Continuing	Continuing
2094.: *Unmanned Underwater Vehicle*	0.000	32.562	20.164	13.674	-	13.674	15.042	27.700	49.916	57.980	Continuing	Continuing
2131: *Assault Breaching System*	484.713	43.645	58.789	17.908	-	17.908	24.516	33.623	29.535	30.197	Continuing	Continuing
3123: *SMCM UUV*	69.743	18.952	13.944	18.193	-	18.193	5.444	5.332	5.497	5.692	Continuing	Continuing
MDAP/MAIS Code: **Other MDAP/MAIS Code(s):** 286												

The FY 2015 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603502N *I Surface & Shallow Water MCM*

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 and (6) integrate hardware for experimental testing related to surface ship, aircraft, and other cross platform applications.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	190.622	168.040	160.298	-	160.298
Current President's Budget	160.711	160.040	100.349	-	100.349
Total Adjustments	-29.911	-8.000	-59.949	-	-59.949
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-8.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-7.000	-			
• SBIR/STTR Transfer	-5.116	-			
• Program Adjustments	-	-	-39.765	-	-39.765
• Rate/Misc Adjustments	0.001	-	-20.184	-	-20.184
• Congressional General Reductions Adjustments	-15.796	-	-	-	-
• Congressional Directed Reductions Adjustments	-2.000	-	-	-	-

Change Summary Explanation

Program Adjustments:
FY13 -$29,911K Total adjustments; Sequestration -$15.547; SBIR -$5,116K; Reprogramming -$7,000, congressional reduction -$2,000K and Miscellaneous Adjustments -$.248K.

FY14 -$8,000K Total adjustments; -$4,000 Unmanned Surface Vehicle, -$4,000 LDUUV

FY15 -$59.949K Total Program Adjustments; USV UON $4,800K, USV Increment I (UISS) $11,600K, Knifefish $6,300K, LDUUV -$2,300K, PLUS -8,000, CMS -$31,055; RMS moved from this line -$21,110, Other Rate/Miscellaneous Adjustments -$20,184.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603502N / *Surface & Shallow Water MCM*				Project (Number/Name) 0260 / *Remote Minehunting Systems*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0260: *Remote Minehunting Systems*	453.315	37.069	31.837	-	-	-	-	-	-	-	-	522.221
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: 286

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The AN/WLD-1(V)2 Remote Minehunting System (RMS) is a mine reconnaissance system designed for the detection, classification, identification, and localization of bottom and moored mines in shallow and deep water. The RMS will provide the Navy the capability to keep ships and sailors out of the minefield. The RMS is deployed from the Littoral Combat Ship (LCS) as part of the ships' Mine Countermeasure (MCM) Mission Package (MP). The RMS is a fully integrated system consisting of a semi-submersible Remote Multi-Misson Vehicle (RMMV) towing a variable depth sensor, the AN/AQS-20A. The RMMV is a high-endurance, semi-autonomous, low-observable, unmanned, diesel-powered vehicle, operated and maintained from the LCS. Line-of-sight (LOS) and over-the-horizon (OTH) data links provide real time vehicle command and control and mine reconnaissance sensor data transmission to/from LCS.

The first Low Rate Initial Production (LRIP) units (LRIP 1) were used during the RMMV Reliability Growth Program (RGP) v4.2 configuration and will be upgraded to the version 6.0 (v6.0) configuration to support LCS integration.

The Program demonstrated substantially improved RMMV system performance during RMMV v4.2 validation testing in FY13. In the first quarter of FY14, the improved performance was validated during RGP Developmental Testing (DT). The Milestone C (MS C) Gate Review Defense Acquisition Board (DAB) is scheduled for the third quarter of FY14.

Not a new start. ACAT 1D Transparency requirement realigned program funding to Project Element 0604122N beginning in FY15.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Product Development:	15.735	18.010	-
Articles:	-	-	-
FY 2013 Accomplishments: - Completed integration of the Remote Multi-Mission Vehicle (RMMV) v4.2 Engineering Change Proposals (ECPs) on (4) RMMVs. The v4.2 ECPs implemented 20 failure modes, 8 design for reliability improvements, and 10 process changes. - Completed RMMV v4.1 Technical Data Package (TDP).			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 0260 / *Remote Minehunting Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- Completed grooming of RMMVs to support v4.2 RGP DT. - Corrected technical issues discovered during v4.2 RGP DT. - Complete RMMV v4.2 TDP. - Implemented Operational Availability (Ao) hardware/software improvements. - Support LCS MCM MP RMMV integration efforts (RMMV v6.0 Preliminary Engineering Change Proposals (PECPs)) on (4) RMMVs. The PECP improvements include structural upgrades to support safe launch and recovery on the LCS, integration of the Multi Vehicle Communication System (MVCS), AN/AQS-20A Sonar Pre-Planned Product Improvement (P3I) (Block 2), and fleet suitability upgrades. ***FY 2015 Plans:*** - Realigned to PE 0604122N			
Title: Support:	5.024	6.269	-
Articles:	-	-	-
FY 2013 Accomplishments: - Provided engineering, logistics, and programmatic support for Remote Minehunting System(RMS)Reliability Growth Program (RGP). - Supported system design reviews. - Provided support for Remote Multi-Mission Vehicle (RMMV) v4.2 Physical Configuration Audit (PCA) and TDP development. - Started the RMMV v4.2 Interactive Electronic Technical Manual (IETM). - Provided on-site engineering support for RMMVs at contractor facility. - Conducted RMMV Ready For Issue (RFI) Inspections. - Prepared for RMMV v4.2 RGP DT. ***FY 2014 Plans:*** - Provided engineering, logistics, and programmatic support of RMS RGP DT. - Complete RMMV v4.2 PCA, TDP, and IETM. - Prepare for MS C Gate Review DAB and complete acquisition documentation. - Provide engineering, logistics, and programmatic support for LCS MCM MP Test events. - Provide on-site engineering support for RMMVs at contractor facility. - Conduct RMMV RFI Inspections. ***FY 2015 Plans:*** - Realigned to PE 0604122N			
Title: T&E:	14.929	6.528	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 0260 / *Remote Minehunting Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Articles:	-	-	-
FY 2013 Accomplishments: - Completed Remote Minehunting System (RMS) Reliability Growth Program (RGP)Remote Multi-Mission Vehicle(RMMV) v4.2 verification testing. - The RMMVs accumulated 855 Total System Operating Hours over 47 missions during the RGP V4.2 Contractor Validation testing. The system achieved a Mean Time Between Operational Mission Failure (MTBOMF) of 213.7 during the test. - Conducted training, proficiency, and sustainment missions in preparation for RMS RGP DT. All missions were executed by LCS MCM MP Detachment sailors. ***FY 2014 Plans:*** Completed RMMV v4.2 Developmental Test (DT-IIG). Achieved more than 150 hours of mine-hunting during 18 off-shore operationally-representative mine-hunting missions. LCS MCM MP Detachment sailors executed all phases of the RMS mine-hunting mission, including mission planning, mission operations, and post-mission data analysis for the entire test period. - Support integration and validation testing of RMMV v6.0. - Support AN/AQS-20A Sonar P3I (Block 2) testing. ***FY 2015 Plans:*** Realigned to PE 0604122N			
Title: Management:	1.381	1.030	-
Articles:	-	-	-
FY 2013 Accomplishments: - Provided program management oversight for Remote Multi-Mission Vehicle(RMMV)v4.2 integration, verification and validation testing. - Provided program management and oversight of RMMV v4.2 Engineering Change Proposals (ECPs). - Prepared for RMMV v4.2 RGP DT. - Provided program management and oversight of the development of the RMMV v4.2 TDP. - Prepared for and conducted the Resources, Requirements Review Board (R3B) in support of the Capabilities Production Document. - Started acquisition documentation in support of the MS C. - Awarded LCS Integration contract to support RMMV v6.0. ***FY 2014 Plans:*** - Provided program management oversight in support of RMMV v4.2 RGP DT. - Provide program management and oversight of RMMV v6.0.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 0260 / *Remote Minehunting Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- Complete acquisition documentation in support of the MS C DAB. - Prepare for development and release of the new start RMMV Competitive LRIP 2/FRP contract. - Prepare for the award of the LRIP 1 RMMV Integration/Maintenance contract. ***FY 2015 Plans:*** - Realigned to PE 0604122N			
Accomplishments/Planned Programs Subtotals	37.069	31.837	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 0604122N: *Remote Minehunting System*	-	-	21.110	-	21.110	15.923	15.964	8.360	8.571	-	69.928

Remarks

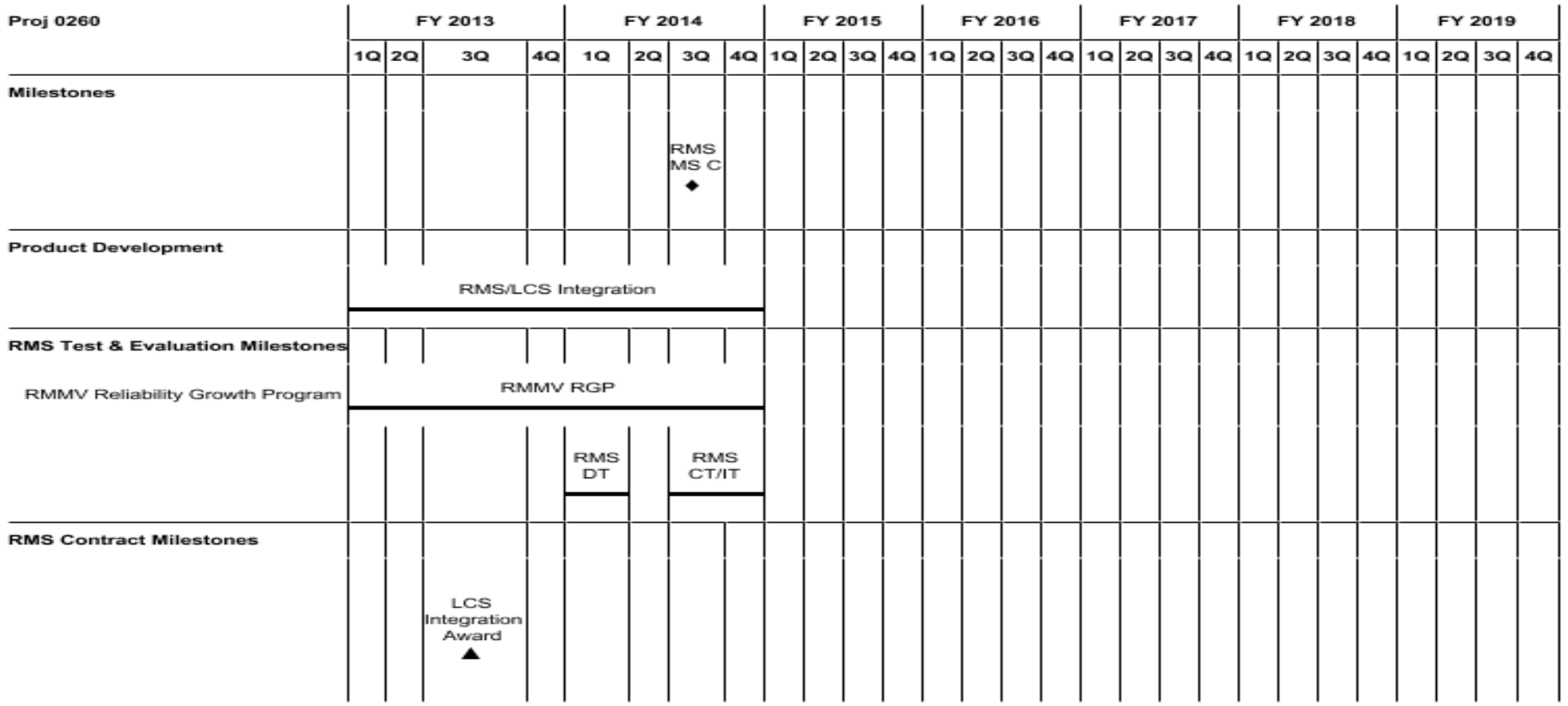
D. Acquisition Strategy

Conduct MS C DAB in 3rd QTR FY14 to support the LRIP 2 decision. The LCS Integration Contract will upgrade existing LRIP 1 tactical units from the RMMV v4.2 to RMMV v6.0 configuration.

E. Performance Metrics

- Completed RGP (FY13)
- Complete RMS RGP DT (FY14)
- Conduct MS C DAB (FY14)

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 0260 / *Remote Minehunting Systems*



2015PB - 0603502N - 0260

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603502N / *Surface & Shallow Water MCM*	Project (Number/Name) 1233 / *Surface MCM Mid-life Upgrade*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
1233: *Surface MCM Mid-life Upgrade*	148.704	28.483	35.306	14.109	-	14.109	14.971	11.372	8.691	8.813	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

USV Flight 1 and Flight 2 funding moved to PE 0603502N Proj:1234 Unmanned Surface Vehicle (USV)

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) AN?SLQ-60 Mine Neutralization System (MNS) Seafox on the MCM Class ships. MNS is the replacement to the existing AN/SLQ-48 Mine Neutralization System. 7) SSQ-94 MCM Trainer upgrade will incorporate the AN/SQQ-32 (V)8 sonar, SSN2(V)5 PINS and Mine Neutralization System Team Trainer.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: MCM CES/PRODUCT DEVELOPMENT:	0.125	0.125	-
Articles:	-	-	-
FY 2013 Accomplishments: Conducted Government verification of Contractor Testing of MEDAL EA Iteration 5 with MCM CES software. Developed CES test plans.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Complete integration and testing of CES with MEDAL EA. Conduct series of Development Tests (DT). Conduct OA planning for FY14. Complete CES training job aids; develop CES rollout training package for Fleet Introduction. ***FY 2015 Plans:*** N/A			
Title: MCM CES/SUPPORT: ***Articles:*** ***FY 2013 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 2014 Plans:*** Continue introduction of CES 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). ***FY 2015 Plans:*** N/A	0.095 -	0.095 -	- -
Title: MCM CES/TEST AND EVALUATION: ***Articles:*** ***FY 2013 Accomplishments:*** Incorporated lessons learned from initial user evaluation during Trident Warrior 12. Tested CES performance during MINENet Tactical Contractor Testing. ***FY 2014 Plans:*** Incorporate CES lessons learned from MINENet Tactical testing; conduct Government verification of software. ***FY 2015 Plans:*** N/A	0.151 -	0.151 -	- -
Title: HFWB/PRODUCT DEVELOPMENT: ***Articles:*** ***FY 2013 Accomplishments:*** Continued systems engineering, requirements analysis, design and development for AN/SQQ-32(V)4 HFWB P3I effort. ***FY 2014 Plans:***	0.900 -	1.233 -	0.856 -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue systems engineering, requirements analysis, design and development for AN/SQQ-32(V)4 HFWB P3I thru the sensor effort. ***FY 2015 Plans:*** Continue systems engineering, requirements analysis, design and development for AN/SQQ-32(V)4 HFWB P3I thru the sensor effort.			
Title: HFWB/SUPPORT: ***Articles:*** ***FY 2013 Accomplishments:*** Continued 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. ***FY 2015 Plans:*** Continue software requirements, configuration, and software integration for AN/SQQ-32(V)4 HFWB P3I through the sensor.	0.370 -	0.394 -	0.394 -
Title: HFWB/TEST AND EVALUATION: ***Articles:*** ***FY 2013 Accomplishments:*** Continued to perform Lab and At Sea testing for AN/SQQ-32(V)4 HFWB P3I effort. ***FY 2014 Plans:*** Continue to perform Lab and At Sea testing for AN/SQQ-32(V)4 HFWB P3I effort. ***FY 2015 Plans:*** Continue to perform Lab and At Sea testing for AN/SQQ-32(V)4 HFWB P3I effort.	0.350 -	0.310 -	0.303 -
Title: HFWB/MANAGEMENT: ***Articles:*** ***FY 2013 Accomplishments:*** FY13 provided program management support and travel for AN/SQQ-32(V)4 HFWB P3I program ***FY 2014 Plans:*** N/A ***FY 2015 Plans:***	0.010 -	- -	- -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A			
Title: MEDAL/PRODUCT DEVELOPMENT:	3.325	4.333	3.512
Articles:	-	-	-
FY 2013 Accomplishments: Conducted Government verification of MEDAL EA Iteration 5 testing, Contractor Testing of MEDAL EA Iteration 7 and MCM CES software. Developed MEDAL EA training job aids and reference cards.			
FY 2014 Plans: Complete development of MEDAL EA Iteration 7. Begin integration activities with CANES/ISNs and LCS Mission Package. Initiate Information Assurance documentation for Authority to operate on navy networks. Conduct series of Devlopment tests (DTs). Conduct OA planning for FY14. Complete development MEDAL EA Logistics products and training aids; expand existing MEDAL training curriculum to include introduction to MINENet Tactical (MEDAL EA).			
FY 2015 Plans: Conduct Test & Evaluation of MINEnet Tactical (MEDAL EA). Continue integration activities with LCS Mission Package. Continue to develop Information Assurance documentation for Authority to Operate on Navy networks. Conduct series of Devlopment tests (DTs). Continue planning for the development of MEDAL EA Increment 2. Begin development of MEDAL EA course curriculum. Conduct series of regression tests Tests. Deliver CES to MEDAL EA IOC participants.			
Title: MEDAL/SUPPORT:	0.550	0.550	0.536
Articles:	-	-	-
FY 2013 Accomplishments: Oversaw technical integration of developed algorithms and models that have demonstrated their effectiveness with respect to their objectives. Supported efforts 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 2014 Plans: Oversee technical integration of developed algorithms and models that have demonstrated their effectiveness with respect to their objectives. Support efforts 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. Complete Fielding Plan for MEDAL EA; submit logistics and dod Information Assurance (IA) Certification and Accreditation Process (DIACAP) packages.			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. Achieve IOC and begin fielding to achieve FOC. Continue introduction of CES 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). Provide in-service support to MEDAL EA IOC units.			
Title: MEDAL/TEST AND EVALUATION: ***Articles:*** ***FY 2013 Accomplishments:*** Completed Government verification of MEDAL EA Iteration 5 Contractor testing. Completed Contractor testing of Iteration 7 functional capabilities. Developed test plans for FY14. ***FY 2014 Plans:*** Incorporate lessons learned from MINENet Tactical CT. Complete DT for Surface MCM. Conduct System Integration testing activities wih LCS, CANES and ISNS. Continue planning for subsequent FY14 regression testing. ***FY 2015 Plans:*** Continue System Integration testing activities wih multiple platforms. Continue planning for subsequent OA events. Deliver to Fleet in accordance with the MEDAL EA Fielding Plan.	2.000 -	1.960 -	1.735 -
Title: MEDAL/MANAGEMENT: ***Articles:*** ***FY 2013 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 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	0.768 -	0.759 -	0.768 -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2015 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: MNS Replacement	3.138	1.892	-
Articles:	-	-	-
FY 2013 Accomplishments: Continued 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. ***FY 2015 Plans:*** N/A			
Title: SSQ-94 MCM Trainer Development	-	4.100	6.005
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** SSQ-94 Mine Warfare Countermeasures Simulator; development of hardware and software upgrades to the combat system team/ individual training capabilities on the MCM Class Ship ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
SSQ-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: USV Flight 1 (US3)/PRODUCT DEVELOPMENT: ***Articles:*** ***FY 2013 Accomplishments:*** Continued Milestone B documentation. Continued 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. ***FY 2015 Plans:*** Moved to Project Unit 1234	8.930 -	10.059 -	- -
Title: USV Flight 1 (US3)/SUPPORT: ***Articles:*** ***FY 2013 Accomplishments:*** Continued Milestone B documentation. ***FY 2014 Plans:*** Complete Milestone B documentation. Commence Engineering and ILS support for E&MD phase efforts. ***FY 2015 Plans:*** Moved to Project Unit 1234.	4.259 -	3.000 -	- -
Title: USV Flight 1 (US3)/TEST AND EVALUATION: ***Articles:*** ***FY 2013 Accomplishments:*** Continued development of the TEMP. Continue technology development testing and UISS component Demonstration Testing. ***FY 2014 Plans:*** Complete TEMP. ***FY 2015 Plans:*** Moved to Project Unit 1234	1.972 -	0.245 -	- -
Title: USV Flight 1 (US3)/MANAGEMENT: ***Articles:***	1.540 -	1.900 -	- -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Supported the award of the engineering and manufacturing development contract in the 3rd Qtr FY14. ***FY 2014 Plans:*** Commence E&MD contract management. Commence progam support for Milestone C documentation. ***FY 2015 Plans:*** Moved to Project Unit 1234.			
Title: USV Flight 2/PRODUCT DEVELOPMENT	-	3.800	-
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** Develop hardware and software changes to tow minehunting sensor. Test sonar performance when towed by RHIB in various sea states. ***FY 2015 Plans:*** Moved to Project Unit 1234.			
Title: USV Flight 2/SUPPORT	-	0.400	-
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** Engineering and Logistic support for hardware development. ***FY 2015 Plans:*** Moved to Project Unit 1234.			
Accomplishments/Planned Programs Subtotals	28.483	35.306	14.109

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/2622: *LV075/LV078/LV080*	21.706	29.934	16.844	-	16.844	18.907	12.300	7.959	8.217	-	197.588

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost

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.

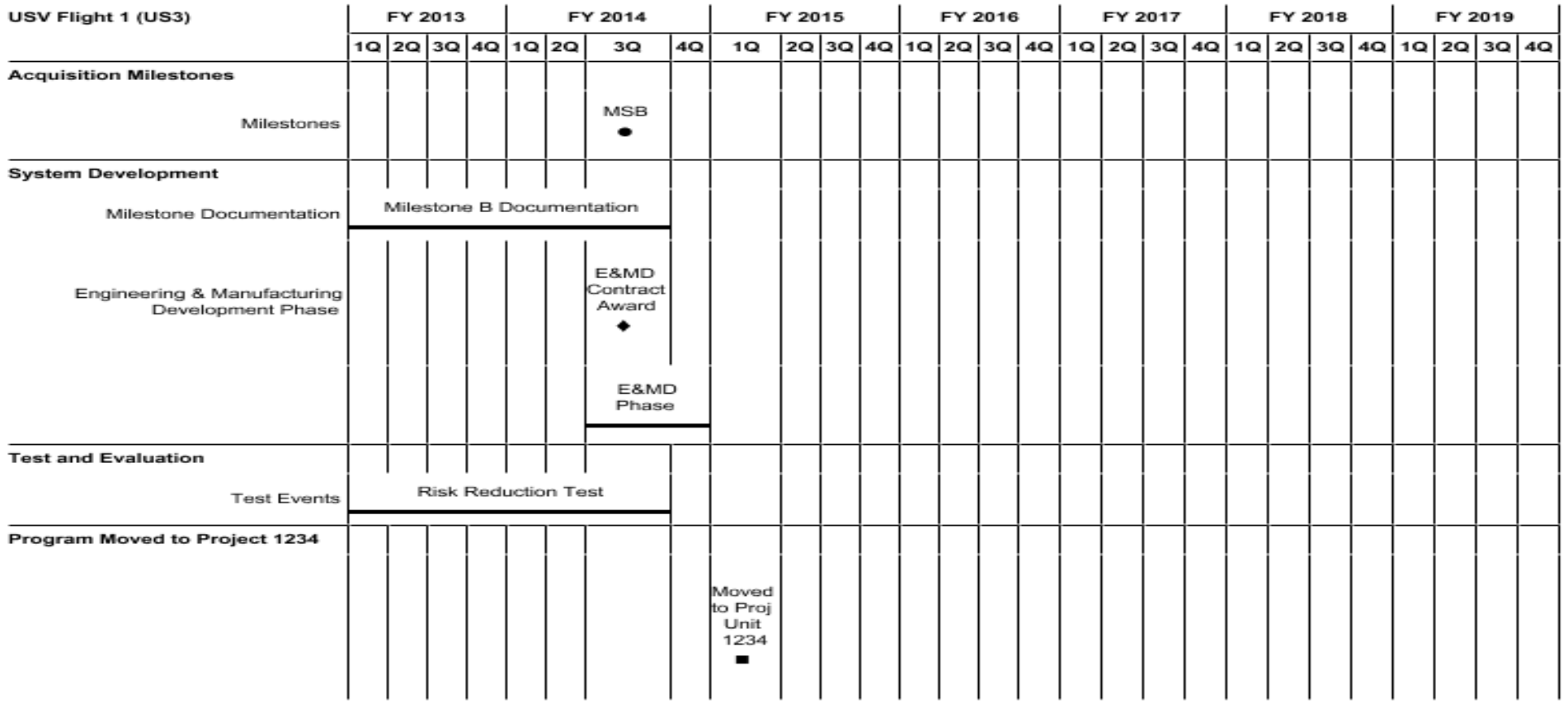
Mine Warfare and Environmental Decision Aids Library (MEDAL) - requirements for MEDAL Builds are generated through a formal requirements process. Requirements conferences gather a list of candidate functions based on a logical sequence to fully implement the overall software architecture. The fleet is 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. SSQ-94 MCM Trainer upgrade will incorporate the AN/SQQ-32 (V)8 sonar, SSN2(V)5 PINS and Mine Neutralization System Team Trainer.

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). The UISS program moved to Project Unit 1234 starting in FY15.

E. Performance Metrics

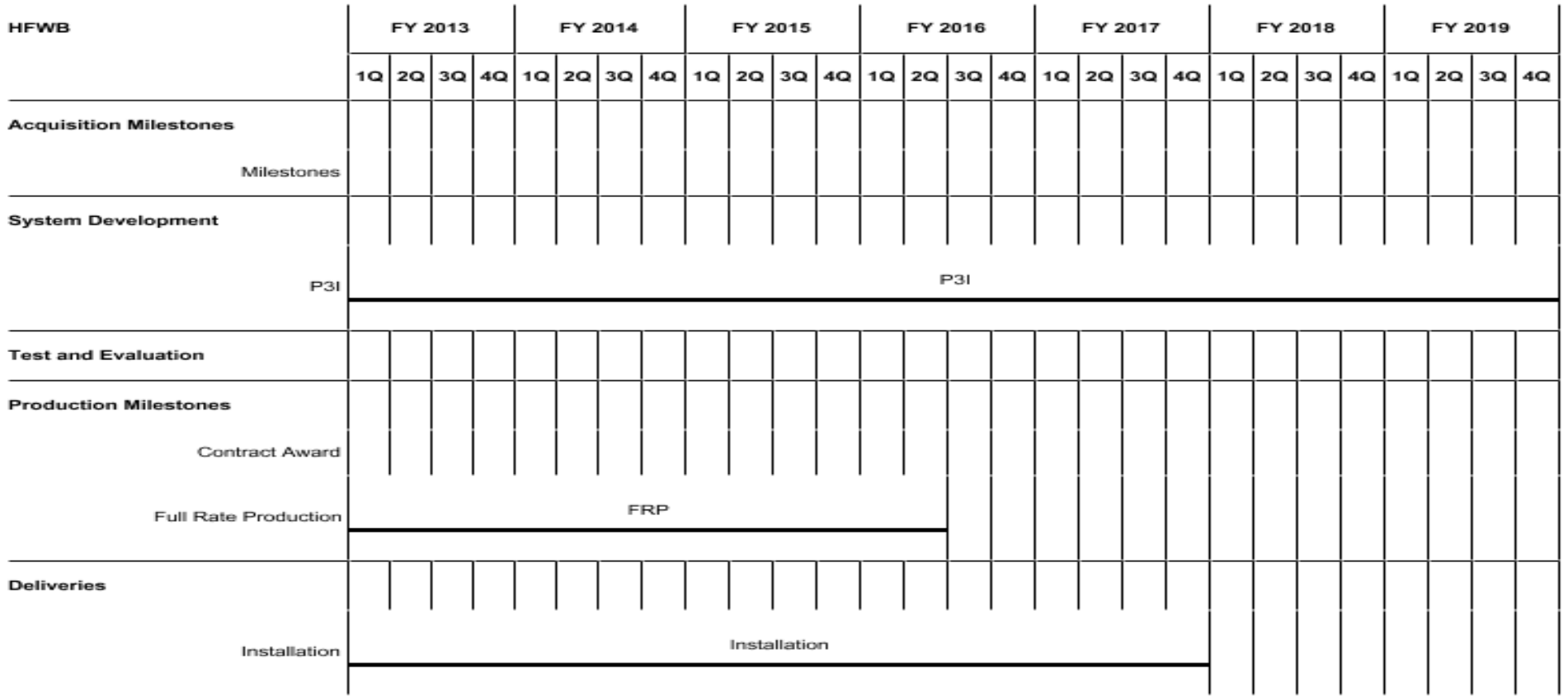
USV Flight 1 (US3) - Successfully reach Milestone B in FY14; Award EDM contract.
USV Flight 2 - Developmental Test in FY17

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*



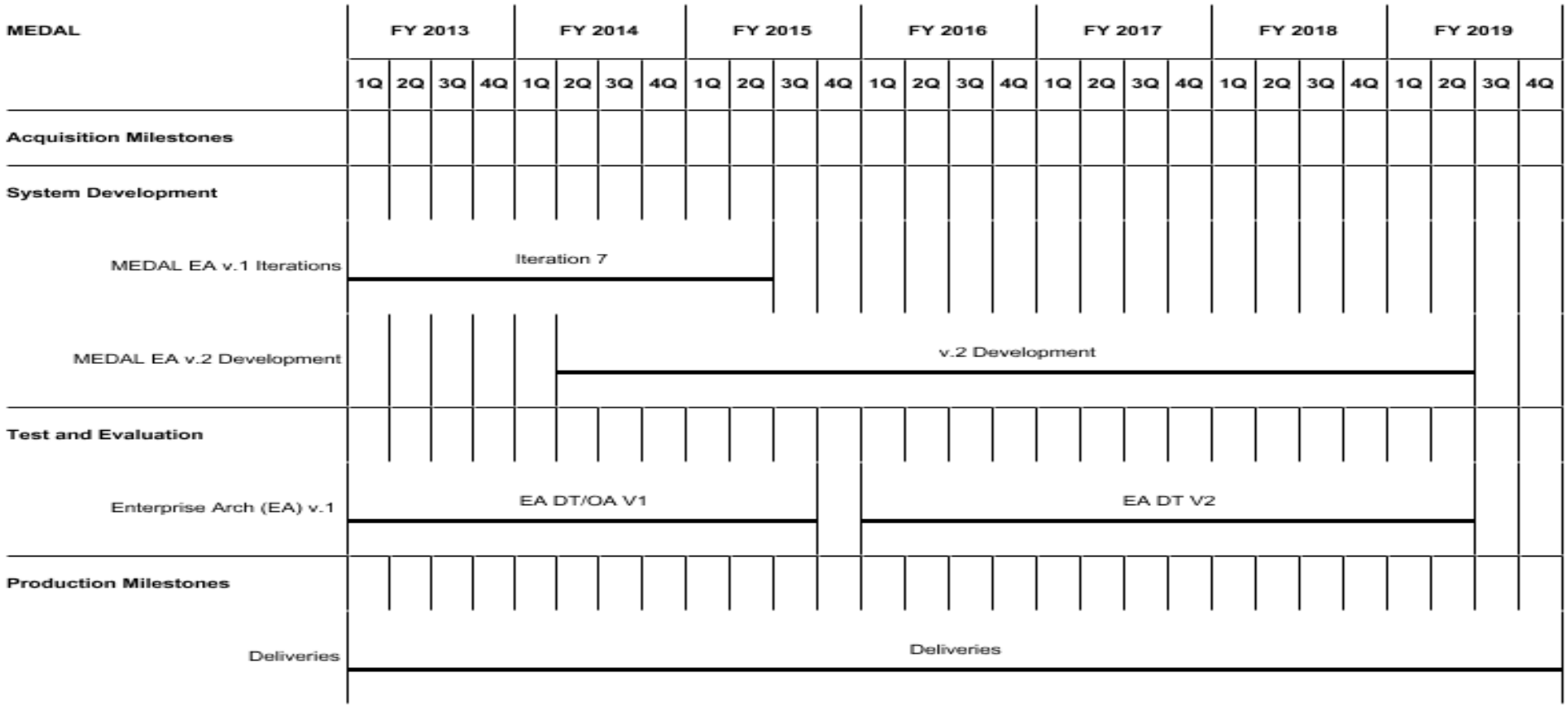
2015PB - 0603502N - 1233

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*



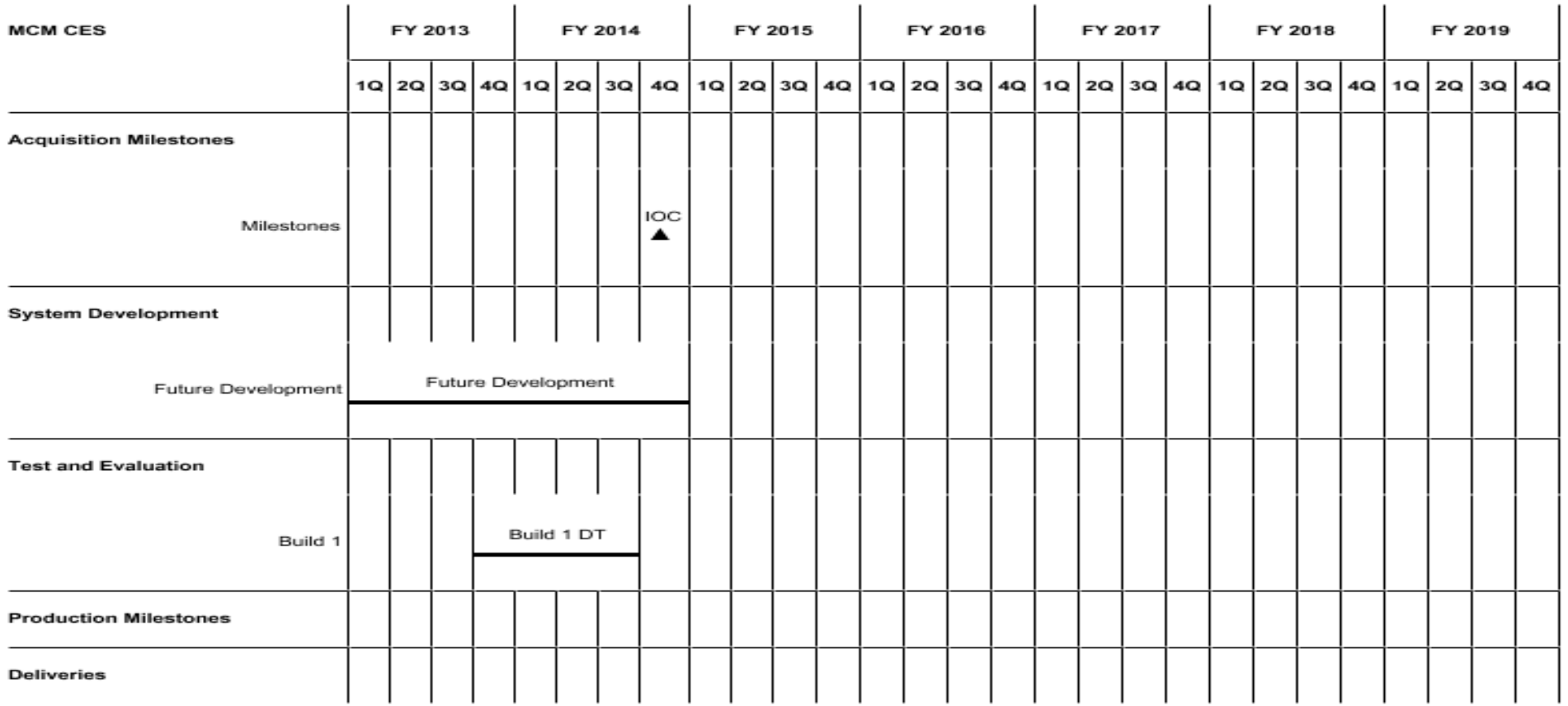
2015PB - 0603502N - 1233

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*



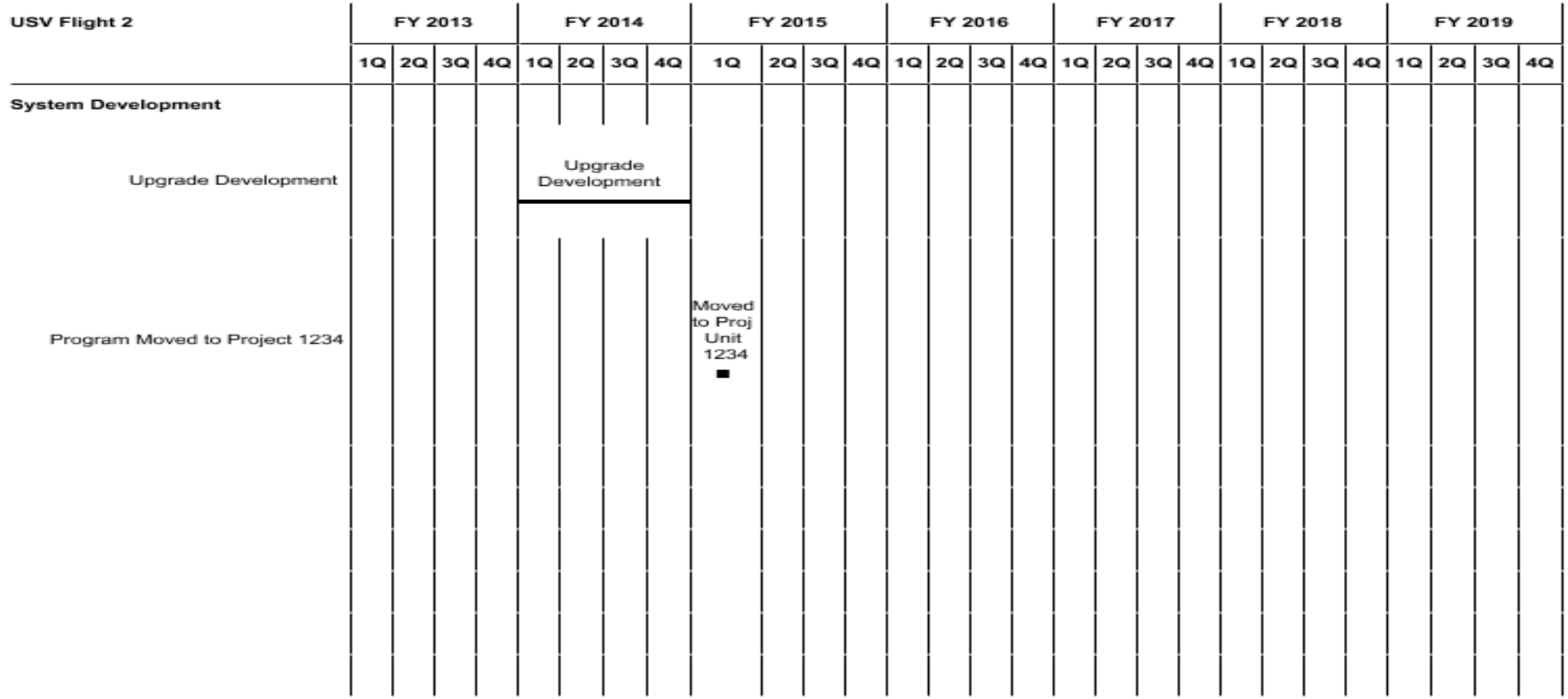
2015PB - 0603502N - 1233

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*



2015PB - 0603502N - 1233

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1233 / *Surface MCM Mid-life Upgrade*



2015PB - 0603502N - 1233

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603502N / *Surface & Shallow Water MCM*	Project (Number/Name) 1234 / *Unmanned Surface Vehicle (USV)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
1234: *Unmanned Surface Vehicle (USV)*	-	-	-	36.465	-	36.465	15.624	17.692	13.426	14.536	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

Funding prior to FY15 in PE 0603502N Project Unit 1233.

A. Mission Description and Budget Item Justification

This project provides resources for development, improvement and integration of Unmanned Surface Vehicle (USV) Mine Countermeasure systems. A description of the major planned programs include the following:

1)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) 2)Multi-Function USV Flight 2 integrates minehunting sensor(s) with the UISS vehicle. The added capability allows a common USV to conduct mine hunting and mine sweeping missions. 3) USV Mine Hunting Units (MHUs) include USVs towing AN/AQS-24A mine hunting sonars and associated support equipment, including a command and control center that will be deployed from vessels of opportunity. MHUs are in response to an Urgent Operational Need (UON) from Naval Forces Central Command.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: USV Flight 1 Product Development	-	-	17.690
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: Continue building Engineering Development Model (EDM). Conduct Preliminary Design Review (PDR).Conduct Critical Design Review (CDR).			
Title: USV Flight 1 Support	-	-	5.073
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1234 / *Unmanned Surface Vehicle (USV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** Continue engineering and integrated logistic suppot (ILS) for Engineering and Manufactureing Development (E&MD) phase.			
Title: USV Flight 1 Test and Evaluaiton	-	-	0.400
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** Complete Test and Evaluation Master Plan (TEMP).			
Title: USV Flight 1 Management	-	-	1.050
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** Continue E&MD contract management. Continue program support for Milestone C documentation.			
Title: USV Flight 2 Product Development	-	-	7.441
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1234 / *Unmanned Surface Vehicle (USV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A ***FY 2015 Plans:*** Develop proof of concept via Modeling and Simulation (M&S).			
Title: USV Flight 2 Support	-	-	0.450
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** Engineering and logisitic suport for proof of concept Modeling and Simulation (M&S).			
Title: USV MHUs Product Development	-	-	3.780
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** Integrate upgraded minehunting sonar (AN/AQS-24B) onboard MHUs, to include upgrading Comand and Control (C2) center, MHU electronics and associated equipment. Conduct performance testing of AN/AQS-24B sonar towed from MHUs.			
Title: USV MHUs Support	-	-	0.581
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1234 / *Unmanned Surface Vehicle (USV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Provide engineering and logistic support for upgrade training and forward-deployed operations.			
Accomplishments/Planned Programs Subtotals	-	-	36.465

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 2622: *LV080/*	-	-	-	-	-	7.687	5.000	8.927	9.425	Continuing	Continuing

Remarks

D. Acquisition Strategy

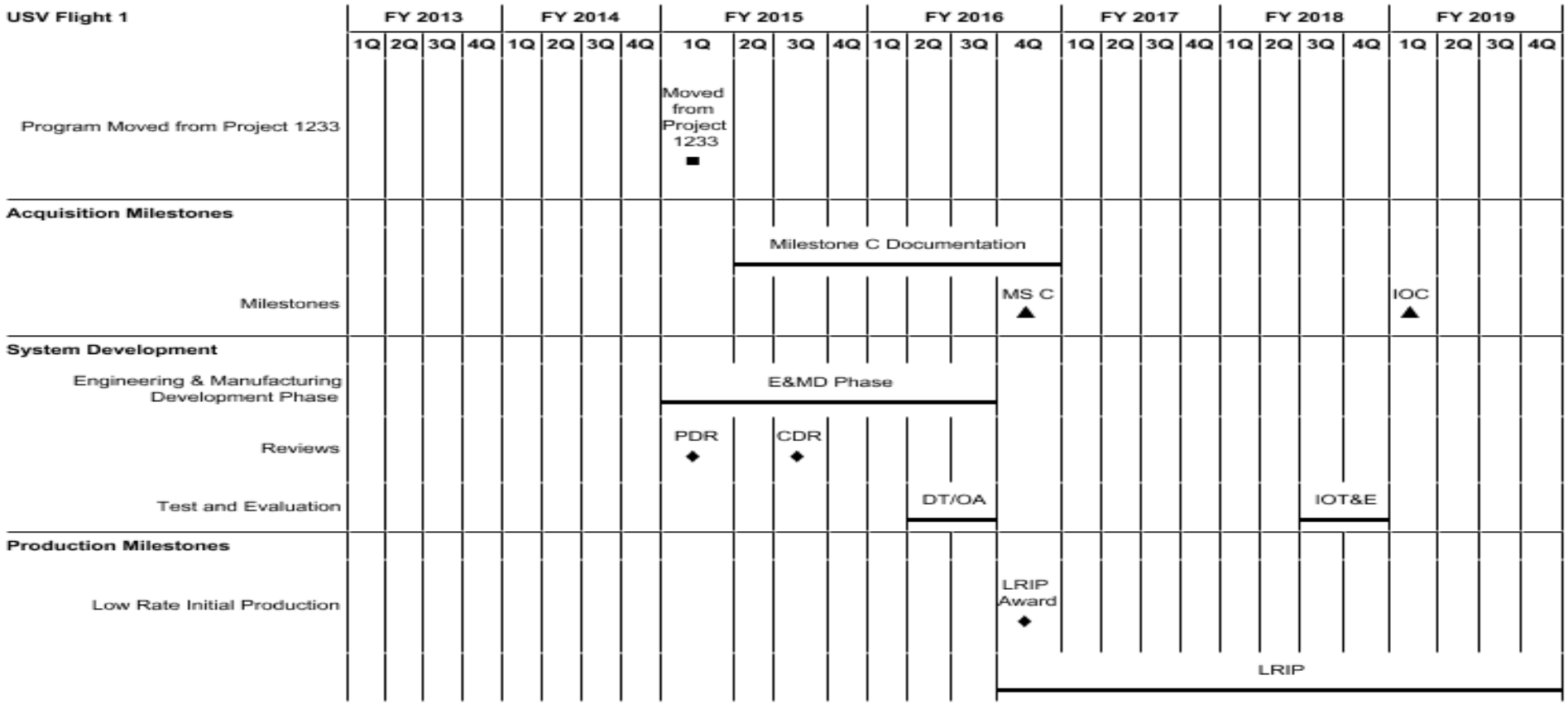
USV Flight 1 (US3)- Requirements for USV Flight 1 (US3) will be documented in the Unmanned Influence Sweep System (UISS) Capability Development Document (CDD). Two Engineering and Manufacturing Development (E&MD) contracts will be awarded in FY14 with an option for Low Rate Initial Production (LRIP).

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

E. Performance Metrics

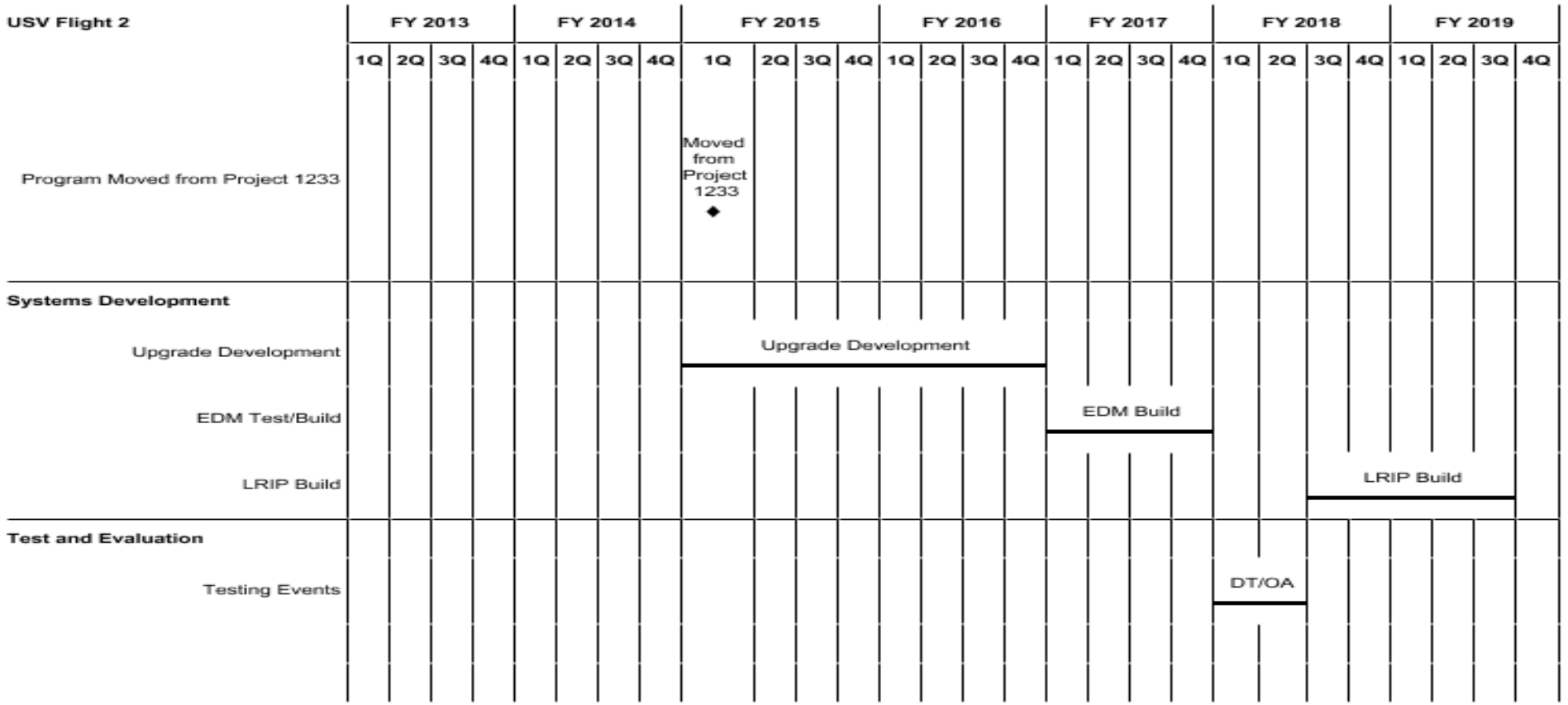
USV Flight 1 (US3) - Successfully reach Milestone B in FY14; Award E&MD contract.
USV Flight 2 - Developmental Test in FY18

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1234 / *Unmanned Surface Vehicle (USV)*



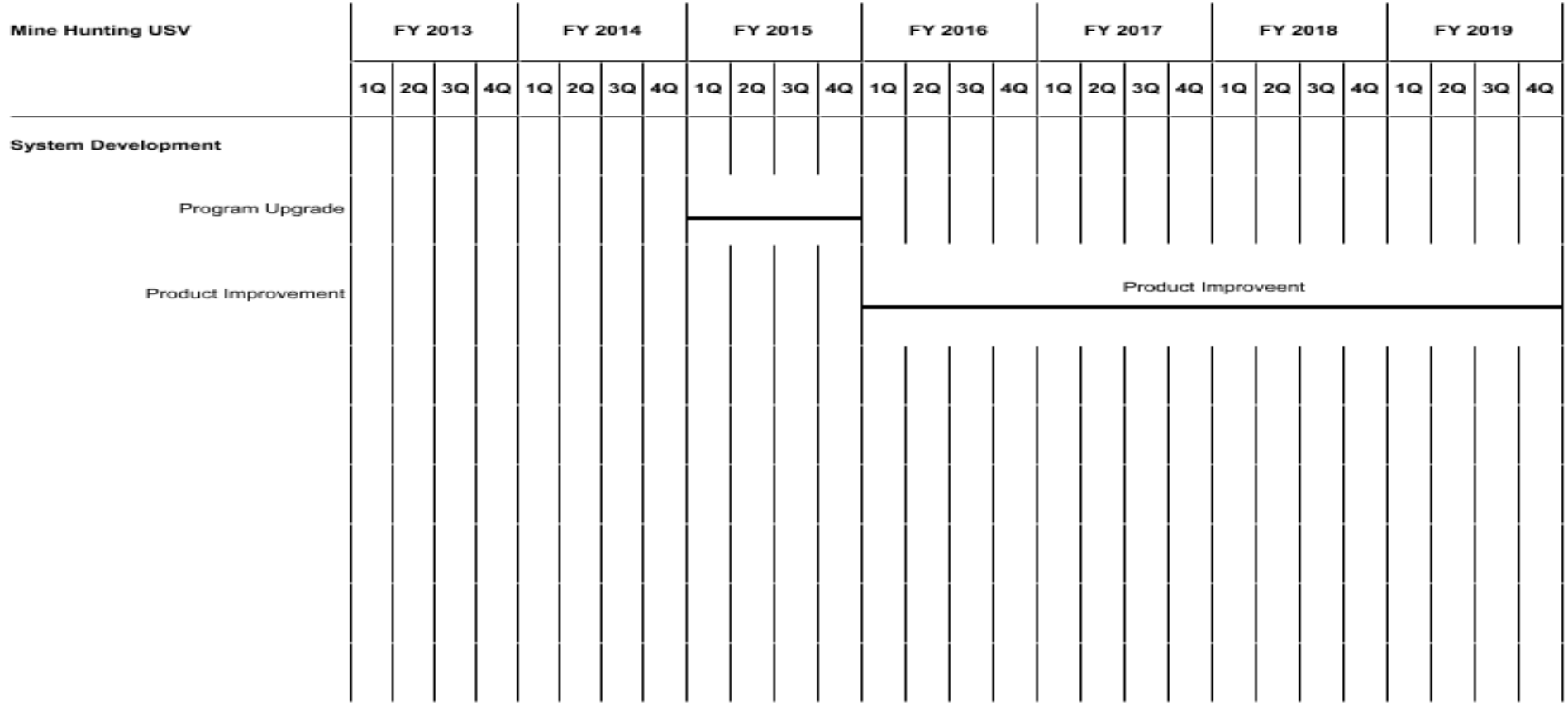
2015PB - 0603502N - 1234

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1234 / *Unmanned Surface Vehicle (USV)*



2015PB - 0603502N - 1234

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 1234 / *Unmanned Surface Vehicle (USV)*



2015PB - 0603502N - 1234

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603502N / *Surface & Shallow Water MCM*	Project (Number/Name) 2094. / *Unmanned Underwater Vehicle*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2094.: *Unmanned Underwater Vehicle*	-	32.562	20.164	13.674	-	13.674	15.042	27.700	49.916	57.980	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 seagliders). 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 2013	FY 2014	FY 2015
Title: LDUUV Product Development	0.225	2.622	2.268
Articles:	-	-	-
FY 2013 Accomplishments: LDUUV - Completed AoA. Developed Performance Specifications to support Preliminary Design phase of LDUUV POR.			
FY 2014 Plans: Develop Interface Control Documents (ICD), Capability Development Document(CDD), system specifications, and Test and Evaluation Strategy (TES) for LDUUV Engineering Development Model (EDM).			
FY 2015 Plans: Develop draft Request for Proposal (RFP) for EDM contracts. Complete Interface Control Documents (ICD), CDD, system specifications, and Test and Evaluation Strategy (TES).			
Title: LDUUV Support	4.961	4.610	7.896
Articles:	-	-	-
FY 2013 Accomplishments: Conducted Cost Analysis. Developed statutory documents for Gates 2 Review and Milestone A.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 2094. / *Unmanned Underwater Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Develop statutory documents for Gate 3 Review and Milestone A. Conduct Milestone A. Develop Technical Data Package for Draft RFP. ***FY 2015 Plans:*** Develop statutory documents for Gate 4 and 5 Reviews. Draft RFP release. Formulate proposal evaluation team to review bids. Conduct technology risk reduction efforts.			
Title: LDUUV Management	0.960	0.990	0.705
Articles:	-	-	-
FY 2013 Accomplishments: Provided program management support and travel for the LDUUV program. Program management (PM) included overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors required to ensure successful execution of the program. Travel and other PM tasking to included briefings, demonstrations, and project planning. ***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. ***FY 2015 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.			
Title: PLUS Product Development	10.499	2.800	-
Articles:	-	-	-
FY 2013 Accomplishments: Identified/established contract vehicle(s) and system specifications. Based on determinations from transition and Concept of Employment (CONEMP) Plans, developed 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, and Command and Control (C2) Hardware. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 2094. / *Unmanned Underwater Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** N/A			
Title: PLUS Support	7.000	1.539	-
Articles:	-	-	-
FY 2013 Accomplishments: Commenced development of tailored UOES technical documentation to support transition from S&T to a UOES project. Developed system & operational classification guidance. Generated system training and support plans. Documented appropriate C2 strategy for system operations. Completed requisite Approval to Operate (ATO), Information Assurance/Anti-Tampering (IA/AT) certifications to support Fleet Exercise. Developed Logistics Plan. Obtained requisite Fleet approvals and developed Concept of Employment (CONEMP). ***FY 2014 Plans:*** Complete the documentation of tailored UOES technical documentation to support transition of PLUS to the fleet. Complete Fleet training for operating and maintaining the system for exercises and demonstrations. Complete support plans, CONOPS, tactics techniques and procedure documents, and complete the logistics packages for fleet introduction. ***FY 2015 Plans:*** N/A			
Title: PLUS Test and Evaluation	1.000	4.077	-
Articles:	-	-	-
FY 2013 Accomplishments: Participated in test, demonstrations and Fleet Exercises. ***FY 2014 Plans:*** Participate in tests, demonstrations and Fleet Exercises. ***FY 2015 Plans:*** N/A			
Title: PLUS Management	0.850	0.550	-
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 2094. / *Unmanned Underwater Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Provided program management support and travel for PLUS program. Program management (PM) included overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors to ensure successful execution of the program. Travel and other PM tasking to include briefings, demonstrations, and project planning. ***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. ***FY 2015 Plans:*** N/A			
Title: Persistent Littoral Undersea Surveillance (PLUS)	7.067	2.976	2.805
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 Accomplishments:*** -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.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 2094. / *Unmanned Underwater Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Complete testing of the USBL Navigation and Carina vehicle. -Complete a Field Test and Evaluation with the Fleet. ***FY 2015 Plans:*** -Continue all efforts from FY14 unless noted as completed. -Complete the testing of the updated communications throughout the system -Complete the evaluation and implementation of the IA and Anti-Tamper on the PLUS system -Complete the testing and evaluation of the Revised and Optimized PLUS Sensor Vehicle -Complete a Field Test and Evaluation with the Fleet			
Accomplishments/Planned Programs Subtotals	32.562	20.164	13.674

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

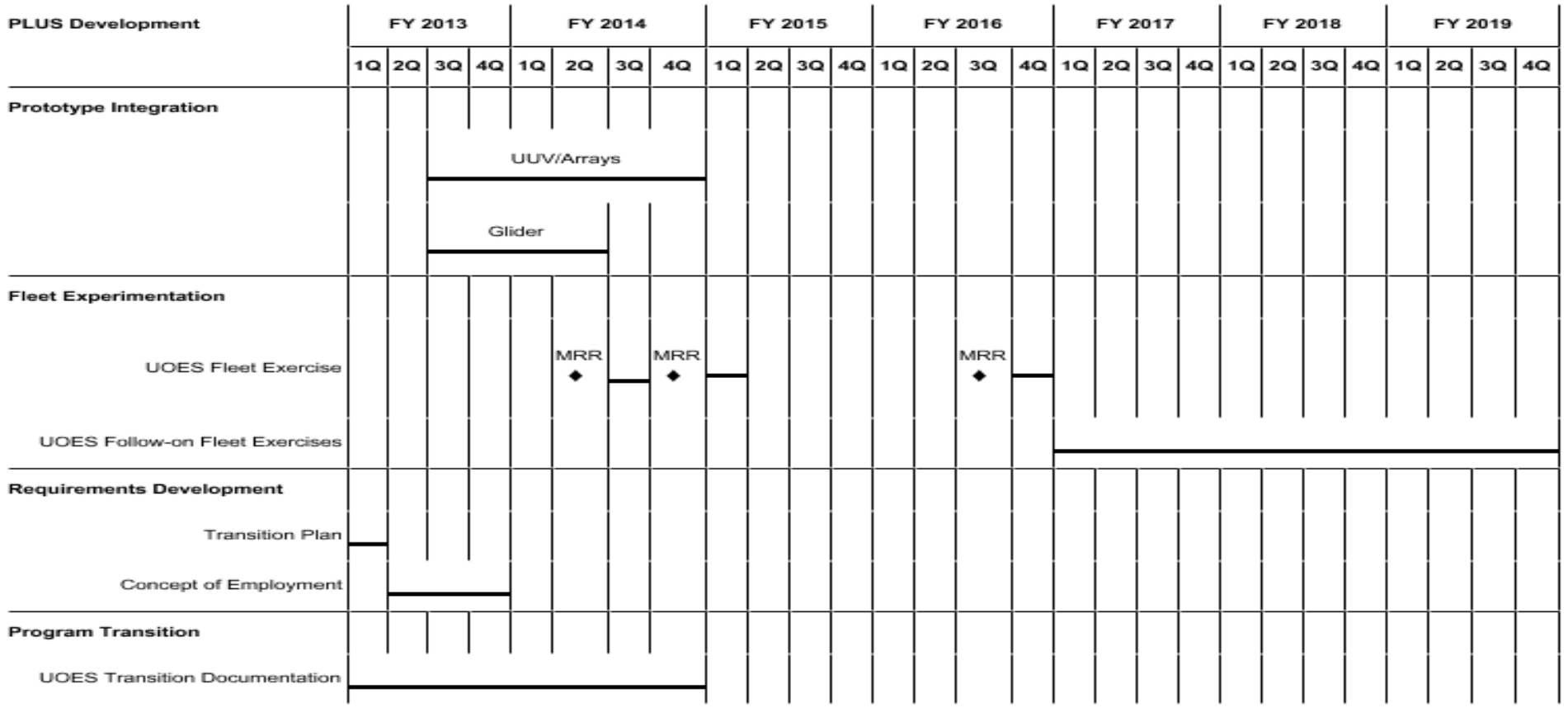
PLUS will develop a prototype User Operational Evaluation System (UOES) in response to an Urgent Operational Need (UON) request from the Fleet. The PLUS UOES will be utilized in a fleet experimentation event to develop Concept of Employment (CONEMP) for a potential follow-on program of record.

LDUUV will award Engineering Development Model (EDM) contract(s) to design, build and test LDUUV EDM(s). ONR's LDUUV Innovative Naval Prototype (INP) program will transition 4 prototype vehicles to PMS 406 LDUUV Program of Record (POR) as User Operational Evaluation Systems (UOES). The LDUUV UOES will be utilized in exercises to support requirement and CONOP development that feeds into LDUUV POR. First ONR LDUUV INP vehicles are expected to transition at the end of FY 15.
This effort will transition to PEO-LCS / PMS406 as a User Operational Evaluation System (UOES) in FY 2013.

E. Performance Metrics

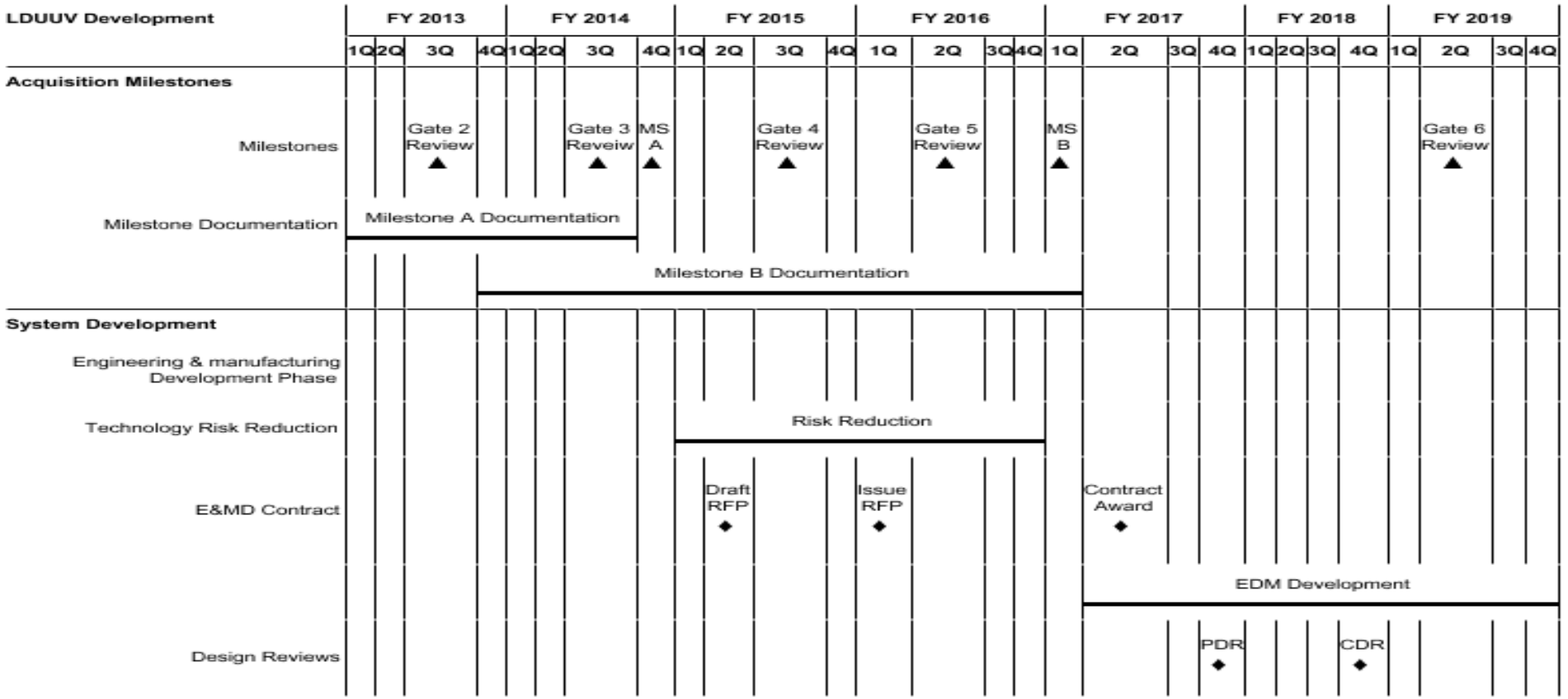
PLUS - Prototype Delivery
LDUUV - Achieve MS A
Performance metrics for this effort are classified.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 2094. / *Unmanned Underwater Vehicle*



2015PB - 0603502N - 2094.L24

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 2094. / *Unmanned Underwater Vehicle*



2015PB - 0603502N - 2094.L24

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603502N / *Surface & Shallow Water MCM*				Project (Number/Name) 2131 / *Assault Breaching System*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2131: *Assault Breaching System*	484.713	43.645	58.789	17.908	-	17.908	24.516	33.623	29.535	30.197	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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: 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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 2131 / *Assault Breaching System*

(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 2013	FY 2014	FY 2015
Title: Product Development:	39.139	46.753	11.555
Articles:	-	-	-
FY 2013 Accomplishments: CMS - Continued HE alternative neutralization design, development and testing. COBRA - Continued Blk 1 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 2014 Plans: CMS - Continue HE neutralization design, development and testing with emphasis on aero-dynamics and structures. Continued CMS neutralizer lethality design and testing (100 darts) COBRA - Complete Blk 1 integration Flight Tests with VTUAV.Continue design and development of COBRA Block II capability. Precision Navigation/Marking (PN/M) - continued evaluation/assessment of EDMs supporting PN/M efforts.			
FY 2015 Plans: COBRA - Continue design and development of COBRA Block II capability. Precision Navigation/Marking (PN/M) - continued evaluation/assessment of EDMs supporting PN/M efforts.			
Title: Technical Support:	0.926	1.395	0.807
Articles:	-	-	-
FY 2013 Accomplishments: CMS/COBRA - Provided mine warfare inventory and shipping, contract management test studies C4I Data fusion. Provided technncal acquisition support.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 2131 / *Assault Breaching System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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). ***FY 2015 Plans:*** 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: ***Articles:*** ***FY 2013 Accomplishments:*** CMS - Started 100 shot for neutralizers testing, payload modular. COBRA - Initiated development testing of Block II. PN/M - Continue testing of the Precision Navigation and Marking design capability. ***FY 2014 Plans:*** CMS - Continue 100 shot for the HE Neutralizer. COBRA - Advanced component Block II development testing. Conduct Block I Operational Assessment (OA). PN/M - Continue to test the Precision Navigation and Marking design capability. ***FY 2015 Plans:*** COBRA - Continue Block II development testing. PN/M - Continue to test the Precision Navigation and Marking design capability.	2.347 -	9.250 -	4.427 -
Title: Management: ***Articles:*** ***FY 2013 Accomplishments:*** 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. ***FY 2015 Plans:***	1.233 -	1.391 -	1.119 -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 2131 / *Assault Breaching System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Mine magazine inventory management and shipping, contract management and tests/studies, C4I/Data fusion.			
Accomplishments/Planned Programs Subtotals	43.645	58.789	17.908

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/2624: *SHALLOW WATER MCM SHIP*	5.994	8.358	-	-	-	18.277	10.006	9.492	6.088	-	68.325
• OPN/1601: *LCS MODULES*	-	-	-	-	-	8.400	-	8.625	-	-	24.800

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 FY07 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 will achieve MS B in 2nd QTR FY16. COBRA Block III technology will transition in FY18.

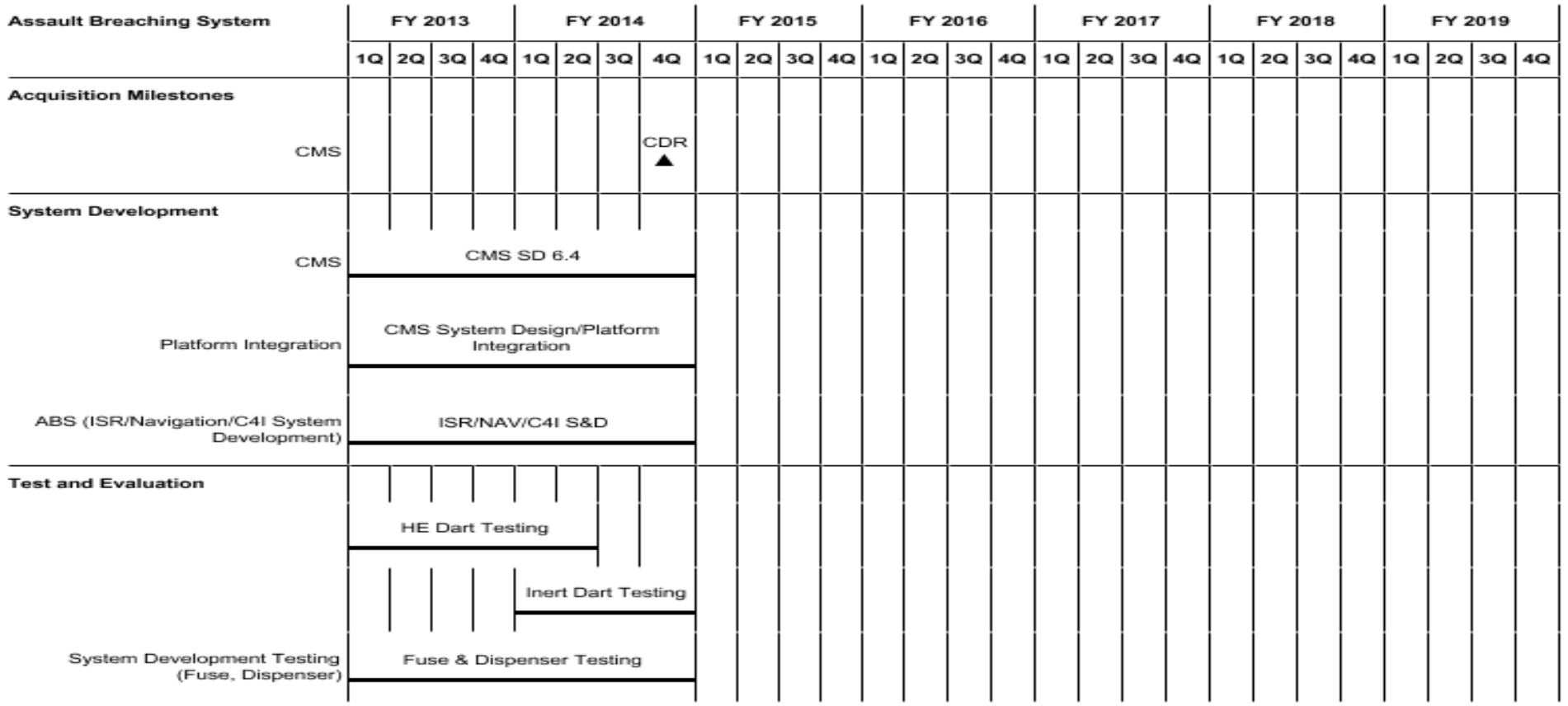
Precision Navigation & Marking System (PNMS) - The navigation upgrades for the Landing Craft, Air Cushion (LCAC) and Landing Craft, Utility (LCU) are in progress. AAV enhancements will be achieved through an ECP (PMA AAV (Marine Corps)) in 2nd QTR FY14.

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

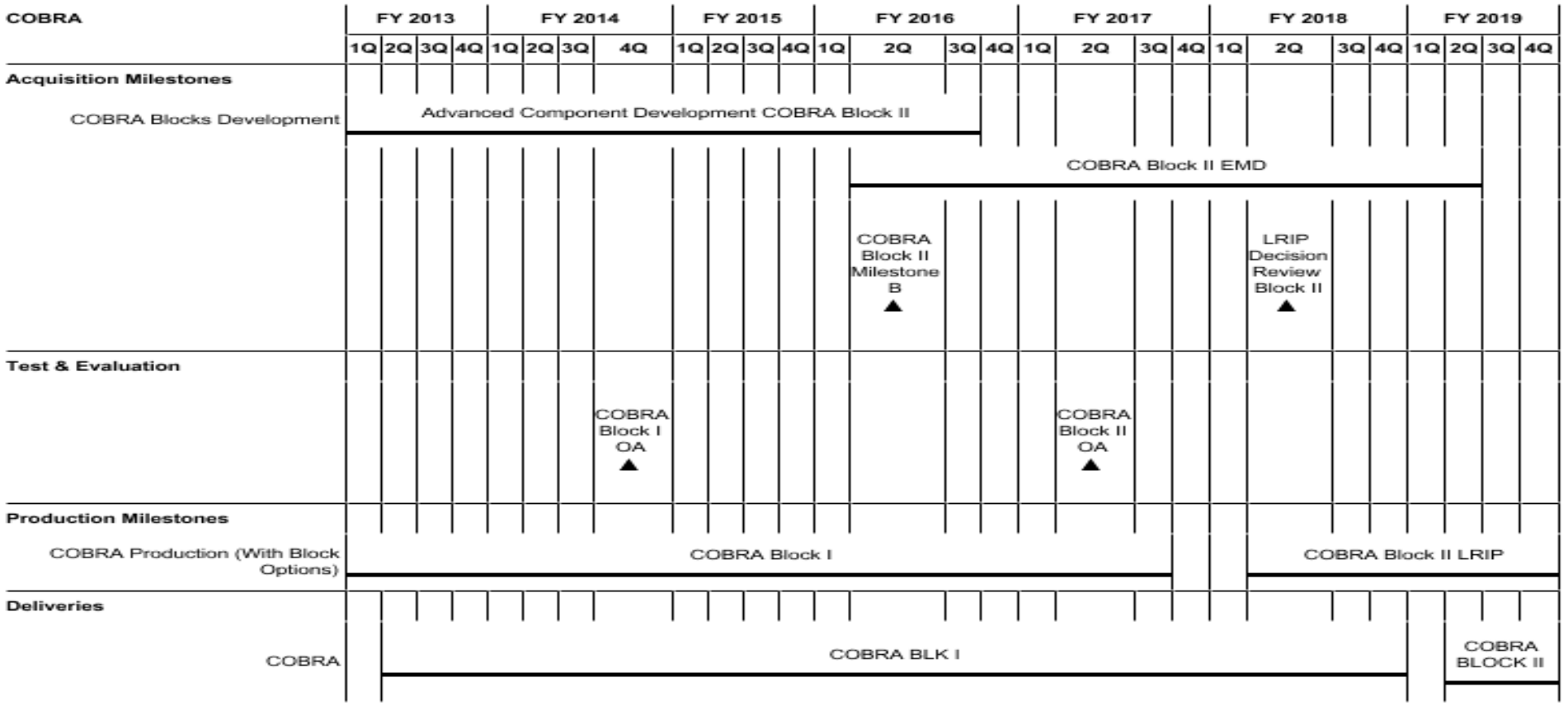
Successful COBRA integration, flight tests and Operational Assessment (OA) into the Vertical Take-off Unmanned Arial Vehicle (VTUAV).

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 2131 / *Assault Breaching System*



2015OSD - 0603502N - 2131

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 2131 / *Assault Breaching System*



2015OSD - 0603502N - 2131

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603502N / *Surface & Shallow Water MCM*	Project (Number/Name) 3123 / *SMCM UUV*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3123: *SMCM UUV*	69.743	18.952	13.944	18.193	-	18.193	5.444	5.332	5.497	5.692	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The Knifefish Surface Mine Countermeasure Unmanned Undersea Vehicle (SMCM UUV) program develops Unmanned Underwater Vehicles to support clandestine mine detection capability against volume and bottom mines 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 2013	FY 2014	FY 2015
Title: Knifefish SMCM UUV LFBB	18.952	13.944	18.193
Articles:	-	-	-
FY 2013 Accomplishments: Conducted Critical Design Review (CDR). Commenced vehicle fabrication.			
FY 2014 Plans: Continue vehicle fabrication. Commence Development Testing preparations.			
FY 2015 Plans: Complete vehicle fabrication. Begin Development Testing/Operational Assessment (DT/OA). Continue Engineering and Manufacturing Development (E&MD)phase.			
Accomplishments/Planned Programs Subtotals	18.952	13.944	18.193

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 2622/LV079: *Minesweeping System Replacement*	-	-	-	-	-	20.137	20.487	20.900	21.250	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 3123 / *SMCM UUV*

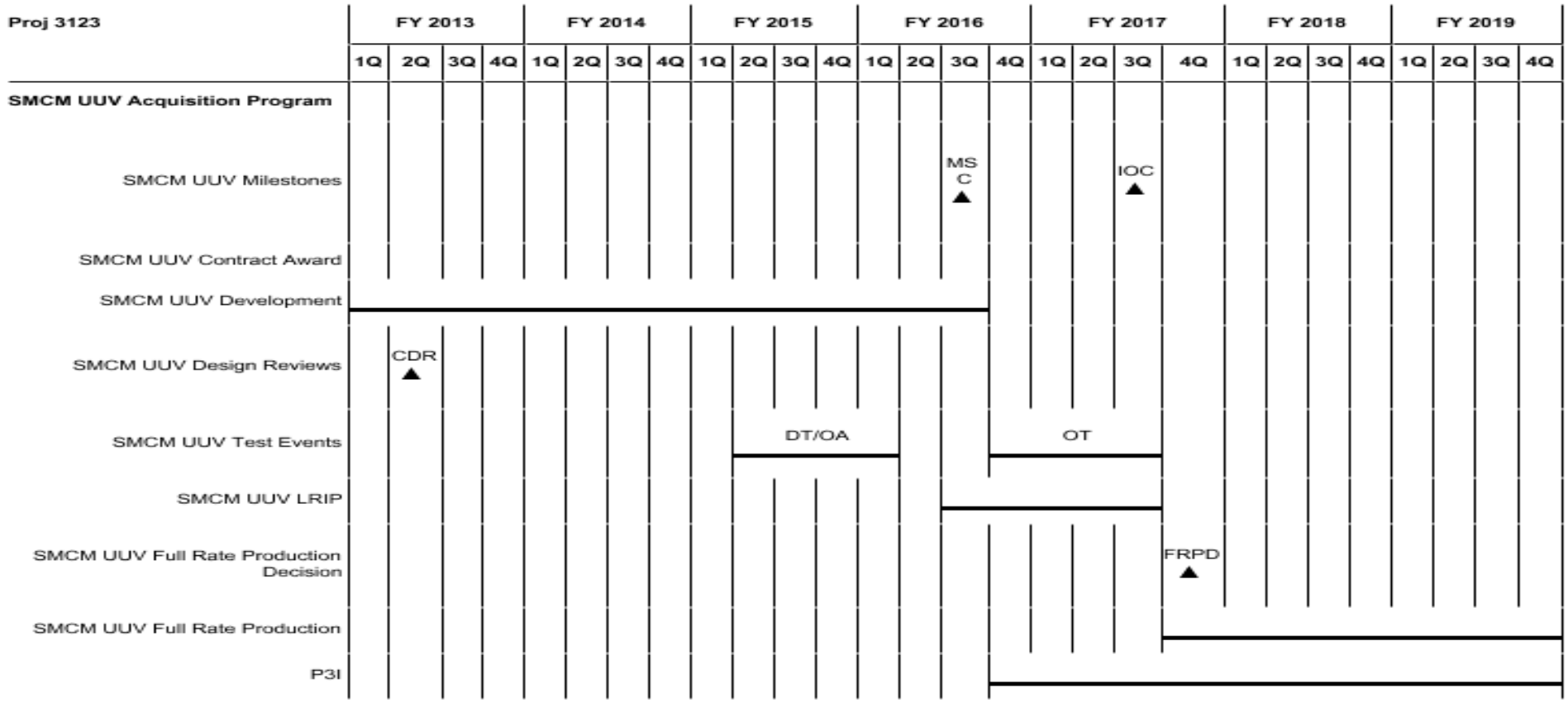
D. Acquisition Strategy

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

E. Performance Metrics

Successful Milestone C in Q3 FY16.
Reach Full Rate Production Decision in Q4 FY17.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603502N / *Surface & Shallow Water MCM*	**Project (Number/Name)** 3123 / *SMCM UUV*



2015PB - 0603502N - 3123

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603506N / *Surface Ship Torpedo Defense*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	385.984	83.711	85.649	52.781	-	52.781	30.063	31.854	30.971	30.620	Continuing	Continuing
0225: *Surface Ship Torpedo Defense (SSTD)*	385.984	83.711	85.649	52.781	-	52.781	30.063	31.854	30.971	30.620	Continuing	Continuing

The FY 2015 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 layered torpedo defense capability. It is comprised of four major efforts, the AN/SLQ-25 (NIXIE) system, Torpedo Warning System (TWS), the Countermeasure Anti-Torpedo (CAT) and Acoustic Device Countermeasure (ADC MK2 Mod4). There are two development programs, the CAT program develops a canisterized Anti-Torpedo Torpedo (ATT) as an ACAT II program. The TWS develops the required torpedo detection, classification and localization (TDCL) ship systems as an ACAT III program. The AN/SLQ-25X solicitation was cancelled due to a more cost effective technical solution of interfacing the TWS to NIXIE system.

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 hard-kill 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. The program delivered one hybrid prototype system in FY13 on USS GHW BUSH. The next prototype is expected to deliver in FY14; This system will be delivered in a roll-on/roll-off (RO-RO) configuration and installed on USS Roosevelt. The program will build and deliver one additional RO-RO and one EDM in FY15 and 2 EDMs in FY16.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603506N / *Surface Ship Torpedo Defense*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	93.346	88.649	31.602	-	31.602
Current President's Budget	83.711	85.649	52.781	-	52.781
Total Adjustments	-9.635	-3.000	21.179	-	21.179
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.843	-			
• Program Adjustments	-	-	25.900	-	25.900
• Rate/Misc Adjustments	-	-	-4.721	-	-4.721
• Congressional General Reductions Adjustments	-7.792	-	-	-	-

Change Summary Explanation

Financial: FY 2013 reductions include sequestration and general reductions. FY 2015 includes increases for the SSTD Rapid Fielding Plan, speed-to-fleet technologies. FY 2015 also includes decrease due to the Department's decision to reduce contracted services and other rate/miscellaneous adjustments.

Technical and Schedule: FY13 reductions and adjustments eliminated 1 of the 2 RO-ROs and delayed the remaining unit to the end of FY14. IOC is FY19. PB14 changed the requirement to deliver 2 EDMs in FY15 to 1 RO-RO and 1 EDM.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603506N / *Surface Ship Torpedo Defense*	Project (Number/Name) 0225 / *Surface Ship Torpedo Defense (SSTD)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0225: *Surface Ship Torpedo Defense (SSTD)*	385.984	83.711	85.649	52.781	-	52.781	30.063	31.854	30.971	30.620	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 layered torpedo defense capability with four efforts; two of which are currently in development. 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 TDCL systems as an ACAT III program.

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 USS GHW BUSH.

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

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Countermeasure Anti-Torpedo (CAT)	45.228	40.530	26.845
Articles:	10.000	10.000	16.000
FY 2013 Accomplishments: Continued work on the ATT subsystem technical data packages. Completed land based testing of EDM-2 ATT and started ATT in-water testing of both the electric and thermal engine variant. Conducted initial ATT subsystem integration testing. Procured materials for hybrid prototype delivery to include AURE and warhead. Completed shipyard and Alteration Installation Team (AIT) installation of Hybrid Prototype System on CVN77. Completed fabrication of subsystems for EDM-2 CATs in support of EDM prototype delivery in FY14. Conducted QRA on CVN-77.			
FY 2014 Plans: Complete shipyard and AIT installation of one RO-RO EDM system on CVN-71. Continue land based and in water testing of EDM-2 ATT thermal engine variant. Build CATs for FY15 EDM systems. Conduct software development and testing for ATT 2v2 capability.			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603506N / *Surface Ship Torpedo Defense*	**Project (Number/Name)** 0225 / *Surface Ship Torpedo Defense (SSTD)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue land based and in-water testing of EDM-2 ATT thermal engine variant. Build CATs for FY15 EDM systems. Conduct follow-on software development and testing for ATT 2v2 capability.			
Title: Torpedo Warning System (TWS)	38.483	45.119	25.936
Articles:	1.000	2.000	2.000
FY 2013 Accomplishments: Completed fire control and CAT ready-stowage racks EDM design and testing. Conducted sea test on sensors and algorithms developed in FY11 and FY12. Completed installation of hybrid prototype system on CVN-77. Conducted first end-to-end integration test of TWS/CAT.			
FY 2014 Plans: Conduct Land-Based Integration of TWS prototype EDM system fabricated in FY13. Install one RO-RO EDM system on CVN-71 and commence fabrication of one RO-RO and one EDM system for install in FY15. Develop TWS active source software and hardware. Conduct initial active source testing.			
FY 2015 Plans: Buy 2 EDM systems to install in FY16 and install 2 systems from FY14. Continue land based and in-water integration testing of TWS and CAT. Follow-on TWS active source software and hardware development and testing. Conduct software development for TWS 2v2 capability.			
Accomplishments/Planned Programs Subtotals	83.711	85.649	52.781

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/221300: *SSTD*	9.870	-	12.051	-	12.051	22.163	24.622	33.153	44.916	Continuing	Continuing
• WPN/311300: *SSTD*	2.479	3.978	6.562	-	6.562	22.767	24.524	26.729	36.506	Continuing	Continuing

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 40 total EDM-2 CATS in support of the prototype fielding. Integration testing began in FY13 and will continue through delivery of the prototype CATs. A complete Technical Data Package (TDP) will be prepared. Program will enter Milestone C decision in late FY16 and 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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603506N / *Surface Ship Torpedo Defense*	**Project (Number/Name)** 0225 / *Surface Ship Torpedo Defense (SSTD)*

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 were 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 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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603506N / *Surface Ship Torpedo Defense*	**Project (Number/Name)** 0225 / *Surface Ship Torpedo Defense (SSTD)*

Surface Ship Torpedo Defense
Planning Schedule

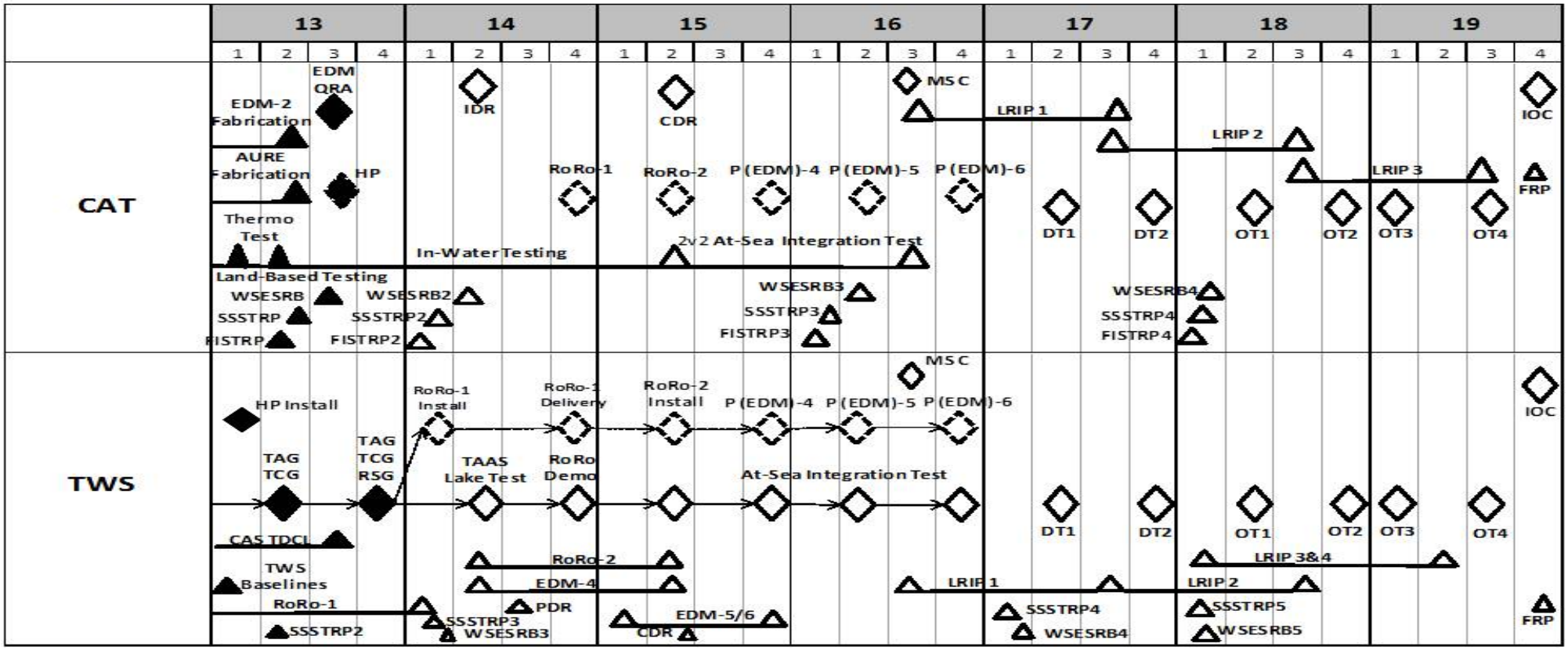


Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603512N *I Carrier Systems Development*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	1,581.491	97.668	80.899	5.959	-	5.959	6.368	5.570	5.566	5.702	Continuing	Continuing
2208: *CVN 21*	944.927	32.506	31.635	-	-	-	-	-	-	-	-	1,009.068
3216.: *Tactical Support Center-Integration*	16.398	8.521	4.546	4.185	-	4.185	4.139	4.304	4.288	4.385	Continuing	Continuing
4004: *EMALS*	602.647	55.067	43.003	-	-	-	-	-	-	-	-	700.717
4005: *In-Service Carrier Systems Development*	17.519	1.574	1.715	1.774	-	1.774	2.229	1.266	1.278	1.317	Continuing	Continuing
MDAP/MAIS Code: **Other MDAP/MAIS Code(s):** 223												

The FY 2015 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. Funding for this project continues in PE 0604112N in FY 15 and later.

- (3216) - The AN/SQQ-34 Aircraft Carrier Tactical Support Center (CV-TSC) contributes to Aircraft Carrier (CVN) self defense capabilities. The system provides shipboard support of multi-mission aircraft operating organic to the CVN or under control of the Carrier Strike Group (CSG), providing primary mission support for Anti-Submarine Warfare (ASW) and Surface Warfare (SUW). The AN/SQQ-34 also provides auxiliary support for secondary missions such as search and rescue. The system provides the capability to collect, process, analyze, display, and distribute sensor and tactical data in support of detection, classification, and localization of targets. The AN/SQQ-34 is incrementally upgraded to support new air platforms and their sensors, centrally integrate ASW capabilities on the CVN, transition maturing technologies, and maintain interoperability with interfacing systems. The system provides support for both rotary wing aircraft (SH-60F, MH-60R) and future support for fixed wing aircraft operating within the CSG (P-8, BAMS).

- (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. Funding for this project continues in PE 0604112N in FY 15 and later.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603512N *I 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).

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	108.871	83.902	49.195	-	49.195
Current President's Budget	97.668	80.899	5.959	-	5.959
Total Adjustments	-11.203	-3.003	-43.236	-	-43.236
• Congressional General Reductions	-	-0.003			
• Congressional Directed Reductions	-	-3.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.130	-			
• Program Adjustments	-	-	-42.985	-	-42.985
• Rate/Misc Adjustments	0.001	-	-0.251	-	-0.251
• Congressional General Reductions Adjustments	-9.074	-	-	-	-

Change Summary Explanation

Cost: FY13 funding reduced to comply with sequestration reductions. FY15 decrease due to transfer of Project Units 2208 and 4004 funding to new Program Element 0604112N. FY 15 funding reduced due to eliminating classified effort.

Schedule:
Project 3216: AN/SQQ-34C(V)2 Software version 8.0 development delayed 3 quarters due to FY13 sequestration

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603512N / *Carrier Systems Development*				Project (Number/Name) 2208 / *CVN 21*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2208: *CVN 21*	944.927	32.506	31.635	-	-	-	-	-	-	-	-	1,009.068
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: 223

The FY 2015 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). Funding for this project continues in PE 0604112N in FY 15 and later.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: CVN 78 Class Advanced Technology Design & Development	26.763	21.330	-
Articles:	-	-	-

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 2013 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 (EMALS) into the ship. Continued existing studies and commenced new studies required for integrated warfare system and C4I design, integration, test and validation efforts. Developed and reviewed Pre-Planned Product Improvement (P3I) Technical Data Packages. Continued engineering and technical support of aircraft launch and recovery systems. Developed ship integration side studies to support NAVSEA documented class baseline changes. Continued

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 2208 / *CVN 21*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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) 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 EMALS 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 2015 Plans:*** N/A			
Title: CVN 21 - Test & Evaluation (T&E)	5.743	10.305	-
Articles:	-	-	-
Description: - CVN 21 - Test & Evaluation (T&E) ***FY 2013 Accomplishments:*** Completed development of the TEMP 1610, Rev C and route for signature. Continued conducting the semi-annual Post Delivery Tests and Trials (PDT&T) workshops to facilitate the exchange of information, the identification of areas of potential schedule/ resource conflicts and the update / maintenance of the notional PDT&T schedule. Stood up the Developmental Test Working Group (DTWG), which initially focused on identifying appropriate DT metrics and reported on the status of the DT contributions toward satisfying the Measures of Effectiveness (MoEs) and Measures of Suitability (MoSs). Completed Developmental Test / Integrated Test Phase 1 (DT/IT-1), which includes completing Operational Test Phase B3 (OT-B3) and producing the OT-B3 Report. Commenced DT/IT-2, which included: (1) completing PEO C4I TIF testing; and Sortie Generation Rate Assessment (SGRA) 12; (2) conducting the Aqueous Film Forming Foam (AFFF) land-based system performance test; and Aircraft Fueling Station (AFS) land-based testing; (3) continuing NAVAIR Production Integration Facility (PIF) testing; HII-NNS Production Integration Center (PIC) testing; Electromagnetic Environmental Effects (E3) testing and spiral development of the VCVN Model; and (4) commencing Dual Band Radar (DBR) land-based testing; DBR to TPX-42 land-based integration testing; SGRA 13; and Information Assurance (IA) testing on Contractor-Furnished Equipment (CFE) during PIC testing. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 2208 / *CVN 21*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue conducting the semi-annual PDT&T workshops and updating / maintaining the notional PDT&T schedule. Continue the DTWG efforts, focusing on the continued development / refinement of the DTDB and the collection / analysis of the DT metrics. Stand-up the CVN 78 Integrated Test Team (CITT), which will be co-chaired by the Program Office and Commander, Operational Test & Evaluation (COMOPTEVFOR). Complete DT/IT-2 and commence DT/IT-3, which includes: (1) completing SGRA 13; the analysis / report on the AFFF land-based system performance test; the analysis / report on the AFS land-based testing; and NAVAIR PIF testing; (2) conducting Combat System Test (CST) Phase 1; and Navigation Integration Testing; and (3) continuing DBR land-based testing; DBR to TPX-42 land-based integration testing; HII-NNS PIC testing; IA testing on CFE during PIC testing; E3 testing; and spiral development of the VCVN Model. ***FY 2015 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	32.506	31.635	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN / 0604567N: *Project Units 3179, 4007*	12.197	15.572	18.867	-	18.867	19.830	21.440	18.682	19.108	Continuing	Continuing
• RDTEN / 0603570N: *Propulsion Plant Development (PU 2692)*	58.193	57.499	60.459	-	60.459	-	-	-	-	-	1,526.813
• SCN / 2001: *Carrier Replacement Program*	490.960	917.553	1,300.000	-	1,300.000	2,876.183	2,290.837	2,849.342	1,864.514	Continuing	Continuing
• SCN / 5300: *Completion of Prior Year Shipbuilding Programs*	-	588.100	663.000	-	663.000	124.000	-	-	-	-	1,375.100
• RDTEN / 0604112N: *Project Units 2208, 4004*	-	-	43.613	-	43.613	38.373	35.662	34.156	25.650	-	177.454
• OMN / 1B2B: *CVN 78 Ford Class Training (12BJ0)*	-	-	4.907	-	4.907	12.872	2.396	-	-	-	20.175

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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 2208 / *CVN 21*

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 2208 / *CVN 21*

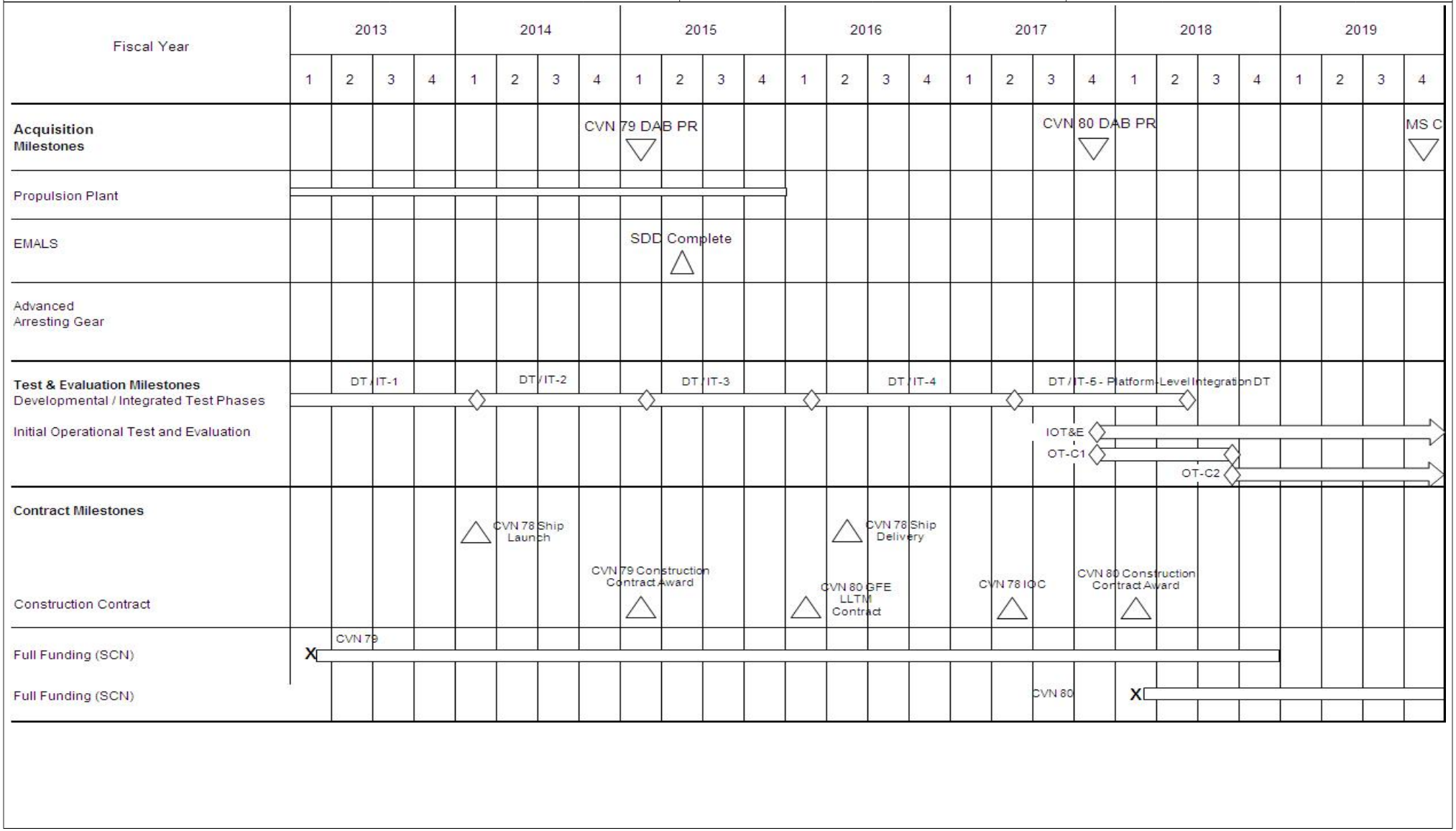


Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / *Carrier Systems Development*	Project (Number/Name) 3216. / *Tactical Support Center-Integration*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3216.: *Tactical Support Center-Integration*	16.398	8.521	4.546	4.185	-	4.185	4.139	4.304	4.288	4.385	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The AN/SQQ-34 Aircraft Carrier Tactical Support Center (CV-TSC) contributes to Aircraft Carrier (CVN) self defense capabilities. The system provides shipboard support of multi-mission aircraft operating organic to the CVN or under control of the Carrier Strike Group (CSG), providing primary mission support for Anti-Submarine Warfare (ASW) and Surface Warfare (SUW). The AN/SQQ-34 also provides auxiliary support for secondary missions such as search and rescue. The system provides the capability to collect, process, analyze, display, and distribute sensor and tactical data in support of detection, classification, and localization of targets. The AN/SQQ-34 is incrementally upgraded to support new air platforms and their sensors, centrally integrate ASW capabilities on the CVN, transition maturing technologies, and maintain interoperability with interfacing systems. The system provides support for both rotary wing aircraft (SH-60F, MH-60R) and future support for fixed wing aircraft operating within the CSG (P-8, BAMS).

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 the 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 2013	FY 2014	FY 2015
Title: MH-60R Integration Development for CV-TSC	6.726	3.570	4.185
Articles:	-	-	-
FY 2013 Accomplishments: - Initiated development efforts on software version 8.0. Software version 8.0 is the baseline being developed to support CVN-78, which includes a new combat system architecture. Efforts included requirements specification revisions, architecture requirements revisions, and early developmental software builds modifying infrastructure to support the CVN-78 combat system. Software version 8.0 will include acoustic signal processing and analysis improvements, sensor performance predictions and mission			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 3216. / *Tactical Support Center-Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
planning support for the MH-60R acoustic sensor suite, embedded training for shipboard operators, and interoperability changes to support the Ship-Self Defense System (SSDS) and Common Data Link (CDL). - Conducted incremental technical reviews. - Completed Technology Transition Agreement (TTA) between the Office of Naval Research (ONR), OPNAV N980C, and PEO IWS 5 for low cost planar arrays to support multiple MH-60R datalinks through installation of a CV-TSC system at the Navy Surface Aviation and Interoperability Laboratory (SAIL). ***FY 2014 Plans:*** - Continue development of software version 8.0 to include: acoustic signal processing and analysis improvements, sensor performance predictions and mission planning support for the MH-60R acoustic sensor suite, embedded training for shipboard operators, and interoperability changes to support the SSDS and CDL. Focus will be on transition and integration efforts associated with existing acoustic signal processing capabilities modified for CV-TSC supported sensors, and maturing science and technology efforts associated with data analysis automation/fusion and embedded training products. - Conduct incremental requirements, design, and test reviews. - Continue incremental software development engineering releases to support initial Combat System Test events for CVN-78 in 1Q15. Final builds will be completed in FY15. ***FY 2015 Plans:*** - Complete development of software version 8.0. - Conduct final incremental requirements, design, and test reviews. - Deliver final software version to Combat System Test facility to support certification events in 2Q-4Q15. - Begin initial system engineering efforts on software version 9.0.			
Title: Phased Array COMSEC	1.795	0.976	-
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. ***FY 2013 Accomplishments:*** - 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.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 3216. / *Tactical Support Center-Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- Initiate and complete testing and certification activities associated with COMSEC end units. ***FY 2015 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	8.521	4.546	4.185

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/2176: *Undersea Support Equipment (CV-TSC/CDL portion)*	7.590	0.342	0.299	-	0.299	0.338	0.347	0.352	0.357	Continuing	Continuing

Remarks

D. Acquisition Strategy

CV-TSC 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 to 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

- Achieve Configuration Control Board (CCB) certification for installation of CV-TSC software version 8.0.
- Achieve Platform Information Technology (PIT) Information Assurance (IA) accreditation on CV-TSC software version 8.0.
- Achieve Consolidate Afloat Network Enterprise System (CANES) interoperability certification for CV-TSC software version 8.0.
- Achieve element certification on CV-TSC software version 8.0.
- Achieve Combat System test certification on CV-TSC software version 8.0.

Successfully complete Certification requirements for COMSEC being developed.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 3216. / *Tactical Support Center-Integration*

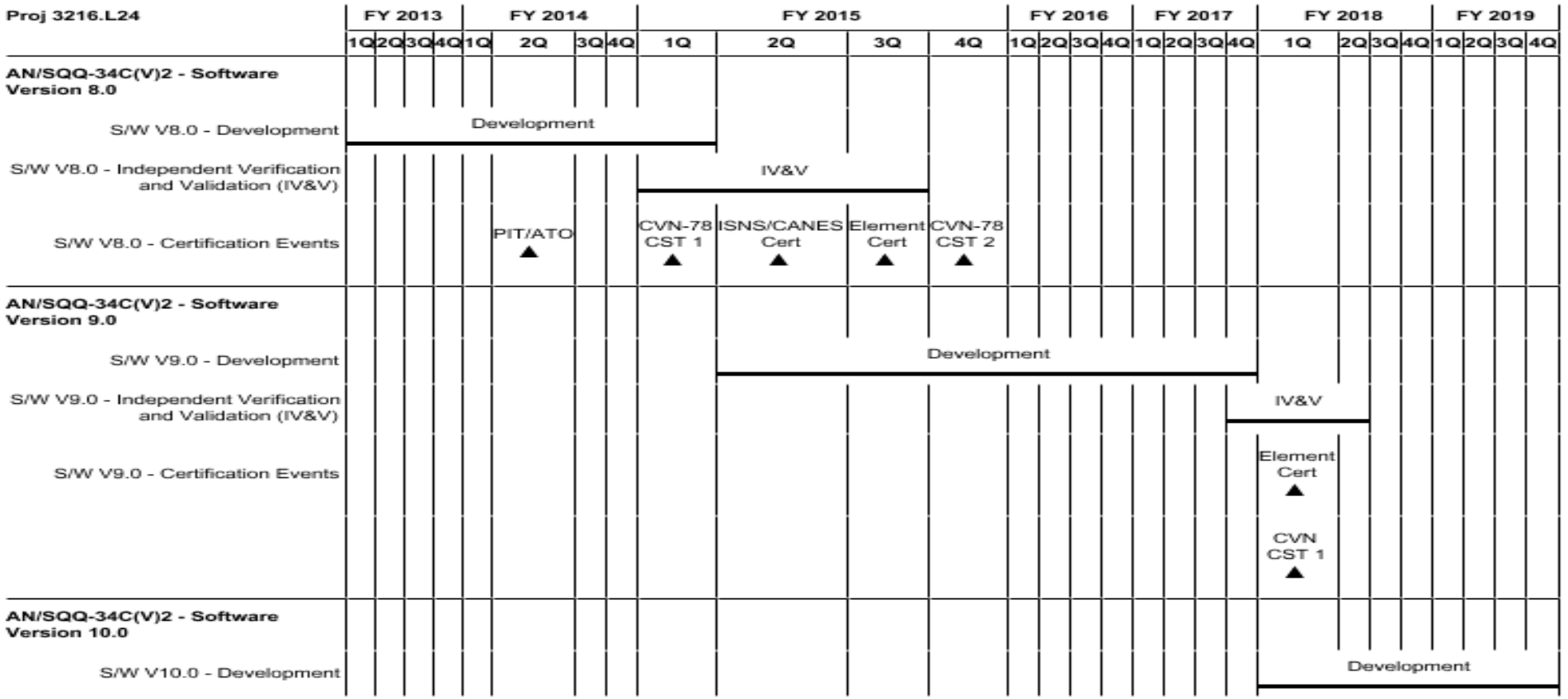


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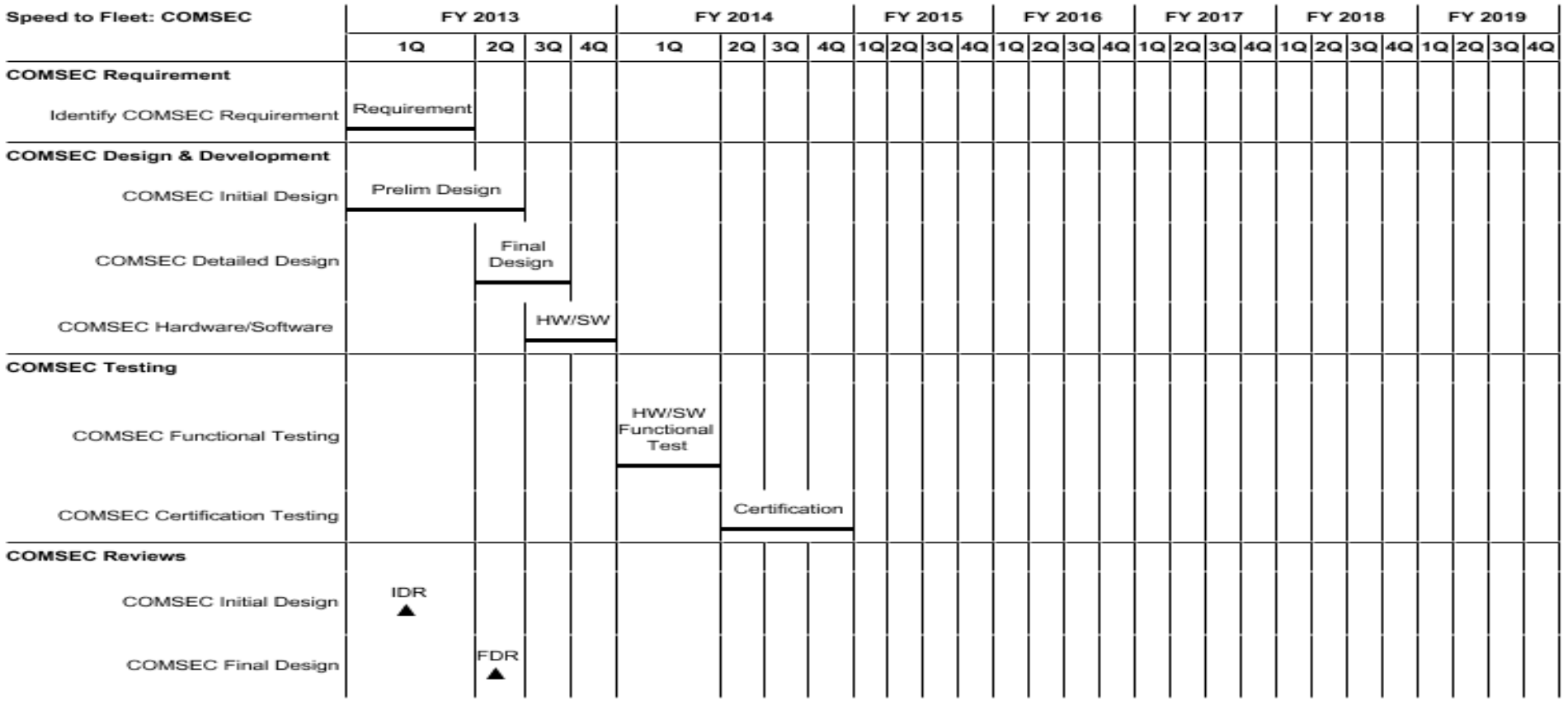
Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 3216. / *Tactical Support Center-Integration*



2015PB - 0603512N - 3216.S14

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / *Carrier Systems Development*	Project (Number/Name) 4004 / *EMALS*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
4004: *EMALS*	602.647	55.067	43.003	-	-	-	-	-	-	-	-	700.717
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: 223

The FY 2015 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. Funding for this project continues in PE 0604112N in FY 15 and later.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: EMALS	55.067	43.003	-
Articles:	-	-	-

Description: EMALS

FY 2013 Accomplishments:

(1) EMALS System Design and Development (SDD) - Completed Shared Energy Storage Subsystem (ESS) Testing, Shared Inverter Testing and initiated Aircraft Compatibility Testing (ACT) Phase 2 at the System Functional Demonstration (SFD) site. The shared ESS Test included no-load and deadload launches with multiple ESS motor generators feeding multiple launchers representative of the shipboard configuration. The shared inverter testing executed 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. ACT 2 includes >300 aircraft launches at the SFD site for requirements verification and the development of the aircraft launch bulletins for shipboard operations. ACT 2 will complete Qtr 2 FY14. Continued Environmental Qualification Testing of EMALS components, including the completion of several General Environment Tests and Electromagnetic Interference Susceptibility Tests.

(2) EMALS Basic Ordering Agreement (BOA) ILS Order - Continued the execution of the EMALS ILS Development Program. Conducted annual logistics reviews, training in process reviews (IPRs) and Organizational and Intermediate (O & I) Technical Manual (TM) IPRs. Developed / updated Failure Mode Effectiveness and Criticality Analyses (FMECAs), 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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 4004 / *EMALS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. Continued to develop and complete O&I Level Interactive Electronic Technical Manuals for both the operators and maintainers. Initiated development of training documents and the Navy Formal Training Course. Initiated development of the Maintenance Demonstration (M-Demo) Plan, Shipboard Facility Requirements Document (FRD) and the Training FRD. ***FY 2014 Plans:*** (1) EMALS SDD - Complete ACT 2. Conduct full system and risk mitigation testing at the SFD site by completing repeated cycles with deadload testing. Run multiple cycles with deadloads to bring the EMALS system up to 4000 total deadload and aircraft launches as part of the reliability growth program. Maintain and replenish test spares for the Lakehurst, NJ test site. (2) EMALS BOA ILS Order - Continue the execution of the EMALS ILS Development Program. Conduct annual logistics reviews, training IPR and O & I Level TM IPRs. Based on the development and availability of engineering source data for each of the six EMALS subsystems and allocated resources, develop / update FMECAs, the 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. Develop the Shipboard FRD and the Training FRD. ***FY 2015 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	55.067	43.003	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN / 0604567N: *Project Units 3179, 4007*	12.197	15.572	18.867	-	18.867	19.830	21.440	18.682	19.108	Continuing	Continuing
• RDTEN / 0603570N: *Propulsion Plant Development (PU 2692)*	58.193	57.499	60.459	-	60.459	-	-	-	-	-	1,526.813
• SCN / 2001: *Carrier Replacement Program*	490.960	917.553	1,300.000	-	1,300.000	2,876.183	2,290.837	2,849.342	1,864.514	Continuing	Continuing
• SCN / 5300: *Completion of Prior Year Shipbuilding Programs*	-	588.100	663.000	-	663.000	124.000	-	-	-	-	1,375.100

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 4004 / *EMALS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN / 0604112N: *Project Units 2208, 4004*	-	-	43.613	-	43.613	38.373	35.662	34.156	25.650	Continuing	Continuing
• OMN / 1B2B: *CVN 78 Ford Class Training (12BJ0)*	-	-	4.907	-	4.907	12.872	2.396	-	-	-	20.175

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 4004 / *EMALS*

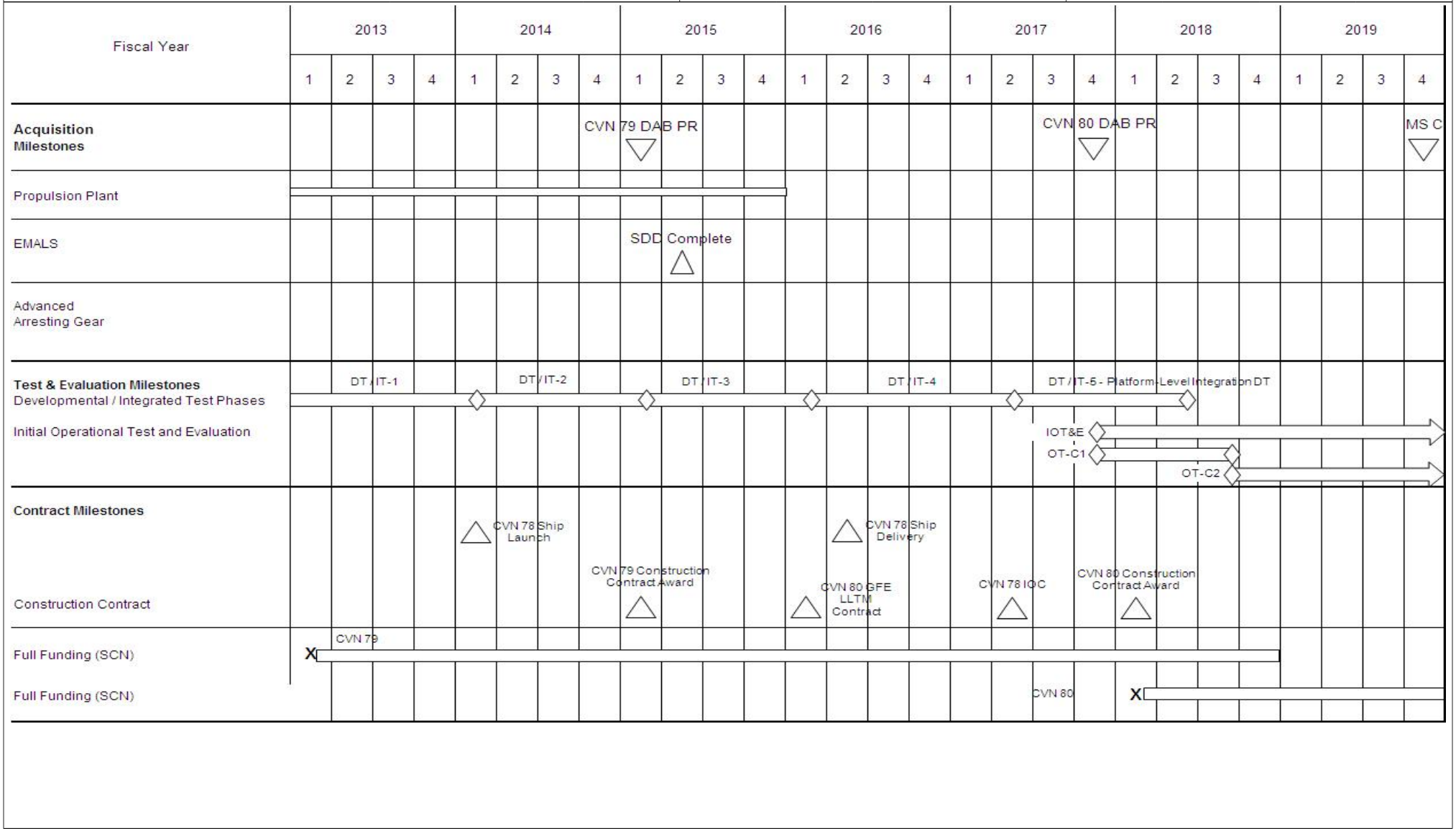


Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603512N / *Carrier Systems Development*	Project (Number/Name) 4005 / *In-Service Carrier Systems Development*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
4005: *In-Service Carrier Systems Development*	17.519	1.574	1.715	1.774	-	1.774	2.229	1.266	1.278	1.317	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: In-Service Carrier Systems Development	1.574	1.715	1.774
Articles:	-	-	-
FY 2013 Accomplishments: Continued support of 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.			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 4005 / *In-Service Carrier Systems Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Fiscal Year 2015 plans include support to Aircraft Carrier technologies. Modifications, upgrades and development of systems and software will be ongoing in support of In-Service aircraft carrier modernization initiatives and TOC reduction initiatives.			
Accomplishments/Planned Programs Subtotals	1.574	1.715	1.774

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603512N / *Carrier Systems Development*	**Project (Number/Name)** 4005 / *In-Service Carrier Systems Development*

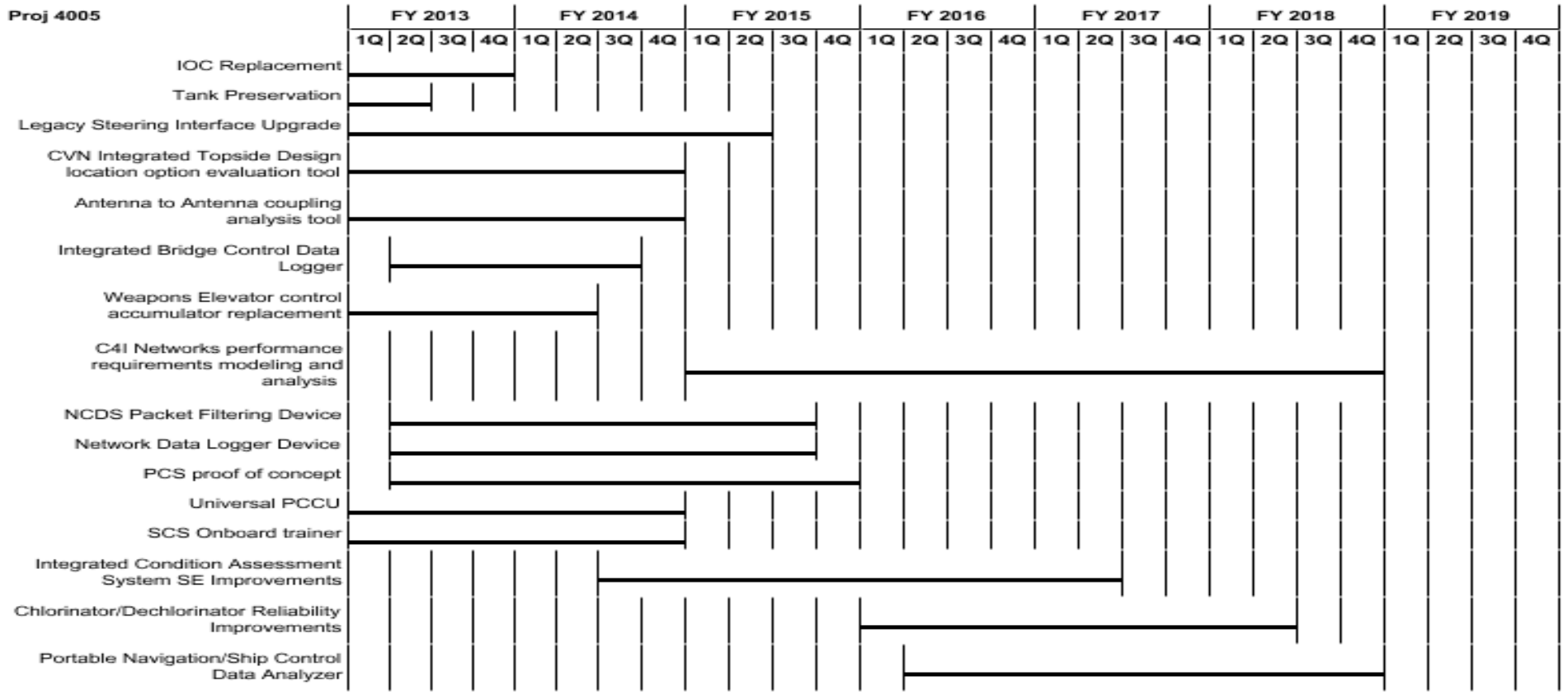


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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603525N *I (U)PILOT FISH*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	0.000	91.528	108.713	148.865	-	148.865	122.396	129.767	118.250	114.605	Continuing	Continuing
0428: *Pilot Fish*	0.000	91.528	108.713	148.865	-	148.865	122.396	129.767	118.250	114.605	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	101.169	108.713	86.264	-	86.264
Current President's Budget	91.528	108.713	148.865	-	148.865
Total Adjustments	-9.641	-	62.601	-	62.601
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.174	-			
• Program Adjustments	-	-	64.200	-	64.200
• Rate/Misc Adjustments	-0.001	-	-1.599	-	-1.599
• Congressional General Reductions Adjustments	-8.466	-	-	-	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603527N *I (U)RETRACT LARCH*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	75.517	9.316	25.365	-	25.365	34.655	28.310	25.229	25.725	Continuing	Continuing
2690: *Retract Larch*	0.000	75.517	9.316	25.365	-	25.365	34.655	28.310	25.229	25.725	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	74.312	9.316	34.368	-	34.368
Current President's Budget	75.517	9.316	25.365	-	25.365
Total Adjustments	1.205	-	-9.003	-	-9.003
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	9.124	-			
• SBIR/STTR Transfer	-1.012	-			
• Rate/Misc Adjustments	0.001	-	-9.003	-	-9.003
• Congressional General Reductions Adjustments	-6.908	-	-	-	-

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603536N *I (U)RETRACT JUNIPER*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	82.694	77.108	80.477	-	80.477	97.752	98.401	98.391	96.873	Continuing	Continuing
4016: *Retract Sycamore*	0.000	82.694	77.108	80.477	-	80.477	97.752	98.401	98.391	96.873	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	90.730	77.108	68.303	-	68.303
Current President's Budget	82.694	77.108	80.477	-	80.477
Total Adjustments	-8.036	-	12.174	-	12.174
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.940	-			
• Program Adjustments	-	-	17.550	-	17.550
• Rate/Misc Adjustments	-	-	-5.376	-	-5.376
• Congressional General Reductions Adjustments	-7.096	-	-	-	-

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603542N *I Radiological Control*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	17.484	0.706	0.762	0.669	-	0.669	0.713	0.729	0.741	0.758	Continuing	Continuing
1830: *RADIAC Development*	17.484	0.706	0.762	0.669	-	0.669	0.713	0.729	0.741	0.758	Continuing	Continuing

The FY 2015 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 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603542N *I Radiological Control*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	0.777	0.762	0.807	-	0.807
Current President's Budget	0.706	0.762	0.669	-	0.669
Total Adjustments	-0.071	-	-0.138	-	-0.138
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.006	-			
• Program Adjustments	-	-	-0.129	-	-0.129
• Rate/Misc Adjustments	-	-	-0.009	-	-0.009
• Congressional General Reductions Adjustments	-0.065	-	-	-	-

Change Summary Explanation

Reduced FY13 funding by $64K for sequestration reductions.

All Projects: Reduced FY15 funding by $129K due to the Department's decision to reduce contracted services.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603542N / *Radiological Control*				Project (Number/Name) 1830 / *RADIAC Development*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
1830: *RADIAC Development*	17.484	0.706	0.762	0.669	-	0.669	0.713	0.729	0.741	0.758	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013**	**FY 2014**	**FY 2015**
Title: Optically Stimulated Luminescence	0.069	-	-
Articles:	-	-	-
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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2013 Accomplishments:*** Research dosimetric properties of OSL material for suitability as a Navy dosimeter. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A			
Title: Radiological Shipboard Defense Monitor ***Articles:*** ***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 2013 Accomplishments:*** Finalize specification development for follow-on procurement. ***FY 2014 Plans:*** Continue working with Navy end users to develop technical specification. ***FY 2015 Plans:*** N/A	0.067 -	0.044 -	- -
Title: Visit, Board, Search & Seizure ***Articles:*** ***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	0.108 4.000	0.049 -	0.104 -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2013 Accomplishments:*** Procure Isotope Identifier articles for evaluation, issue report on testing to date. ***FY 2014 Plans:*** Continue testing of previously purchased units. ***FY 2015 Plans:*** Continue testing of previously purchased units. Purchase additonal articles for further comparison, testing and evaluation.			
Title: Radiological Detection System (RDS) ***Articles:*** ***Description:*** A survey meter for the Naval Nuclear Propulsion Program (NNPP) and other end uses for Navy such as Radiological Defense 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 most requirements, cannot meet military requirements. COTS equipment is evaluated for compliance with technical specifications and for potential hardening for military applications. ***FY 2013 Accomplishments:*** 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. ***FY 2015 Plans:*** Develop and test modernization efforts for the existing IM-265 survey meter to bridge the gap until a new RDS meter can be found.	0.035 -	0.077 -	0.211 -
Title: Naval Academy Midshipman Summer Internship ***Articles:***	0.015 -	0.015 -	0.015 -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2013 Accomplishments:*** Accomplished study assigned by Naval Academy instructor. ***FY 2014 Plans:*** Accomplish study assigned by Naval Academy instructor. ***FY 2015 Plans:*** Accomplish study assigned by Naval Academy instructor.			
Title: Calibrators	0.165	0.067	-
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 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 2013 Accomplishments:*** 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. ***FY 2015 Plans:*** N/A			
Title: Neutron Area Monitor	0.049	-	-
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2013 Accomplishments:*** Issue report with findings and recommendations, and determination of a need for First Articles. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A			
Title: Casualty Dosimeter	0.073	-	-
Articles:	40.000	-	-
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 2013 Accomplishments:*** Issue report on test results, finalize specification for follow-on procurement. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A			
Title: Air Particle Sampler	0.048	-	-
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 2013 Accomplishments:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Issue report on prototype evaluation; finalize specification for follow-on procurement. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A			
Title: Telescoping Rate Meter	0.046	0.054	-
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 Accomplishments:*** Develop specification by collaborating with technical sponsor and collecting end user input. ***FY 2014 Plans:*** Begin follow-on procurement specification development using results from testing and feedback received during product demonstrations. ***FY 2015 Plans:*** N/A			
Title: Portable Liquid Scintillation Counter	-	-	0.054
Articles:	-	-	-
Description: The portable liquid scintillation counter (PLSC) will be used by Navy personnel in situations where potable water may be contaminated with radioactive material. The nuclear reactor accident at Fukushima and the subsequent Navy involvement revealed the need for this type of instrument. Navy personnel will be able to verify the safety of potable water and possibly test personnel for internal contamination. ***FY 2013 Accomplishments:*** N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Perform market research on commercially available units. Discuss with various Navy end users the desired technical specifications and anticipated utilization.			
Title: Neutron Detector	0.031	0.122	-
Articles:	-	3.000	-
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 Accomplishments:*** 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. ***FY 2015 Plans:*** N/A			
Title: Low Rate Survey Meter	-	-	0.050
Articles:	-	-	3.000
Description: The Low Rate Survey Meter is used with a directional probe and as an underwater probe. NNPP uses the device to perform radiation protection surveys prior to putting divers in the water. ***FY 2013 Accomplishments:*** N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** After a market survey purchase three Articles for testing.			
Title: Primary Dosimetry	-	0.075	0.075

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2013 Accomplishments: N/A			
FY 2014 Plans: Initiate testing on new primary dosimetric devices and stay current on the latest dosimetry standards.			
FY 2015 Plans: Continue testing of new primary dosimetric devices and stay current on the latest dosimetry standards.			
Title: Secondary Dosimetry	-	0.159	0.110
Articles:	-	10.000	20.000
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 2013 Accomplishments: N/A			
FY 2014 Plans: Initiate testing on secondary dosimetric devices capable of responding to pulsed X-ray radiation.			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Procure 10 extremity dosimeters at $1,000.00 per unit and 10 lens dosimeters at $1,000.00 per unit. Continue testing of secondary dosimetric devices capable of responding to pulsed X-ray radiation. Initiate testing of extremity and lens secondary dosimetric devices.			
Title: Tritium Monitor	-	0.100	0.050
Articles:	-	6.000	-
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 2013 Accomplishments:*** N/A ***FY 2014 Plans:*** Purchase six COTS examples from multiple vendors. Provide units to end users for field testing and evaluation. ***FY 2015 Plans:*** Gather end user feedback and begin specification development.			
Accomplishments/Planned Programs Subtotals	0.706	0.762	0.669

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN 2920: *RADIAC*	8.083	9.842	10.285	-	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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

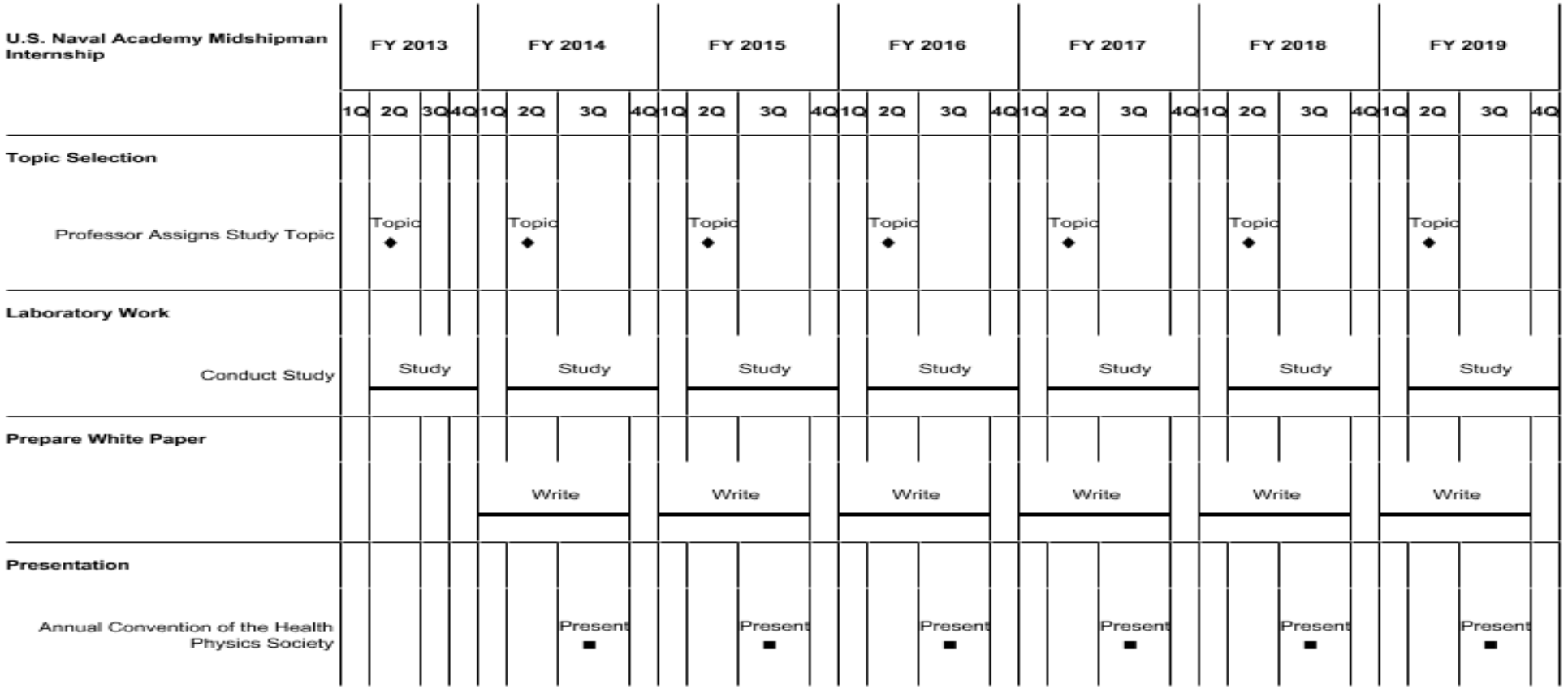

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

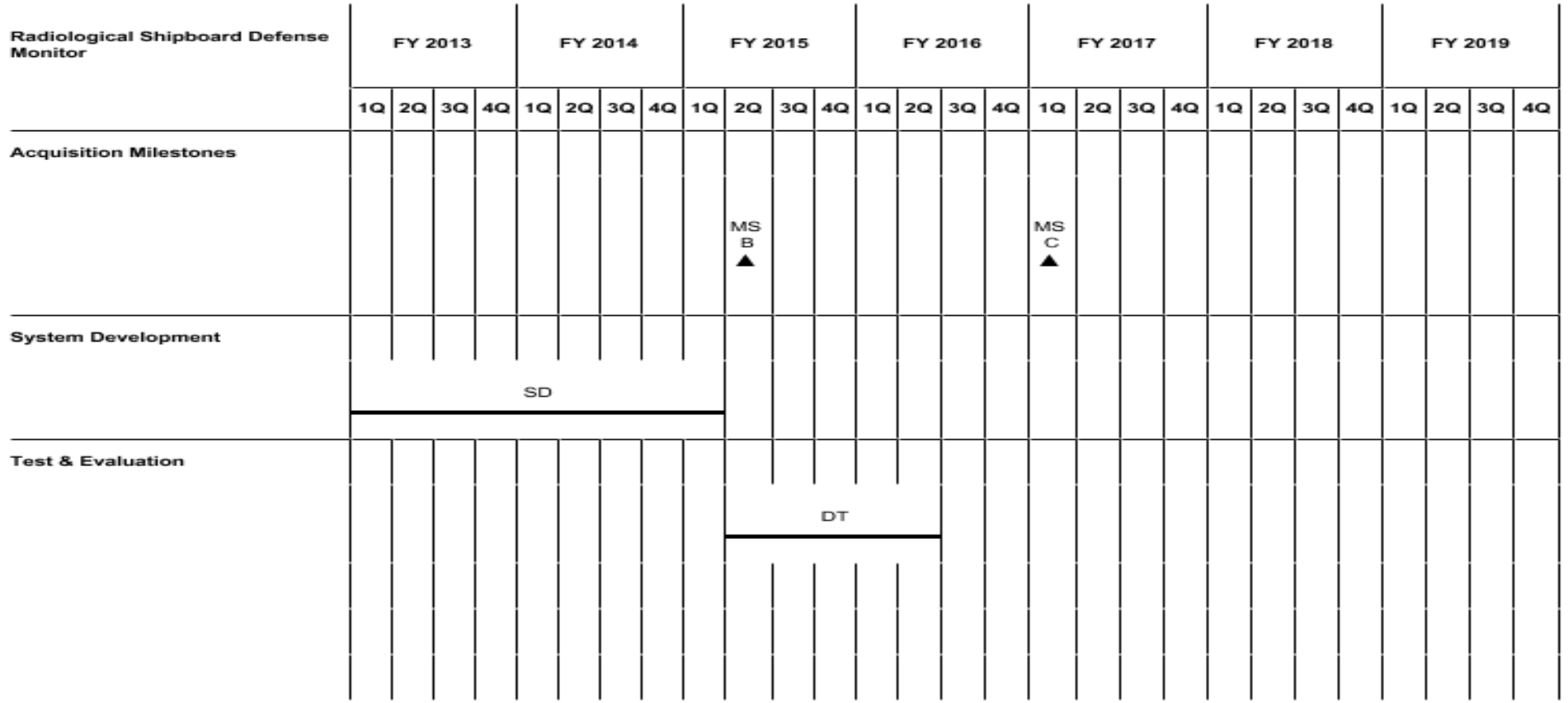

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

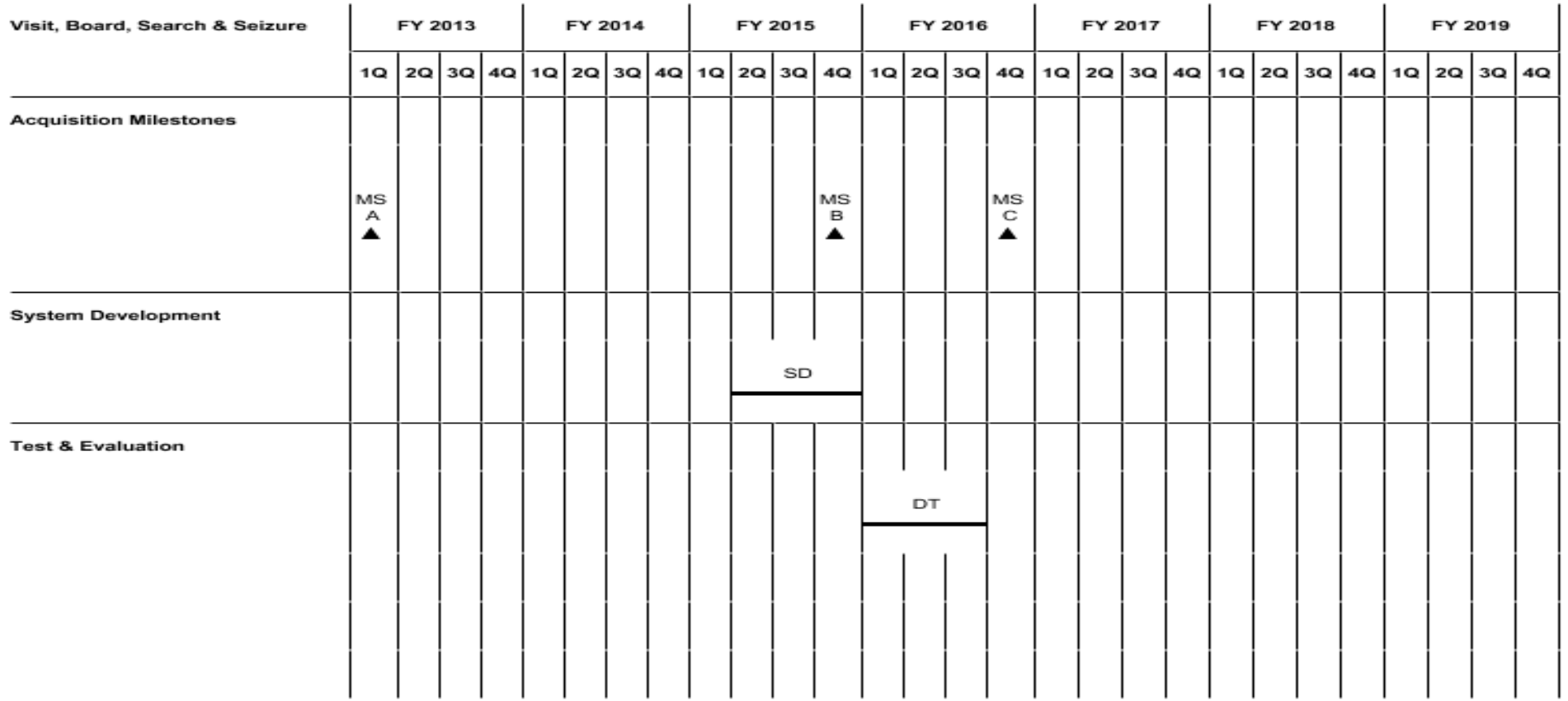

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

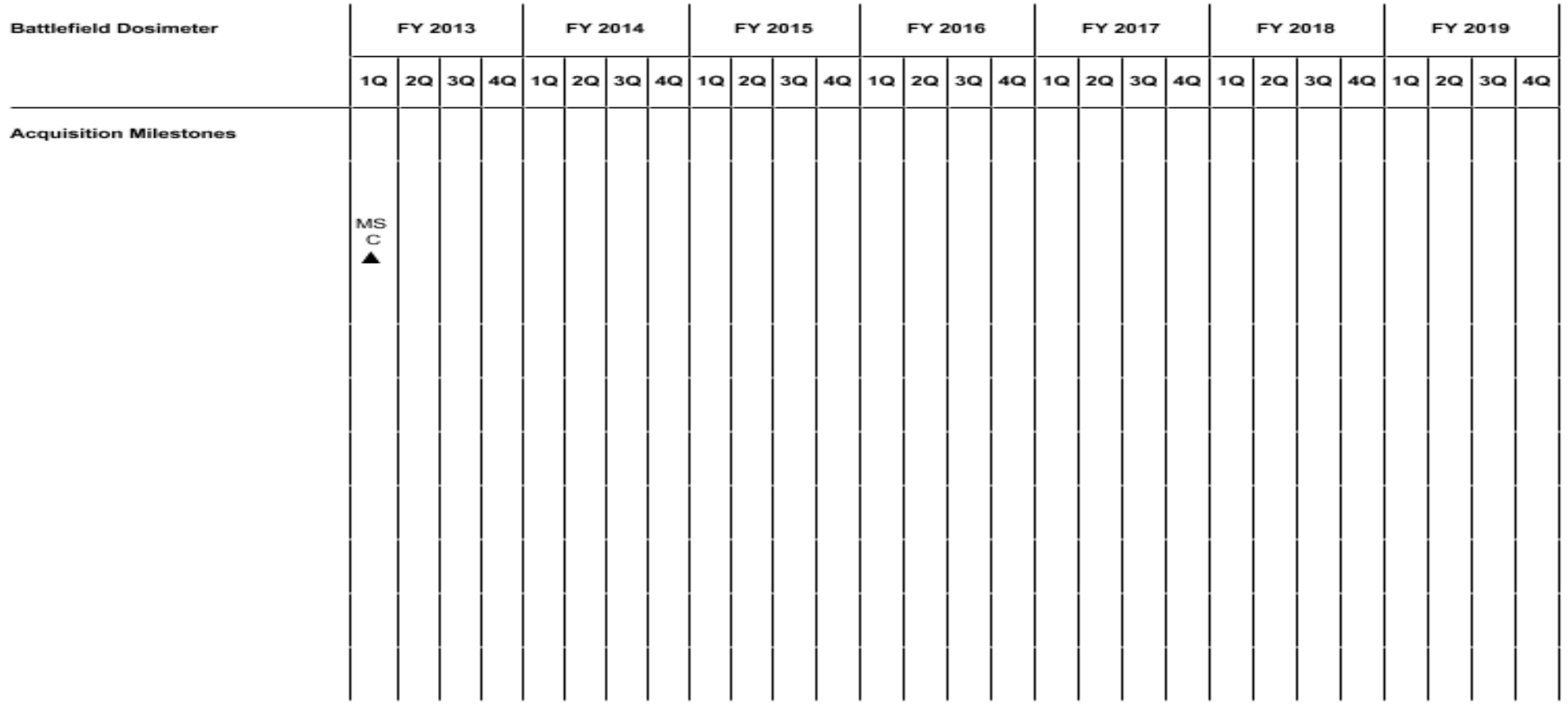

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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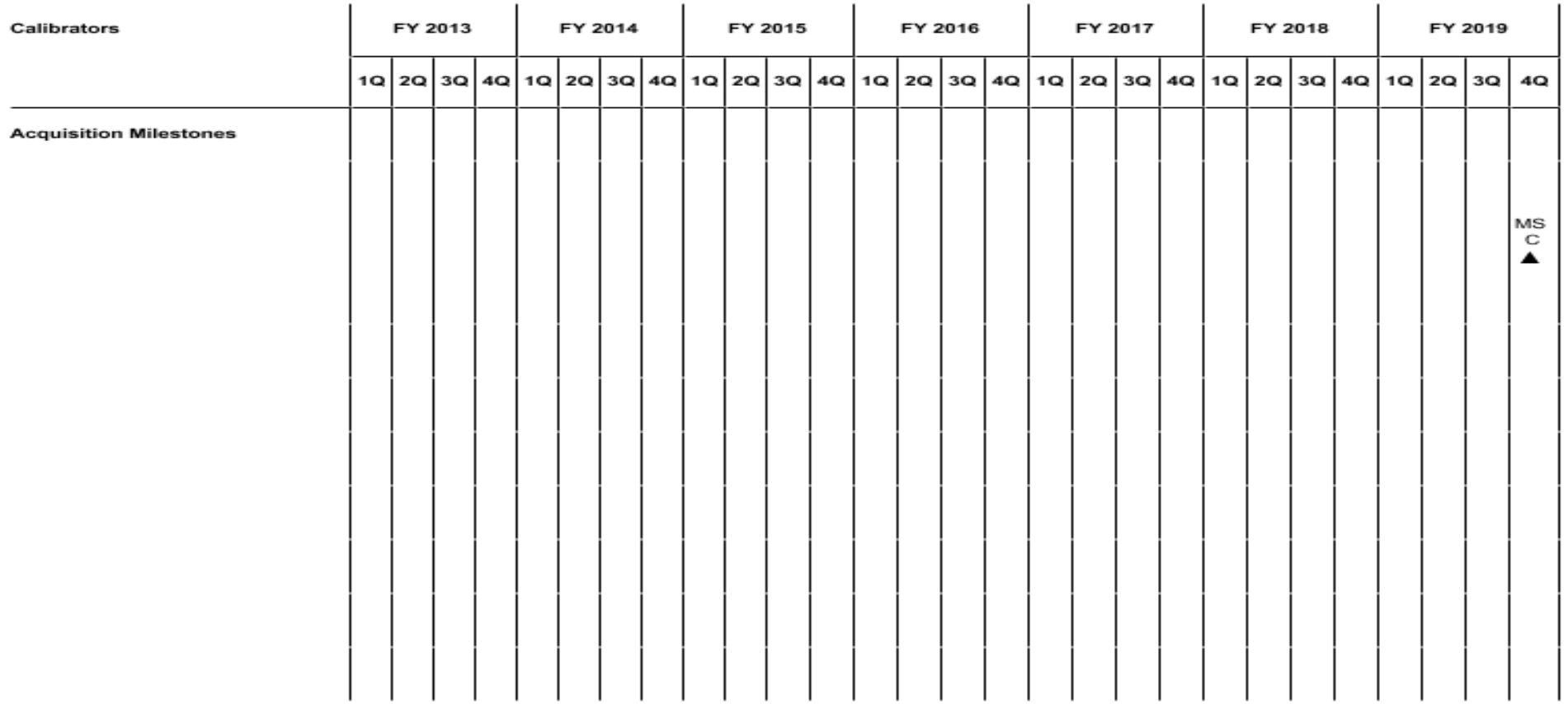

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603542N / *Radiological Control*	**Project (Number/Name)** 1830 / *RADIAC Development*

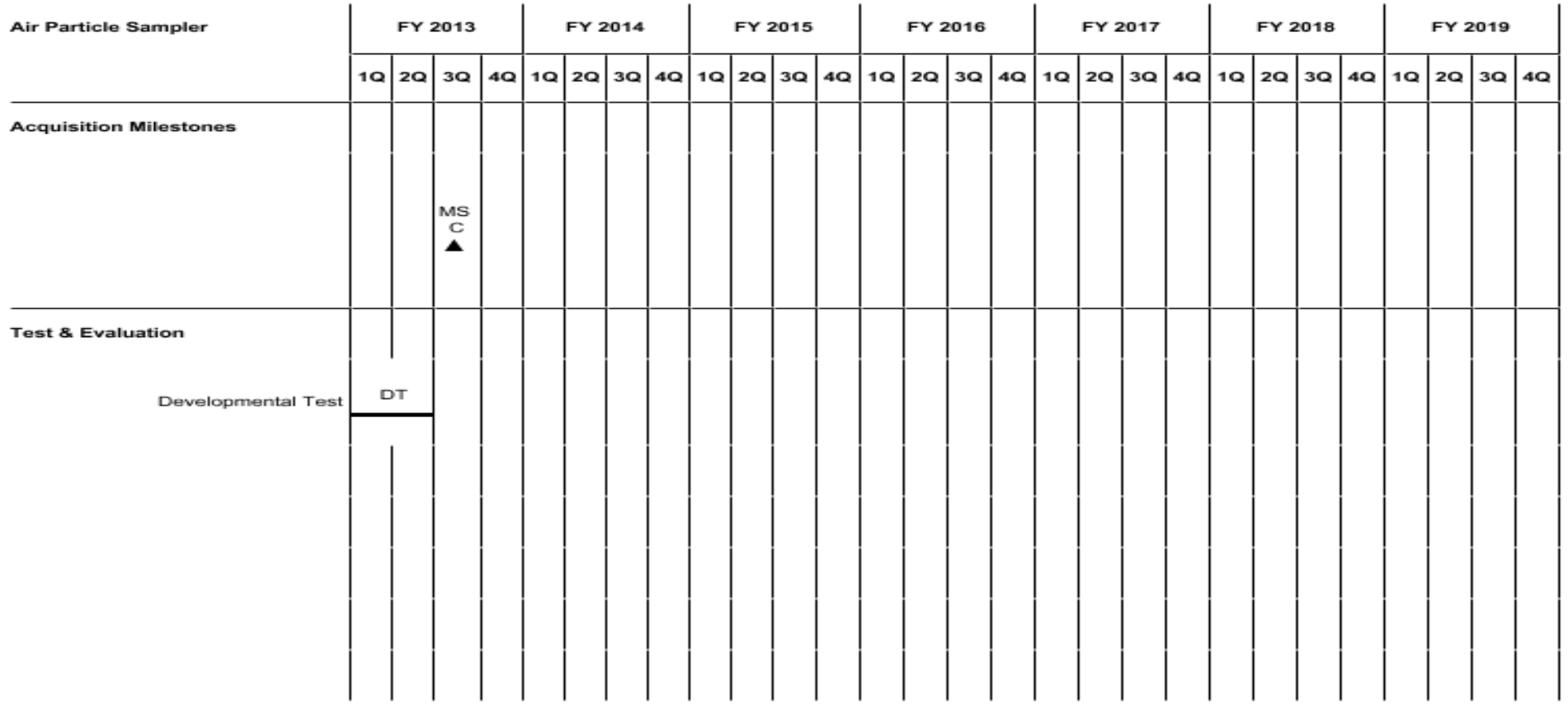

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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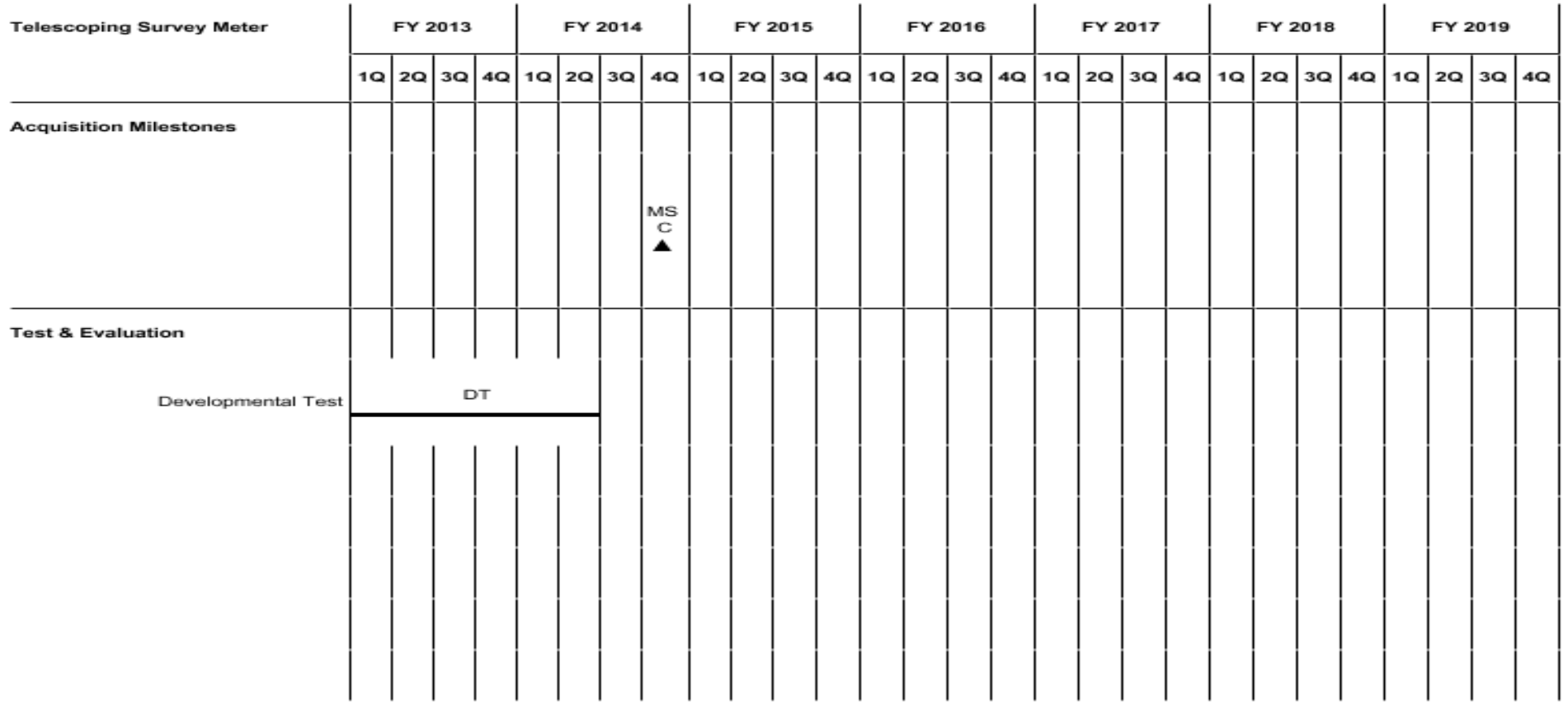

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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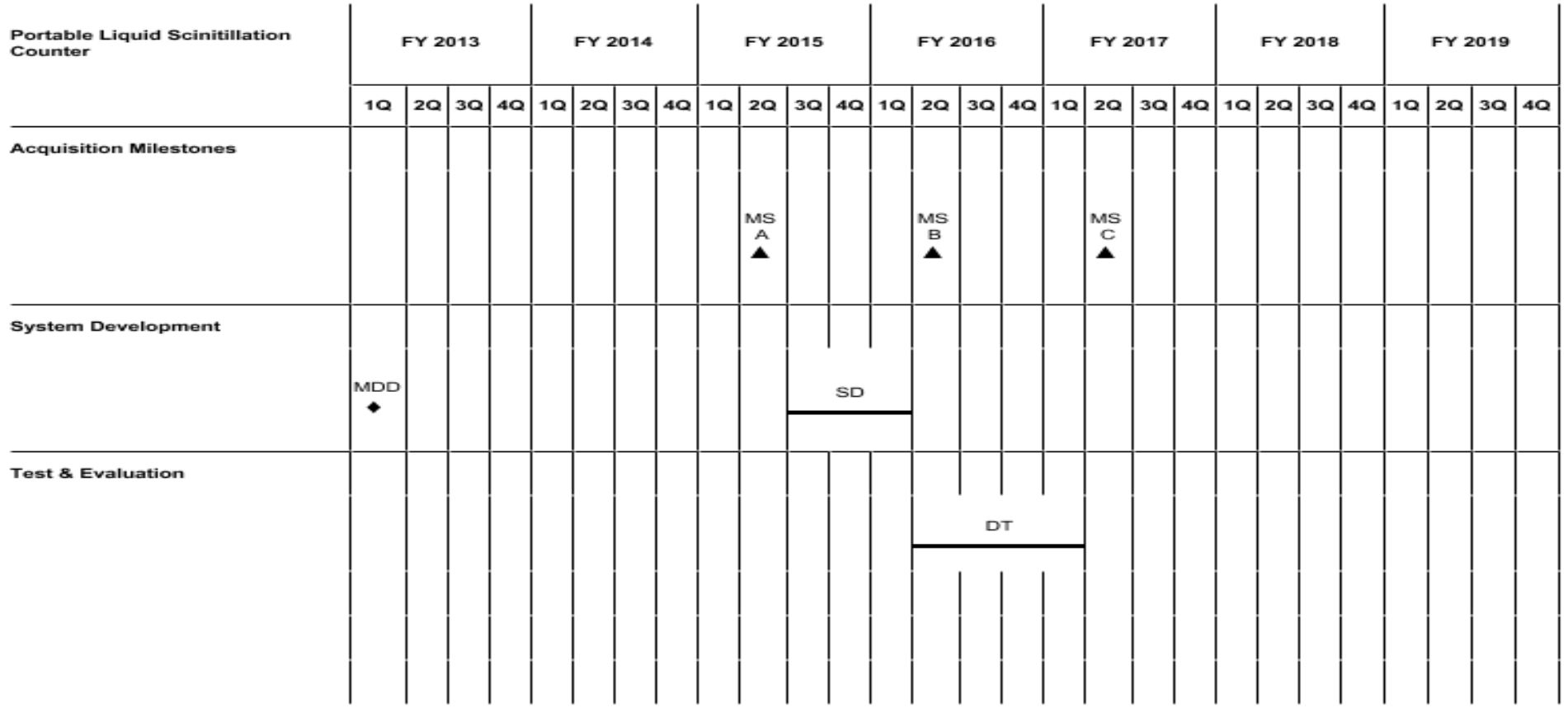

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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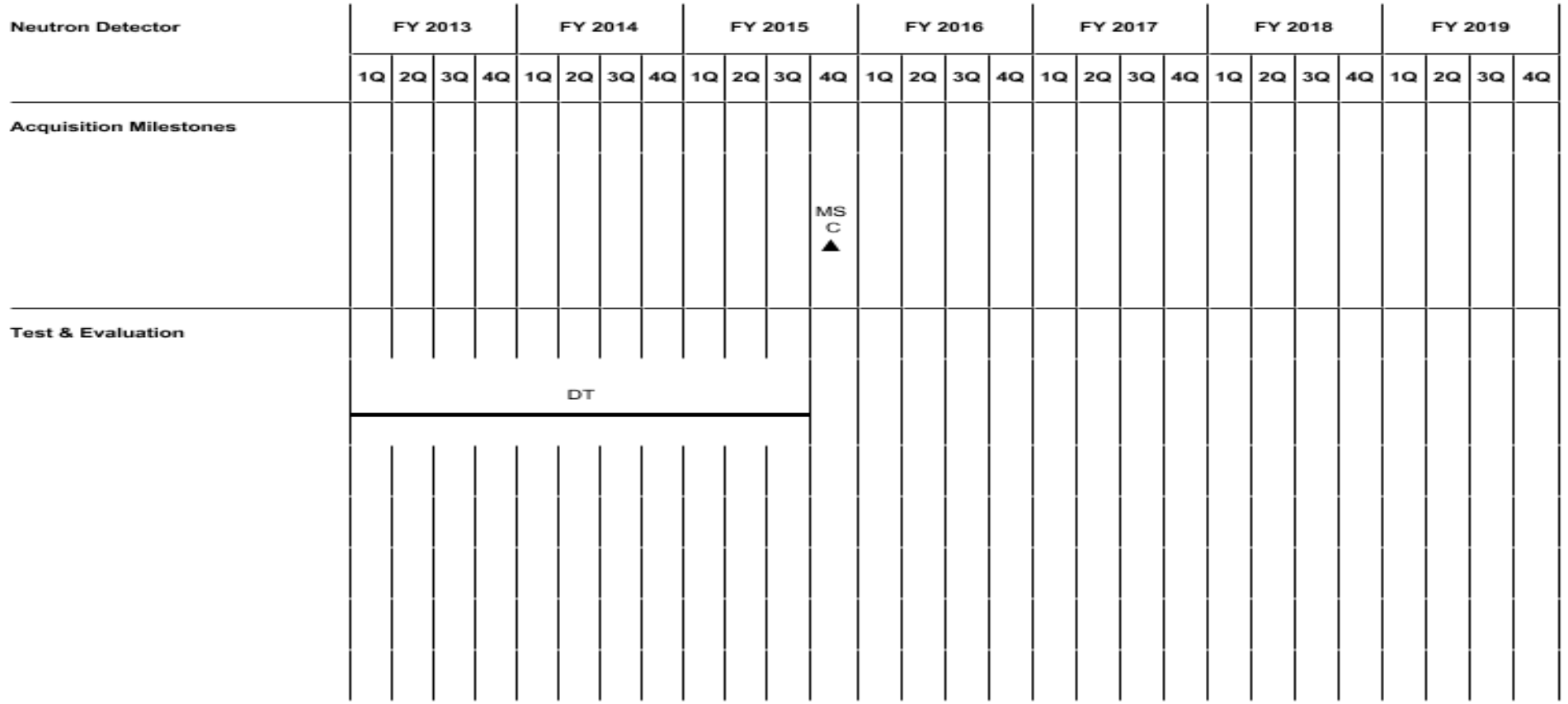

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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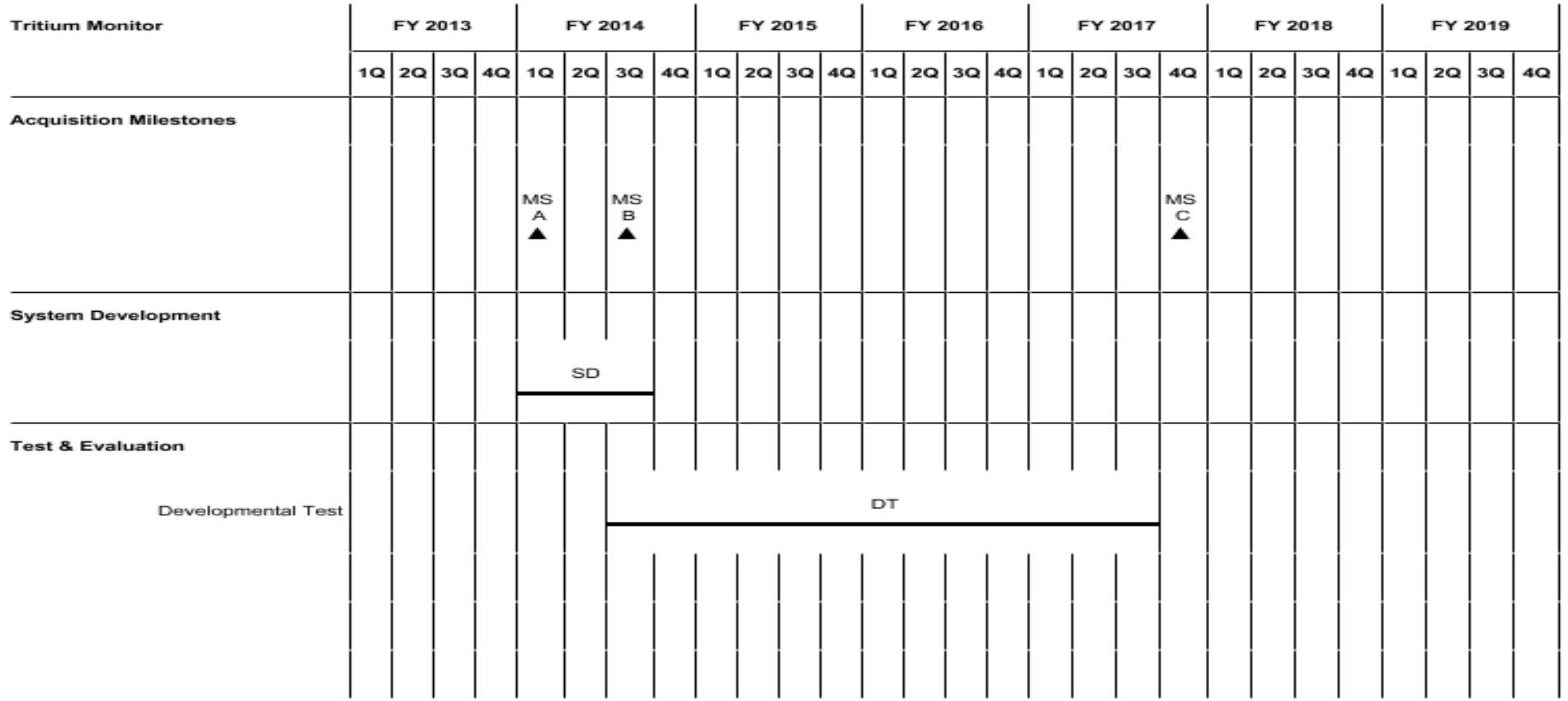

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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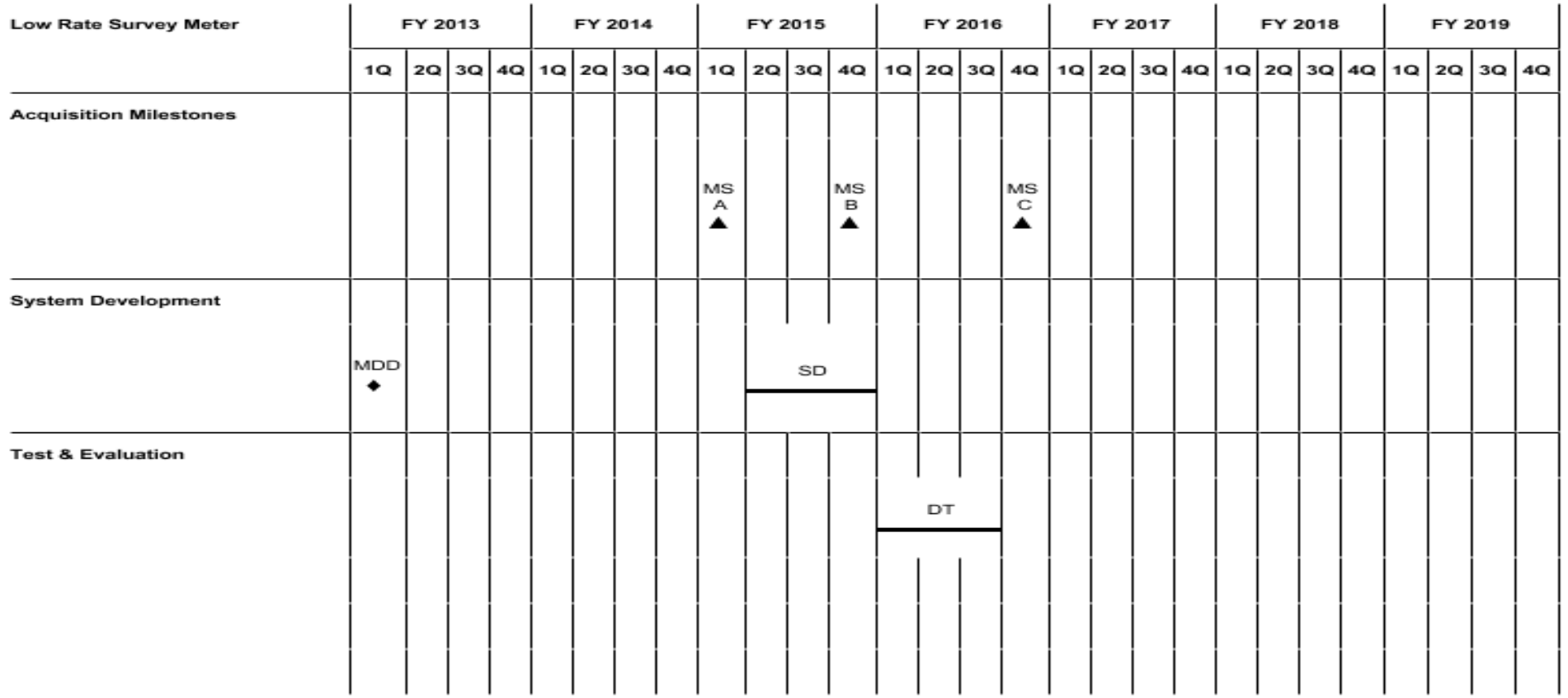

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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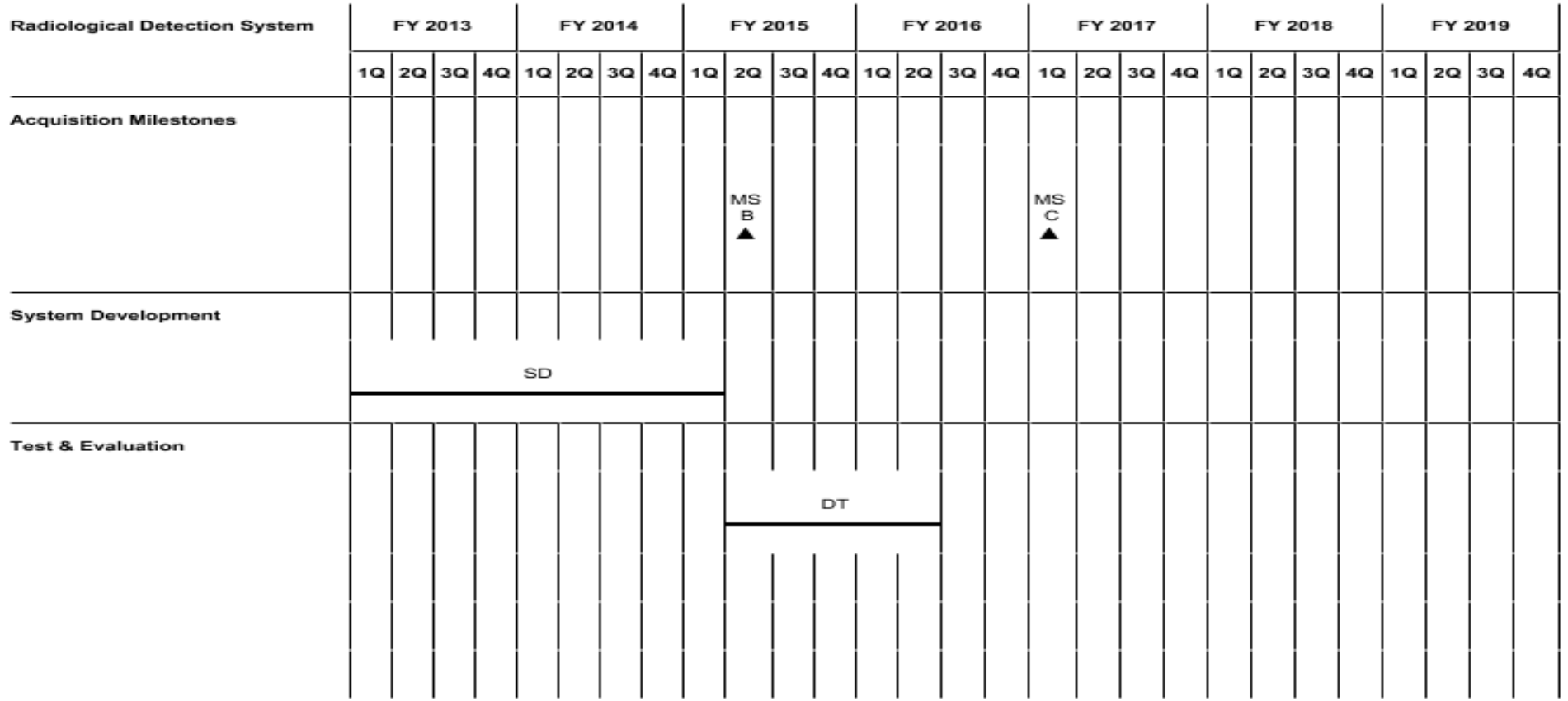

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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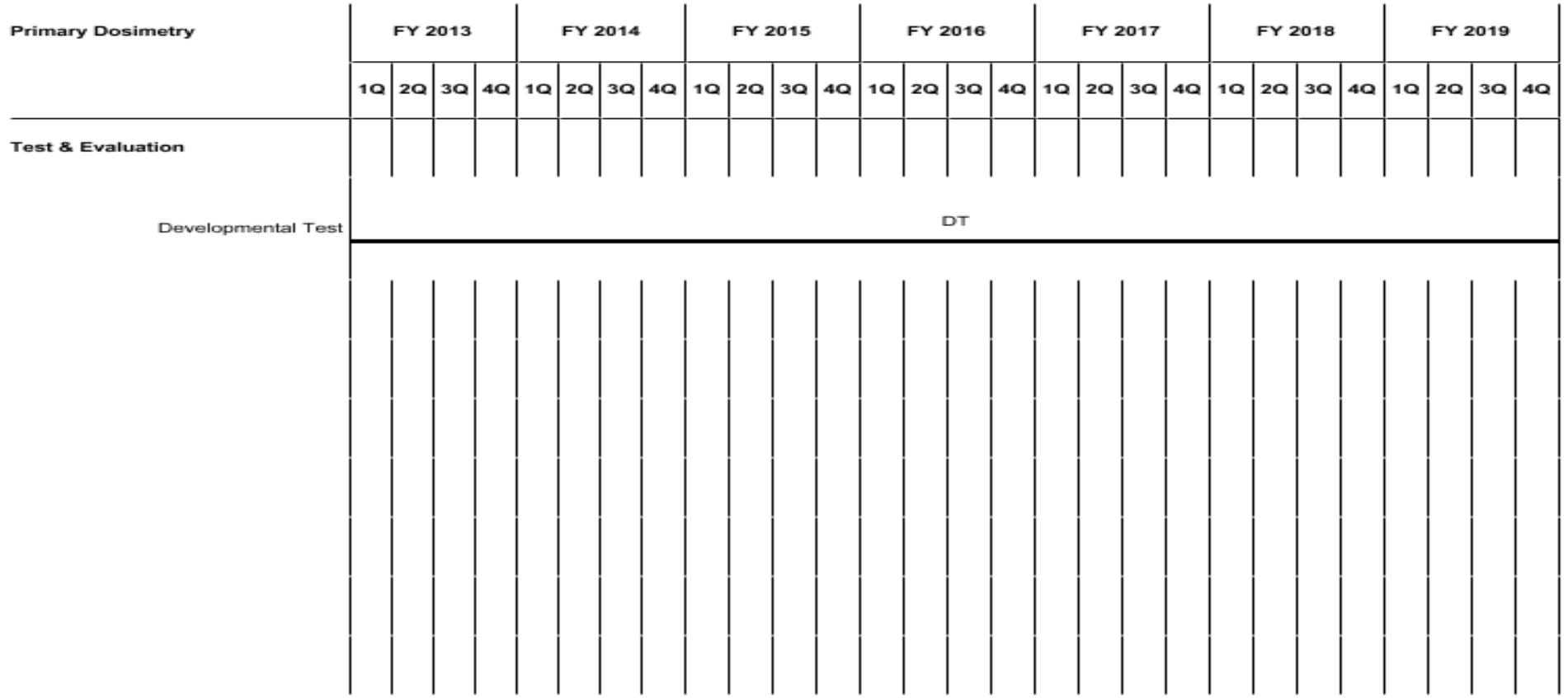

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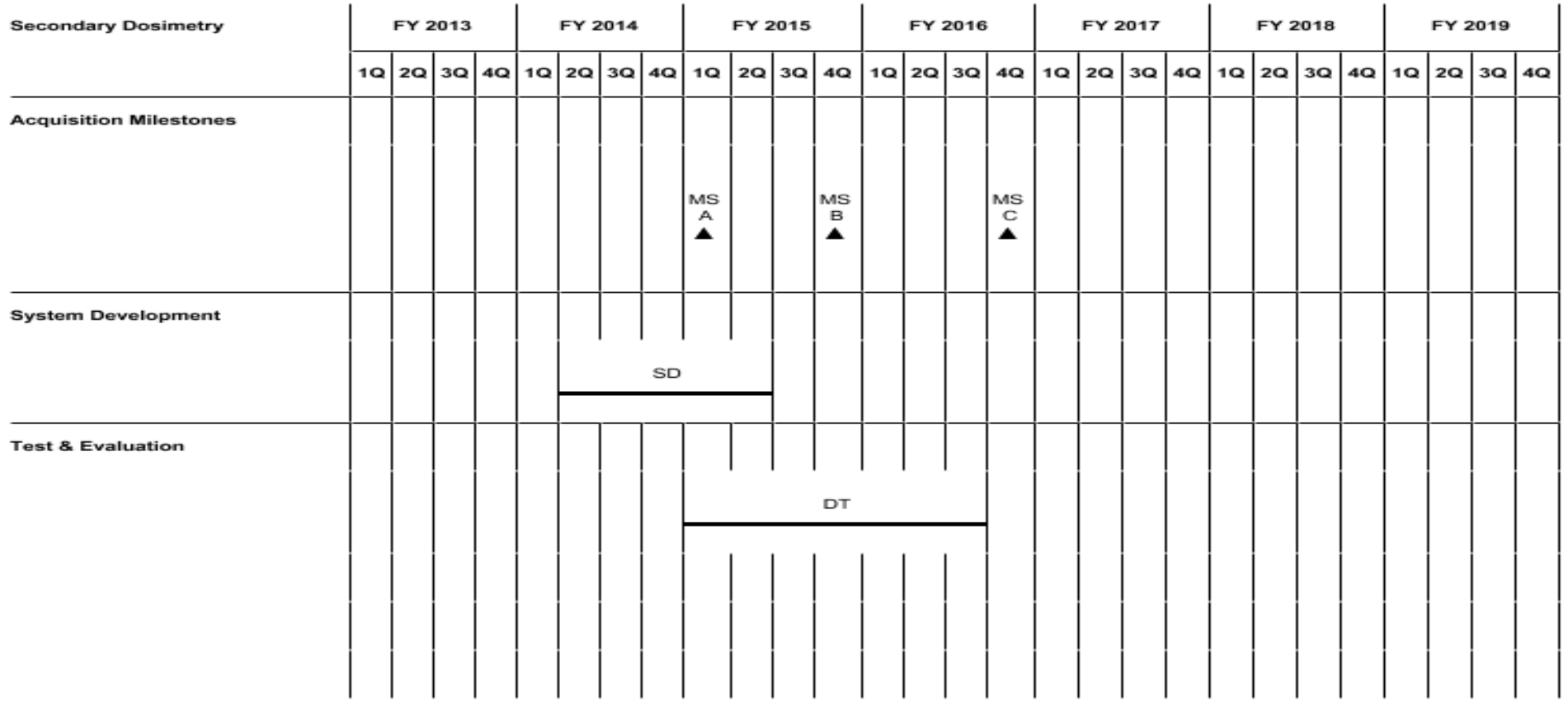

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603553N *I Surface ASW*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	182.401	3.841	2.349	1.060	-	1.060	1.104	1.134	1.155	1.180	Continuing	Continuing
1704.: *Undersea Warfare*	182.401	3.841	2.349	1.060	-	1.060	1.104	1.134	1.155	1.180	Continuing	Continuing

The FY 2015 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/test of CAS/VDS and the continuation of studies in support of the ASW Initiative thereafter. Starting in FY13, the CAS/VDS effort has been transferred to the Littoral Combat Ship PE 0603581N, Project 3129 budget, as part of the ASW Mission Module.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	6.704	2.349	1.094	-	1.094
Current President's Budget	3.841	2.349	1.060	-	1.060
Total Adjustments	-2.863	-	-0.034	-	-0.034
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.075	-			
• Program Adjustments	-	-	-0.017	-	-0.017
• Rate/Misc Adjustments	-	-	-0.017	-	-0.017
• Congressional General Reductions Adjustments	-0.588	-	-	-	-
• Congressional Directed Reductions Adjustments	-2.200	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603553N *I Surface ASW*

Change Summary Explanation

Starting in FY13, the CAS/VDS effort has been transferred to the Littoral Combat Ship PE 0603581N, Project 3129 budget, as part of the ASW Mission Module.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603553N / *Surface ASW*	Project (Number/Name) 1704. / *Undersea Warfare*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
1704.: *Undersea Warfare*	182.401	3.841	2.349	1.060	-	1.060	1.104	1.134	1.155	1.180	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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/test of CAS/VDS and the continuation of studies in support of the ASW Initiative thereafter. Starting in FY13, the CAS/VDS effort has been transferred to the Littoral Combat Ship PE 0603581N, Project 3129 budget, as part of the ASW Mission Module.

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 2013	FY 2014	FY 2015
Title: CNO ASW Initiatives	1.810	1.109	1.060
Articles:	-	-	-
FY 2013 Accomplishments: Collected systems and performance data during select Fleet exercises and at-sea testing events. Analyzed and distributed collected data. Conducted studies and analysis of alternatives in support of the CNO ASW initiative.			
FY 2014 Plans: Collect systems and performance data during select Fleet exercises and at-sea testing events. Analyze and distribute collected data. Conduct studies and analysis of alternatives in support of the CNO ASW initiative.			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603553N / *Surface ASW*	**Project (Number/Name)** 1704. / *Undersea Warfare*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Collect systems and performance data during select Fleet exercises and at-sea testing events. Analyze and distribute collected data. Conduct studies and analysis of alternatives in support of the CNO ASW initiative.			
Title: AN/SQS-53C Structural Acoustics Sensor Program	2.031	1.240	-
Articles:	-	-	-
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 able to be integrated 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 Accomplishments:*** - Continued processor build. - Continued software build. ***FY 2014 Plans:*** - Continue processor build. - Continue software build. - Complete demonstration test planning. - Complete system installation. ***FY 2015 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	3.841	2.349	1.060

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603553N / *Surface ASW*	**Project (Number/Name)** 1704. / *Undersea Warfare*

D. Acquisition Strategy

Use Navy Laboratories and University Affiliated Research Centers (UARCs).
N/A

E. Performance Metrics

Investigate promising ASW technologies via annual at-sea experiments.
Conduct Demonstration Sea Tests 3Q14 (Gray Ship).

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603553N / *Surface ASW*	**Project (Number/Name)** 1704. / *Undersea Warfare*

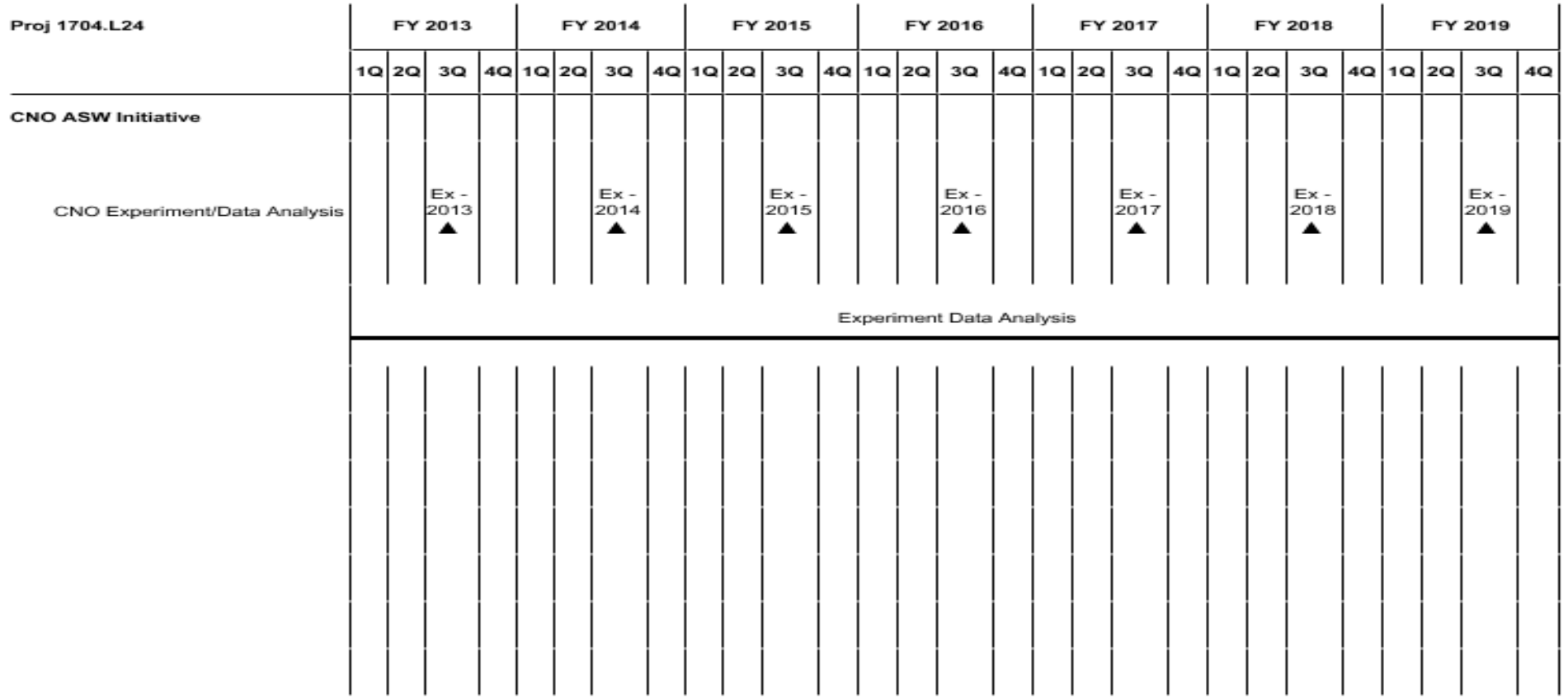

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603553N / *Surface ASW*	**Project (Number/Name)** 1704. / *Undersea Warfare*

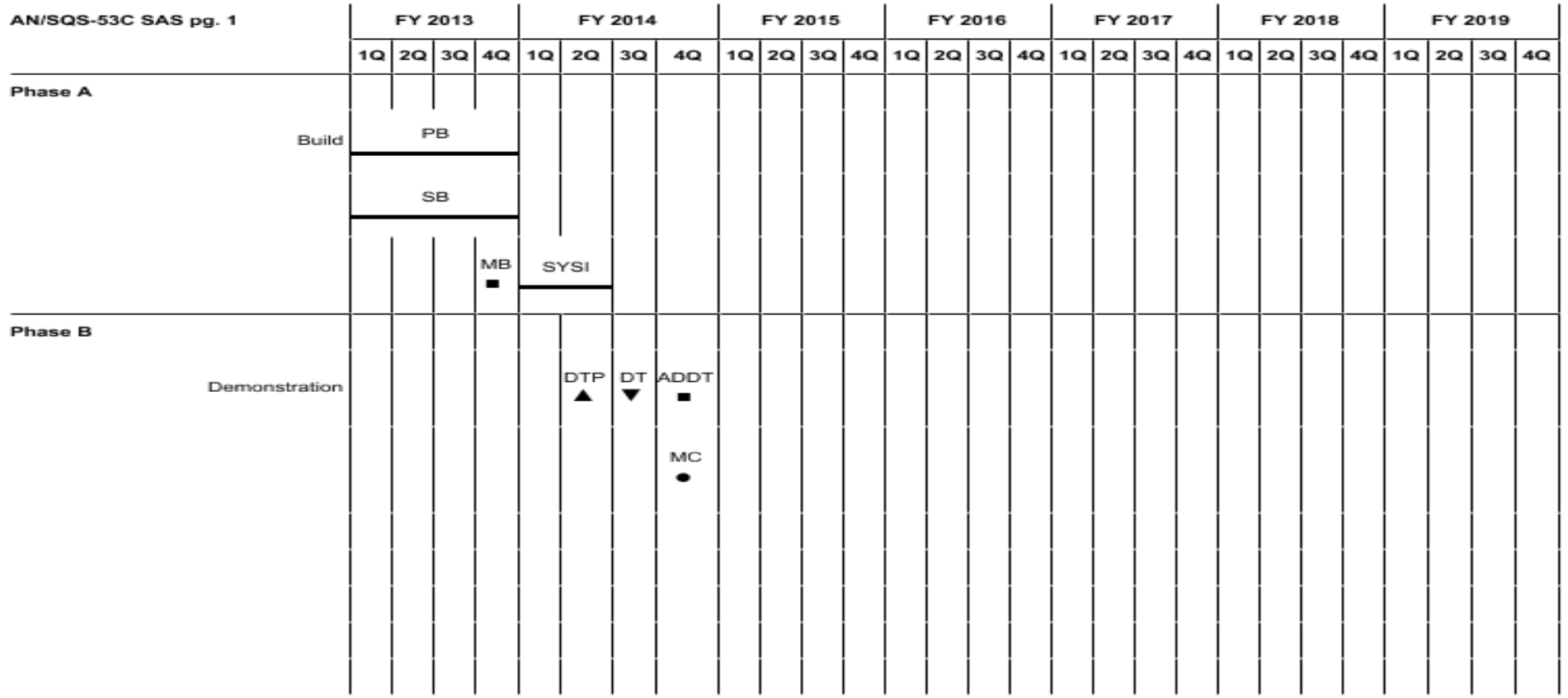

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603561N *I Advanced Submarine System Development*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	2,281.989	500.161	850.062	70.551	-	70.551	72.144	83.088	78.595	88.996	Continuing	Continuing
0223: *Sub Combat System Improvement (ADV)*	350.448	32.845	32.693	34.787	-	34.787	37.767	38.209	38.055	48.610	Continuing	Continuing
2033: *Adv Submarine Systems Development*	371.617	30.865	32.546	35.764	-	35.764	34.377	44.879	40.540	40.386	Continuing	Continuing
3220: *SBSD Advanced Submarine System Development*	1,555.333	431.860	784.823	-	-	-	-	-	-	-	-	2,772.016
9999: *Congressional Adds*	4.591	4.591	-	-	-	-	-	-	-	-	-	9.182
MDAP/MAIS Code: P444												

The FY 2015 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, Mechanical and Electrical (HM&E) 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 (APB) for acoustics, imaging, tactical control, electronic warfare, 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 configurations. This Project is funded under demonstration and validation, as it develops and integrates hardware for experimental tests related to specific platform applications. Technologies and/or capabilities developed under this program will be shared, as applicable, with surface and surveillance sonar/combat system development programs. In particular, development programs for surface ship sonar, Advanced Capability Build (ACB) and surveillance platforms, Advanced Surveillance Build (ASB), will work closely with the APB program to optimize software reuse. ACB, ASB and APB may co-develop capabilities and modular architecture technologies to maximize commonality and cost effectiveness.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603561N *I 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 also supports Small Business Innovation Research (SBIR), Small Business Technology Transfer (STTR), Office of Naval Research (ONR), Defense Advanced Research Projects Agency (DARPA) 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 three budget categories: Stealth, Payloads & Sensors, and Innovative Technology Transition/Concept Development.
NOTE: Project 2033 has combined Advanced Propulsion/Ship Concept and Total Ownership Cost (TOC) into Innovative Technology Transition/Concept Development. Budget categories were combined to consolidate projects into one.

The major developmental efforts include:
Sustainment of Vital Submarine Stealth R&D Capabilities
- Stone Mason (completed in FY13)
- Large Scale Vehicle (LSV)
- Intermediate Scale Measurement System (ISMS)
- Submarine Signature Management/Acoustic Superiority
- SSN/SSGN Survivability Program (S3P)
- Advanced Coatings

Development of Technologies for Innovative Technology Transition/Concept Development
- Hydraulics Elimination through Electrification (Completed in FY13)
- Advanced CO2 Scrubber (completes in FY14)
- Corrosion Control (Ionic Current Monitoring System (ICMS), Advanced Active Shaft Grounding System (A-ASGS), Sprayable Acoustic Damping System (SADS))
- Advanced Submarine Control (Secondary Propulsion System)
- Advanced Material Propeller (AMP) Technology
- Electric Actuation of Retractable Bow Plane Control Surfaces (Completed FY13)
- Hybrid Multi-Material Rotor Development (HMMR) (Completes in FY14)

Improved Payload & Sensor Capabilities

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603561N *I Advanced Submarine System Development*

- Next Generation Towed Array Handler System
- Towed Array Reliability
- Payload Integration (Advanced Weapons Enabled by Submarine UAS against Mobile targets (AWESUM))
- Integrated Autonomous Undersea Warfare Sensor (IAUWS)

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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	555.123	852.977	926.177	-	926.177
Current President's Budget	500.161	850.062	70.551	-	70.551
Total Adjustments	-54.962	-2.915	-855.626	-	-855.626
• Congressional General Reductions	-	-0.120			
• Congressional Directed Reductions	-	-2.795			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-12.700	-			
• Program Adjustments	-	-	-852.980	-	-852.980
• Rate/Misc Adjustments	-	-	-2.646	-	-2.646
• Congressional General Reductions Adjustments	-47.262	-	-	-	-
• Congressional Add Adjustments	5.000	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2013	FY 2014
Project: 9999: *Congressional Adds*		
Congressional Add: *Seawolf Risk Reduction Efforts*	4.591	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603561N *I Advanced Submarine System Development*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2013	FY 2014
Congressional Add Subtotals for Project: 9999	4.591	-
Congressional Add Totals for all Projects	4.591	-

Change Summary Explanation

Reduced FY13 funding for Sequestration reductions.

Projects 0223 and 2033: Reduced FY15 funding due to the Department's decision to reduce contracted services.

Note: Beginning in 2015, there is an administrative change that will shift efforts funded from PE 0603561N (Advanced Submarine System Development) / Project 3220 to PE 0603595N (Ohio Replacement) / Project 3220. This shift is consistent with Congressional intent identified in HR 933 (FY13).

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603561N / *Advanced Submarine System Development*	Project (Number/Name) 0223 / *Sub Combat System Improvement (ADV)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0223: *Sub Combat System Improvement (ADV)*	350.448	32.845	32.693	34.787	-	34.787	37.767	38.209	38.055	48.610	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 APBs for acoustics, imaging, electronic warfare, 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 configurations. Technologies and/or capabilities developed here are shared to optimize re-use and cost effectiveness with surface and surveillance programs. ACB, ASB and APB may co-develop capabilities and modular architecture technologies to maximize commonality and cost effectiveness.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Advanced Processing Build - (Acoustic/Imaging/Tactical)	30.148	30.793	31.587
Articles:	-	-	-

FY 2013 Accomplishments:

Continued development of APB-13 focusing 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 and automated contact tracking; enhanced software architecture to improve system reliability; improved periscope image clarity, image automation, and tracking; and continued refinement of technologies initiated in APB-11. Integrated APB-13 for testing. Conducted land-based testing of APB-13, including laboratory string testing, using the Submarine Mission Module Team Trainer (SMMTT). Initiated planning for APB-15 to include establishment of the tactical scenario to guide development focus; conducted Watch Section Task Analysis (WSTA) gaps and seams test to inform system shortfalls in the context of the selected scenarios; and conducted an Industry Day and Broad Agency Announcement (BAA) solicitation to drive competition for APB-15 innovative technologies. Continued development of the Submarine Mission Planning capability.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603561N / *Advanced Submarine System Development*	**Project (Number/Name)** 0223 / *Sub Combat System Improvement (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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:*** Complete ACB-13 land-based testing including Return-On-Investment (ROI) WSTA using the SMMTT. 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 testing. Continue development, conduct system integration and initiate testing of the Submarine Mission Planning capability. ***FY 2015 Plans:*** Continue the development of APB-15, integrate APB-15 for testing, and initiate the land-based testing of APB-15, including laboratory string testing. Initiate planning for APB-17 to include the establishment of the tactical scenario to guide development focus; conduct a WSTA gaps and seams test to inform system shortfalls in the context of the selected scenarios; and conduct an Industry Day and Broad Agency Announcement (BAA) solicitation to drive competition for future APB innovative technologies.			
Title: Advanced Sensors	2.697	1.900	3.200
Articles:	-	-	-
FY 2013 Accomplishments: Conducted Light Weight (LW) Low Cost Conformal Array (LCCA) sea test and transition to 688I program. Continued development and test of Advanced Towed Array technologies. Conducted 12X Advanced Development Model (ADM) at-sea test and analysis. Initiated studies for development of sensors for the Ohio Class Replacement Program. Continued fat line VSTA ADM development. ***FY 2014 Plans:*** Complete fat line VSTA ADM development. Continue Ohio Class Replacement Program sensor development studies. ***FY 2015 Plans:*** Conduct fat line VSTA prototype lake test and data analysis. Initiate the development of thin line VSTA, and transition technology from ONR FNC.			
Accomplishments/Planned Programs Subtotals	32.845	32.693	34.787

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603561N / *Advanced Submarine System Development*	**Project (Number/Name)** 0223 / *Sub Combat System Improvement (ADV)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

Use competitively awarded contracts from Broad Agency Announcement (BAA) solicitations and Small Business Innovative Research (SBIR) initiatives.

E. Performance Metrics

- 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 Light Weight Low Cost Conformal Array (LWLCCA) Advanced Development Model (ADM) sea test.
- Deliver Vector Sensor Towed Array (VSTA) Short Aperture (3X) Array, and VSTA (3X) Lake Pend Oreille Test Reports.
- Deliver Fat Line VSTA Lake Pend Oreille Test Reports.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603561N / *Advanced Submarine System Development*	**Project (Number/Name)** 0223 / *Sub Combat System Improvement (ADV)*

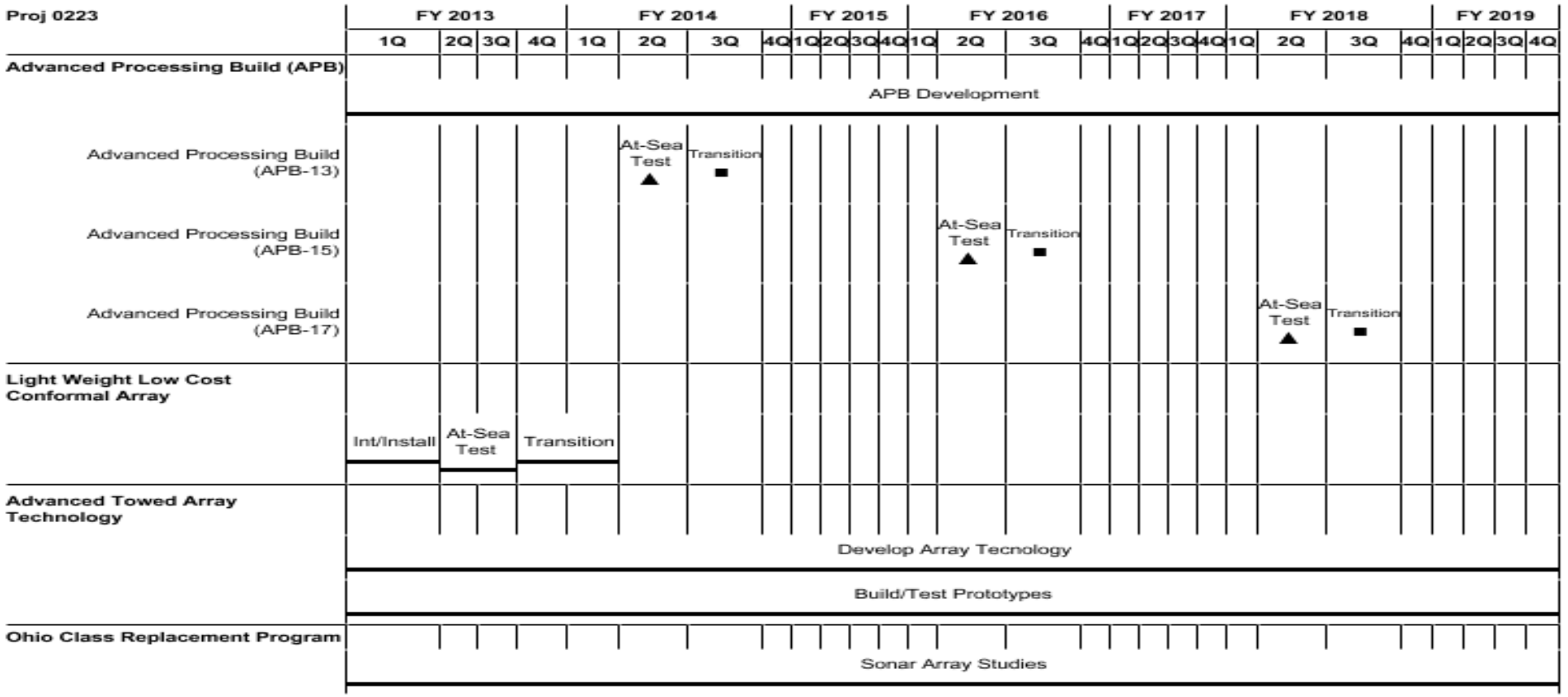

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603561N / *Advanced Submarine System Development*				Project (Number/Name) 2033 / *Adv Submarine Systems Development*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2033: *Adv Submarine Systems Development*	371.617	30.865	32.546	35.764	-	35.764	34.377	44.879	40.540	40.386	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 also supports Small Business Innovation Research (SBIR), Small Business Technology Transfer (STTR), Office of Naval Research (ONR), Defense Advanced Research Projects Agency (DARPA) 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 three budget categories: Stealth, Payloads & Sensors, and Innovative Technology Transition/Concept Development.
NOTE: Project 2033 has combined Advanced Propulsion/Ship Concept and Total Ownership Cost (TOC) into Innovative Technology Transition/Concept Development. Budget categories were combined to consolidate projects into one.

The major developmental efforts include:
Sustainment of Vital Submarine Stealth R&D Capabilities
- Stone Mason (completed in FY13)
- Large Scale Vehicle (LSV)
- Intermediate Scale Measurement System (ISMS)
- Submarine Signature Management/Acoustic Superiority
- SSN/SSGN Survivability Program (S3P)
- Advanced Coatings

Development of Technologies for Innovative Technology Transition/Concept Development

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603561N / *Advanced Submarine System Development*	**Project (Number/Name)** 2033 / *Adv Submarine Systems Development*

- Hydraulics Elimination through Electrification (Completed in FY13)
- Advanced CO2 Scrubber (completes in FY14)
- Corrosion Control (Ionic Current Monitoring System (ICMS), Advanced Active Shaft Grounding System (A-ASGS), Sprayable Acoustic Damping System (SADS))
- Advanced Submarine Control (Secondary Propulsion System)
- Advanced Material Propeller (AMP) Technology
- Electric Actuation of Retractable Bow Plane Control Surfaces (Completed FY13)
- Hybrid Multi-Material Rotor Development (HMMR) (Completes in FY14)

Improved Payload & Sensor Capabilities

- Next Generation Towed Array Handler System
- Towed Array Reliability
- Payload Integration (Advanced Weapons Enabled by Submarine UAS against Mobile targets (AWESUM))
- Integrated Autonomous Undersea Warfare Sensor (IAUWS)

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Payloads and Sensors/Subtotal Cost	11.564	11.287	8.258
Articles:	-	-	-

Description: Develop promising advanced technologies and/or concepts capable of revolutionizing submarine design, improving payload flexibility, increasing capability, reducing weight and space requirements, exploring alternative payload launch mechanisms. 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 demonstrations in order to assess the operational value of the technologies and systems under consideration. The experiments support examination and assessment of potential new Fleet capabilities.

FY 2013 Accomplishments:

Commenced development of the Next Generation Towed Array Handling System (TAHS) TEMPALT package and conducted land based testing for TAHS improvements for 688 class OA-9070B Handling System. Continue to leverage products between Small Business and Future Naval Concepts. Commenced ULRM TEMPALT and conduct fully integrated system testing. Led the technology development for Submarine Launched Unmanned Aerial System (UAS) in support of Advanced Weapons Enabled by Submarine UAS against Mobile targets (AWESUM) capability.

FY 2014 Plans:

Continue 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). Continue submarine integration CONOPs development in support of AWESUM. Demonstrate submarine launch UAS capability via FLEX in support of AWESUM.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603561N / *Advanced Submarine System Development*	**Project (Number/Name)** 2033 / *Adv Submarine Systems Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Commence Integrated Autonomous Undersea Warfare Sensor (IAUWS) Coalition Warfare Program (CWP) Project Agreement (PA) between US and Australia. ***FY 2015 Plans:*** Remove 688 Class OA-9070 Handler TEMPALT. Continue OA-9070 Handler Improvements. Commence VA Class (OA-9070E) land-based testing. Continue to leverage products between Small Business and Future Naval Concepts (FNC). Demonstrate submarine launch UAS capability via FLEX in support of AWESUM. Continue Integrated Autonomous Undersea Warfare Sensor (IAUWS) Project Agreement (PA) between US and Australia.			
Title: Stealth/Subtotal Cost	14.681	18.012	21.474
Articles:	-	-	-
Description: Develop technologies and tools to increase the survivability of submarines by recognizing and mitigating sources of acoustic 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) in support of VIRGINIA and OHIO Replacement Class Program of Records 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 2013 Accomplishments: Continued Electromagnetic Silencing PA with the UK executing the third (four planned) scale stress magnetization and electric model experiments. Conducted LSV maintenance, support, and operations and maintain LSV and ISMS test ranges. Supported OHIO Replacement signature trials. Assessed current and evolving SSN/SSGN operations to identify and address gaps in stealth and survivability for current and future SSN/SSGN force.			
FY 2014 Plans: Continue Electromagnetic Silencing PA with the UK executing the fourth (four planned) scale stress magnetization and electric model experiments. Complete tech refresh at ISMS range. Conduct LSV maintenance, support, and operations and maintain LSV and ISMS test ranges. Support Ohio Replacement signature trials. Conduct VIRGINIA Improved Advanced Hybrid (IAH) test. Address gaps in stealth and survivability for current and future SSN/SSGN force to execute submarine tactical and strategic operations. Participate in Triumph v Dallas exercise.			
FY 2015 Plans: Conduct OHIO Replacement Improved Advanced Hybrid (IAH) test. Conduct LSV 2 maintenance, support, and operations and maintain ISMS test ranges, data processing systems, operational capability. Support ship and system alternations to safely support OHIO Replacement signature and propulsor trials. Address gaps in stealth and survivability for current and future SSN/			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
SSGN force to execute submarine tactical and strategic operations. Advanced Coatings will develop methods to test existing coating materials and modifications to coatings materials to improve acoustic performance. Define requirements, initiate treatment configuration.			
Title: Innovative Technology Transition/Concept Development	4.620	3.247	6.032
Articles:	-	-	-
Description: 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 future submarines in areas of hull and platform technologies, propulsors, propellers, corrosion control, 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. 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 2013 Accomplishments: Monitored operation and collected data for the Ball Valve Electrical Actuation System (EAS) aboard USS MISSOURI. Complete the transition of the CO2 Scrubber technology to VA Class program office. Removed the CO2 Scrubber SSN shipboard test cube. Commenced corrosion controls technologies. Developed Ionic Current Monitoring System (ICMS) and Advanced Active Shaft Grounding System (AASGS) corrosion control and sensing technologies. Commence Advanced Submarine Control (ASC) secondary propulsion system pump-jet technology development. Commenced partnership with ONR on the Advanced Material Propeller (AMP) Future Naval Capabilities (FNC) program. Conducted land-based functional end-to-end, Electromagnetic Interference (EMI), and acoustics testing of Retractable Bow Planes (RBP) Control Surface Electric Actuation System (EAS). Continued 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: Remove the Ball Valve EAS and Universal Modular Mast (UMM) EAS TEMPALT from USS MISSOURI and restore the shipboard hydraulic service systems. Continue data collection of the CO2 shipboard test cube aboard SSBN platform. Complete ICMS TEMPALT planning and install TEMPALT on a VIRGINIA Class hull. Complete ASSGS development and perform TEMPALT planning. Perform Sprayable Acoustics Damping System (SADS) Research and Development (R&D). Assemble ASC secondary propulsion system technology components and perform factory and land-based component testing. Continue partnership with ONR on the AMP FNC program. Monitored AMP FNC project between U.S. and Australia via a collaborative Project Arrangement (PA) to demonstrate a full scale AMP on an Australian Collins Class Submarine. Design fabricate and test 1/4 scale AMP			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
composite material coupon panels. Obtain AMP structural materials design approval and initiate full-scale AMP blade and hub structural testing. Test DARPA HMMR multi-material rotor solution on LSV 2. . ***FY 2015 Plans:*** Continue data collection of the CO2 shipboard test cube aboard SSBN platform. Remove CO2 SSBN Shipboard test cube. Perform and monitor at-sea ICMS demonstration and install on VIRGINIA SSN 790. Install AASGS TEMPALT on VIRGINIA SSN 786. Conduct shipyard feasibility demonstration and large scale testing of SADS. Perform in-water barge and on land functional testing of an integrated ASC secondary propulsion system. Continue partnership with ONR on the AMP FNC program. Complete full-scale AMP blade and hub structural testing and initiate certification testing for the AMP FNC program.			
Accomplishments/Planned Programs Subtotals	30.865	32.546	35.764

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.
- 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.
- At-sea demo of AWESUM.
- 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 innovative Towed Array Handler concept 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.
- Develop future coatings to enable continued acoustic superiority of VA Class design.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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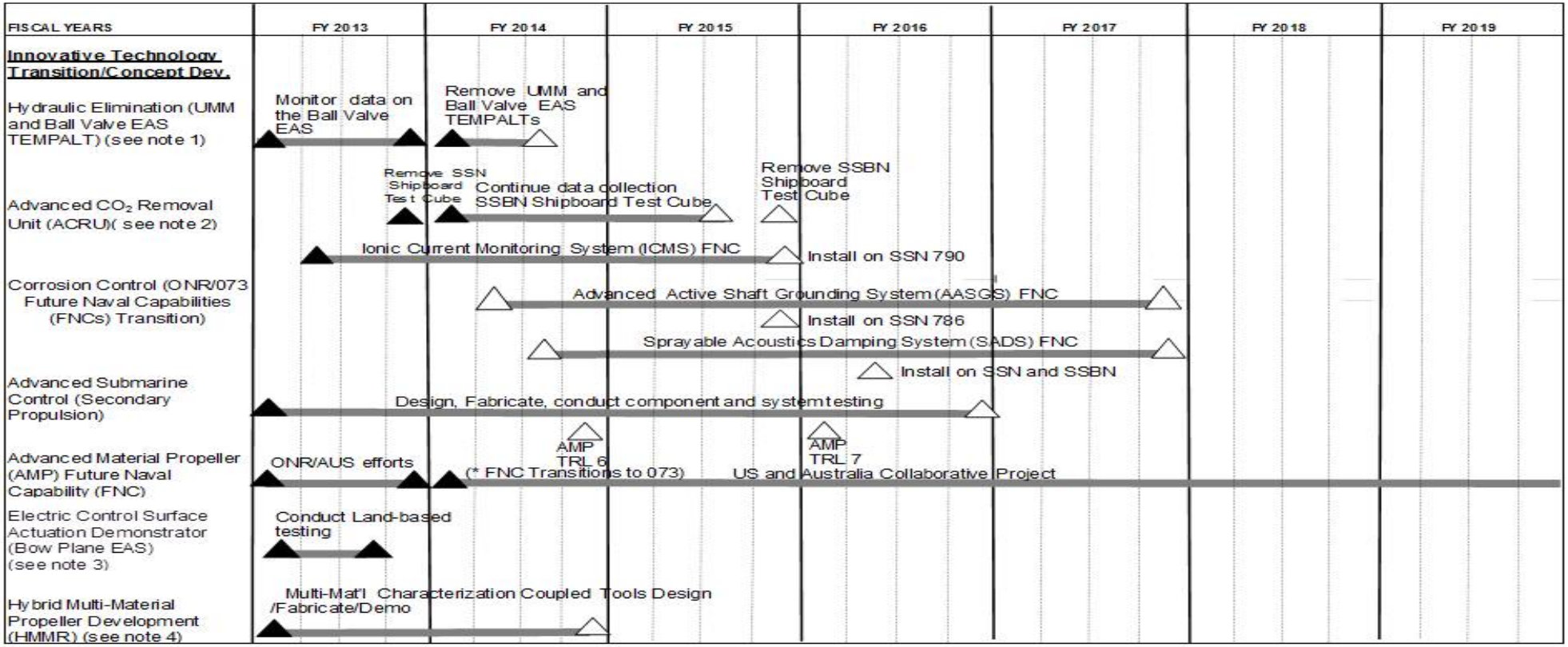

NOTES:
1) Informs VA Class and ORP designs (FY13)
2) Transitions to VA Class and ORP (FY13)
3) Informs VA Class and ORP designs (FY13)
4) Tools transitions to ORP (FY14)

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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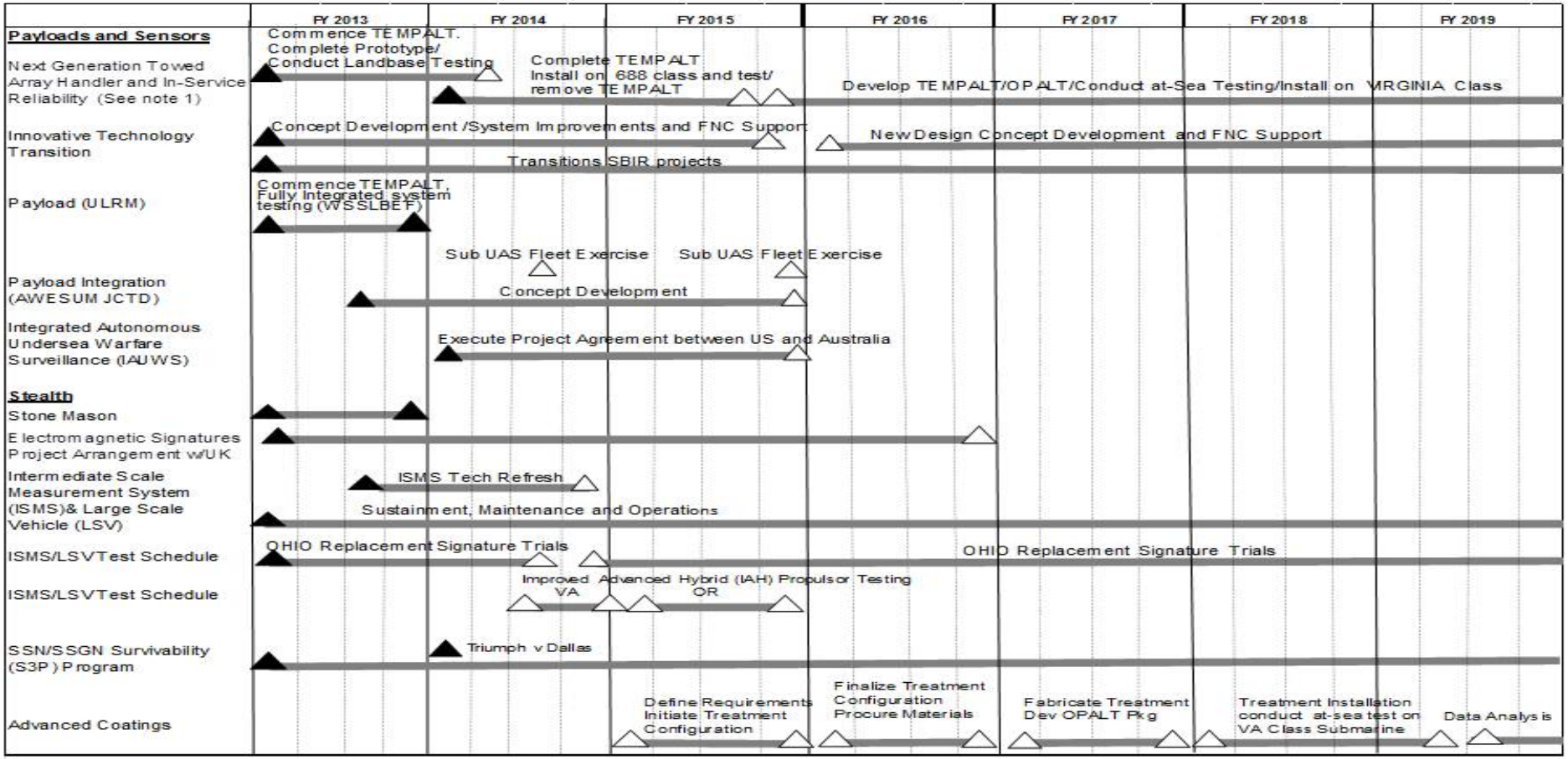

NOTES:
1) FCT transitioned to 073 (FY13)

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603561N / *Advanced Submarine System Development*				Project (Number/Name) 3220 / *SBSD Advanced Submarine System Development*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
3220: *SBSD Advanced Submarine System Development*	1,555.333	431.860	784.823	-	-	-	-	-	-	-	-	2,772.016
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Note: Beginning in 2015, there is an administrative change that will shift efforts funded from PE 0603561N (Advanced Submarine System Development) / Project 3220 to PE 0603595N (Ohio Replacement) / Project 3220. This shift is consistent with Congressional intent identified in HR 933 (FY13).

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 the SEAWOLF and VIRGINIA Classes (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 requested funding levels support the Technology Development, Design, and Engineering Integration efforts to support the OHIO Replacement SSBN lead ship construction start in FY 2021.

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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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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 developmental technology to inform the establishment of detailed requirements.

The Navy continues investing in Design for Affordability (DFA) initiatives similar to those employed successfully for VIRGINIA Class, but tailored to the unique SSBN mission and operational tempo 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 to include multi-class multiyear procurement (MYP) and economic order quantity (EOQ).

Activities planned for FY 2015 are required to maintain the first article prototype of the CMC to support the UK SUCCESSOR programme. 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 that are required to support ship design and construction schedules such as the propulsor, maneuvering/ship control and 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 finalizing ship requirements, risk characterization of developmental technology, improvement and validation of performance prediction tools and improvement of design tools. Technology development will address maturation of technologies.

Note: Beginning in 2015, there is an administrative change that will shift efforts funded from PE 0603561N (SBSD Advanced Submarine System Development) / Project 3220 to PE 0603595N (Ohio Replacement) / Project 3220. This shift is consistent with Congressional intent identified in HR 933 (FY13).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: CMC Design and Prototyping	101.377	262.623	-
Articles:	-	-	-
FY 2013 Accomplishments: Continued efforts for the design and development of the CMC to include: CMC ship specifications, missile tube design and first article missile quad pack design, and CMC system diagrams. Continued design and prototype efforts and manufacturing of additional fixtures. Continued validation of missile tube to missile tube quad pack production techniques. Completed validation and verification of the Integrated Tube and Hull (ITH) shape weldment design and preliminary design/prototyping of the missile tube quad to hull manufacturing fixture prototypes to validate planned missile compartment production techniques. Continued system engineering efforts to define the required CMC testing during the build cycle. Commenced design for the missile compartment. Commenced planning activities for CMC test facilities. Continued 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** N/A			
Title: Ship Study and Design	39.276	101.205	-
Articles:	-	-	-
FY 2013 Accomplishments: Continued 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 and began detail design of CMC. Developed ship manufacturing assembly plan. Decisions defining torpedo handling, battery configuration, hydrostatic stability, C5I configuration, hull coating material, quantity of torpedo tubes, deck mounting configuration, Air Conditioning plant configuration, stern control surface configuration, navigational draft restrictions, plumbing system architecture, emergency diesel generator downselect, bow non-pressure hull configuration, and ventilation system architecture were completed. Forward modules were developed with sufficient fidelity in arrangements to support setting overall ship length. ***FY 2014 Plans:*** Continue with preliminary design of forward and aft ends of OHIO Replacement Class. Complete ship specifications and system definition documents. Complete non-shipboard prototype. Continue Rest of Ship concept development, system integration, component design, system diagrams, ship arrangements, construction drawings, control surface design, and studies. Continue CMC interface with Rest of Ship and detail design of CMC. FY14 milestones include missile tube fixture delivery, initial fielding of the Integrated Product Development Environment (IPDE) tool set, NSWC Carderock structural model development, resolution of simplified shock attributes on ship design, determination of anchor requirements, superstructure design, ship service hydraulic plant architecture, ship's refrigeration design, Electronics Auxiliary Fresh Water (EAFW) architecture, BRR-6 reliability upgrade efforts, and the Automatic Battery Monitoring System (ABMS) / Battery Charge Monitoring System (BCMS) decision. ***FY 2015 Plans:*** N/A			
Title: NAVSEA R&D and Prototyping	55.982	107.603	-
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Final model testing and simulations to support selection of the control surface configuration. Initial testing and simulations to support control surface design. Continued Generation 1 design for propulsor concepts including scale module-testing in the water tunnel. Conducted resistance and powering testing for Generation 1 propulsors. Demonstrated sufficiency of forging a propulsor to shaft inner hub connection. Conducted a lift of a VIRGINIA Duct to aid in the quick disconnect duct design. Completed construction and setup of the full scale bearing test facility in Key West, FL. Delivered an instrumented propulsor rotor to support testing on the large scale vehicle. Fabrication and testing of CMC pressure hull models. Populated motion simulator with electronics to support a ship control Concept of Operations Experiment (COOPEX). Conducted a full scale low voltage anode test. Continued component development to support ship requirements. Provided preliminary Government Furnished Information (GFI) to the Prime Contractor for Non-Propulsion Electronics Systems (NPES). ***FY 2014 Plans:*** Finalize Generation 1 propulsor designs for OHIO Replacement. Commence fabrication of Generation 1 large scale vehicle hardware. Finalize requirements for large scale vehicle modifications. Initial full scale bearing test rig shakedown using VA sized components. Continue control surface detailed design. Conduct full scale low voltage anode simulations. Development of the cathodic protection system preliminary design. Begin Phase I of the COOPEX to support Hovering and Missile Compensation Control System (HMCCS) and Ship Control Designs. Equip surrogate full scale test platform to support stern design. Continue component development to support ship requirements. Continue development and delivery of preliminary GFI for NPES. ***FY 2015 Plans:*** N/A			
Title: Test and Evaluation	2.700	-	-
Articles:	-	-	-
FY 2013 Accomplishments: Continued efforts to identify T&E requirements for the program and interfaced with OSD Test and Evaluation (T&E) oversight organizations. Continued planning for and drafting Test and Evaluation Master Plan (TEMP) and Live Fire Test and Evaluation (LFT&E) Master Plan. Commander, Operational Test and Evaluation Force (COMOPTEVFOR) completed Early Operational Assessment (EOA) OT-A1 in support of Milestone B. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A			
Title: Strategic Weapons Systems Integration	132.227	178.764	-
Articles:	-	-	-
FY 2013 Accomplishments: Continued system engineering efforts required for the re-hosting and integration of the TRIDENT II (D5) SWS on the OHIO Replacement submarine; including review and modification of SWS Coordination, Interface and Arrangement Drawings for SWS equipment within the CMC and Missile Control Center Module (MCCM), SWS system and subsystem preliminary design, and Hardware and Software requirements development. SWS Ashore test capability development. SWS training capability / requirements development. Partial material procurement and build of Fire Control Engineering Test Systems. Continued design efforts (at a reduced level due to Sequestration) 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 program.			
FY 2014 Plans: Continue system engineering efforts required for the re-hosting and integration of the TRIDENT II (D5) SWS on the OHIO Replacement submarine; including review and modification of SWS Coordination, Interface and Arrangement Drawings for SWS equipment within the CMC and MCCM, SWS system and subsystem preliminary design, and Hardware and Software requirements development. Continue 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. Commence 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 program. Initiate design and development efforts for shipboard SWS Navigation. Initiate systems engineering design efforts related to the OHIO Replacement guidance handling carts. Material procurement for underwater launch risk mitigation testing.			
FY 2015 Plans: N/A			
Title: Systems Engineering/Program Management	50.298	84.628	-
Articles:	-	-	-
FY 2013 Accomplishments: Continued to provide technical oversight including Program Office management and technical support from government laboratories for review, analysis and modeling. Continued maintenance planning and design for sustainment activities. Continued			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
requirement definition and trade assessments to support the most affordable ship design and efficiencies in specification development. ***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. Update the Ohio Replacement Service Capabilities Development Document (CDD) and its derivative documents in preparation for submission to and approval by the Joint Requirements Oversight Counsel (JROC). Continue the functional allocation of platform level requirements as informed by the CDD to ship systems and components to support the maturation of the ship's design documents. Continue to identify and assess issues with the platform, shore facilities, and infrastructure as well as their impact on program costs. ***FY 2015 Plans:*** N/A			
Title: Design for Affordability	50.000	50.000	-
Articles:	-	-	-
FY 2013 Accomplishments: Continued execution of the DFA program and related design initiatives in order to drive down overall program costs. Achieved significant progress in reducing non-recurring engineering (NRE) construction and Operations and Support (O&S) costs through contractor affordability incentives, and investments in life cycle cost reduction initiatives. Specific initiative investments include robotic welding, Integrated Product Development Environment (IPDE) process development, and material reuse. DFA initiatives and DFA funded design yard incentives are reaping substantial savings. ***FY 2014 Plans:*** Continue execution of the DFA program including design yard cost reduction initiatives in order to drive down overall program costs across design, construction and Operations and Support (O&S). Specific initiatives include robotic welding, Integrated Product Development Environment (IPDE) process development, and material reuse. Continue to fund design yard incentives. Continue program affordability efforts targeted to achieving potential savings associated with multi-year and/or Economic Order Quantity (EOQ) procurements across submarine classes, investigating the government vs. contractor furnished equipment mix for potential efficiencies, and potential savings associated with continuous missile tube and/or launch tube production runs. ***FY 2015 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	431.860	784.823	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603561N / *Advanced Submarine System Development*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN/3219: *SBSD Nuclear Technology Development*	73.714	296.050	369.964	-	369.964	422.661	411.598	401.698	291.302	Continuing	Continuing
• SCN/1045: *OHIO Replacement Submarine*	-	-	-	-	-	13.200	777.793	791.793	2,887.937	Continuing	Continuing
• RDTEN/3220: *(U) OHIO Replacement*	-	-	849.277	-	849.277	994.926	696.281	709.471	394.450	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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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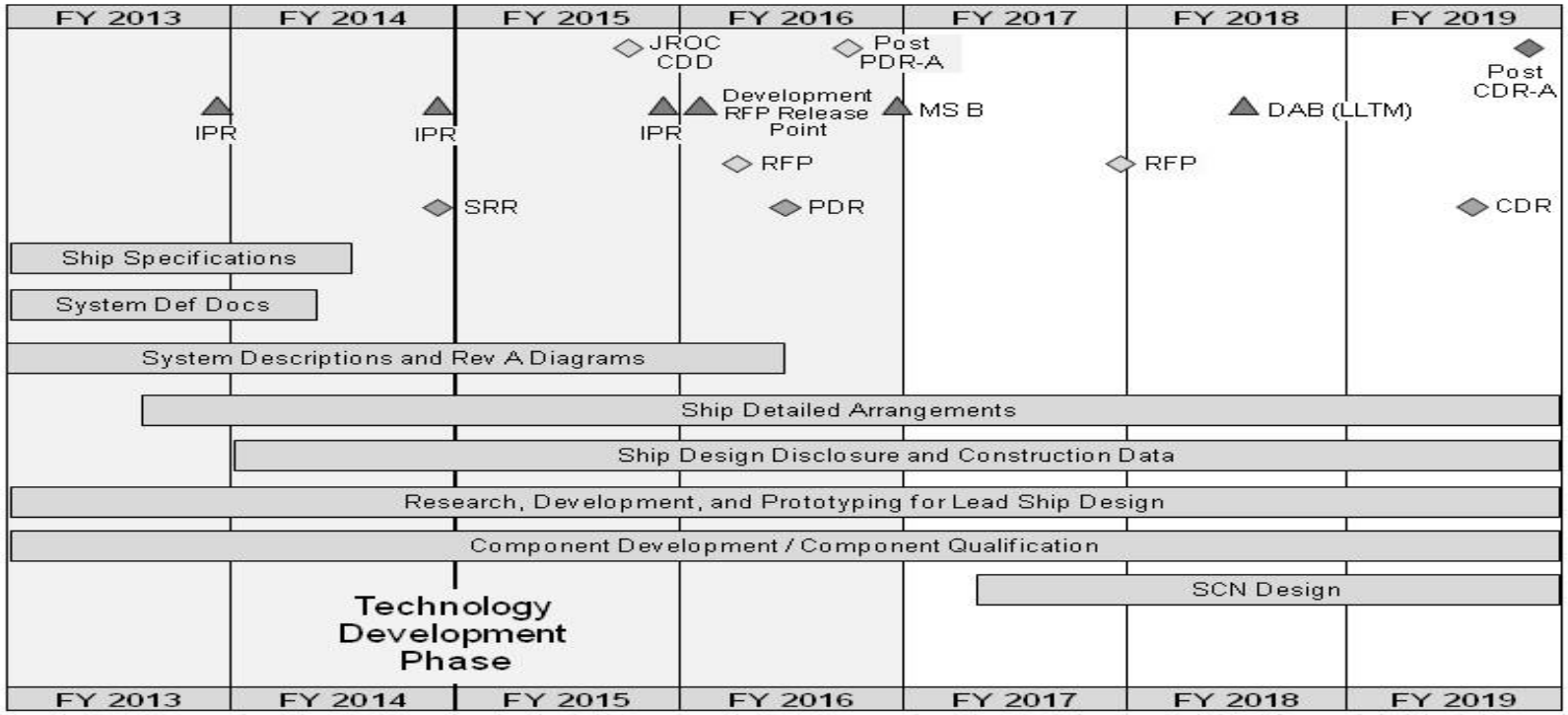


CDD - Capabilities Development Document
CDR - Critical Design Review
DAB - Defense Acquisition Board
IPR - In Progress Review
JROC - Joint Requirements Oversight Council
LLTM - Long Lead Time Material
MS - Milestone
PDR - Preliminary Design Review
RDT&E - Research, Development, Test, & Evaluation
RFP - Request for Proposal
SCN - Shipbuilding and Conversion, Navy
SRR - System Requirements Review

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603561N / *Advanced Submarine System Development*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
9999: *Congressional Adds*	4.591	4.591	-	-	-	-	-	-	-	-	-	9.182
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014
Congressional Add: Seawolf Risk Reduction Efforts	4.591	-
FY 2013 Accomplishments: Conduct risk reduction efforts for the Seawolf Bow Dome.		
FY 2014 Plans: N/A		
Congressional Adds Subtotals	4.591	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Congressional Add Projects.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603562N *I Submarine Tactical Warfare Sys*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	45.441	8.505	8.764	8.044	-	8.044	8.896	9.145	9.215	9.417	Continuing	Continuing
0770: *Adv Sub Supp Equip Prog*	9.406	3.648	3.855	3.343	-	3.343	4.077	4.186	4.162	4.248	Continuing	Continuing
1739: *Submarine Arctic W/F Development*	36.035	4.857	4.909	4.701	-	4.701	4.819	4.959	5.053	5.169	Continuing	Continuing

The FY 2015 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 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603562N *I Submarine Tactical Warfare Sys*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	9.368	8.764	9.690	-	9.690
Current President's Budget	8.505	8.764	8.044	-	8.044
Total Adjustments	-0.863	-	-1.646	-	-1.646
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.092	-			
• Program Adjustments	-	-0.353	-1.519	-	-1.519
• Rate/Misc Adjustments	-	0.353	-0.127	-	-0.127
• Congressional General Reductions Adjustments	-0.771	-	-	-	-

Change Summary Explanation

Cost/Funding:

All Projects: FY13 funding was reduced for Sequestration.

All Projects: FY15 funding was reduced due to the Department's decision to reduce contracted services.

All Projects: FY15 funding was reduced to properly phase program requirements in accordance with expenditures.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603562N / *Submarine Tactical Warfare Sys*	Project (Number/Name) 0770 / *Adv Sub Supp Equip Prog*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0770: *Adv Sub Supp Equip Prog*	9.406	3.648	3.855	3.343	-	3.343	4.077	4.186	4.162	4.248	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 the Affordable Modular Panoramic Photonics Mast (AMPPM) which introduces several groundbreaking technologies such as individually replaceable capability modules (allowing a vast array of capability combinations without supporting redesign) as well as presenting live 360 degree High Definition video (greatly increasing situational awareness and reducing scope exposure time.) Also in support of AMPPM advanced materiel Electro-Optic/Infrared (EO/IR) Vulnerability Signature Reduction; Mast Test Vehicle (MTV) testing 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 2013	FY 2014	FY 2015
Title: Advanced Imaging Project Development	2.025	2.434	2.141
Articles:	-	-	-
FY 2013 Accomplishments:			
360 Degree Medium Wave Infrared (MWIR) Lab Demo and Pierside Testing			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 0770 / *Adv Sub Supp Equip Prog*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 /Multi Thread Development Electro-Optic/Infrared Vulnerability Signature Reduction Lab Test Universal Mast Controller S/W & H/W Development/Test, EDM# 1 & 2 Delivery LPPM Initial Design Review (IDR), Final Design Review (FDR) Head Window Water Shedding Pierside Testing ***FY 2014 Plans:*** LPPM Lab Test/Sell Off 360 Degree Imaging (ONR) Development, AMPPM - Lab Testing SWIR and Hyperspectral Universal Mast Controller S/W & H/W Development/Test, EDM# 3 Delivery Electro-Optic/Infrared Vulnerability Signature Reduction Lab Test Radio Frequency over Fiber (RFoF) Lab Demo Covert Electronic Support Measures (ESM) FDR/Lab Demo ***FY 2015 Plans:*** 360 Imaging (ONR) - AMPPM - FNC Lab Testing 360 Imaging (ONR) - AMPPM - FNC Pierside Testing Low Profile Photonics Mast At-sea Test RFoF Lab Demo At Sea Test Covert ESM At Sea Test			
Title: Advanced Electronic Warfare Support (EW) Project Development	1.623	1.421	1.202
Articles:	-	-	-
FY 2013 Accomplishments: Distant Support and Remote Log-in At-Sea Testing Rapid Reprogramming of Threat Libraries At-sea Testing ES Server (Correlator) At-Sea Testing ES Vulnerability Tool / Tactical Decision Aid Development CDR and Lab Demo Enhanced DeInterleavers Development LPI DF / Localization Development Embedded Built-in Test (BIT) Development Next Gen EW Development RFoF Development/FDR			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 0770 / *Adv Sub Supp Equip Prog*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Covert ESM Development			
FY 2014 Plans: ES Vulnerability Tool / Tactical Decision Aid Lab Demo ES Server (Valkyrie) CDR Enhanced DeInterleavers SBIR Lab Demo LPI DF / Localization Development/CDR Embedded Built-in Test (BIT) Development/CDR ES Server (Valkyrie) Development			
FY 2015 Plans: ES Vulnerability Tool / Tactical Decision Aid At-Sea Test/Lab Demo ES Server (Valkyrie) Lab Demo Enhanced DeInterleavers Lab Demo (2) LPI DF / Localization Lab Demo Embedded Built-in Test (BIT) Lab Demo OnBoard Trainer Development			
Accomplishments/Planned Programs Subtotals	3.648	3.855	3.343

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# N00/00621 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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 0770 / *Adv Sub Supp Equip Prog*

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 0770 / *Adv Sub Supp Equip Prog*

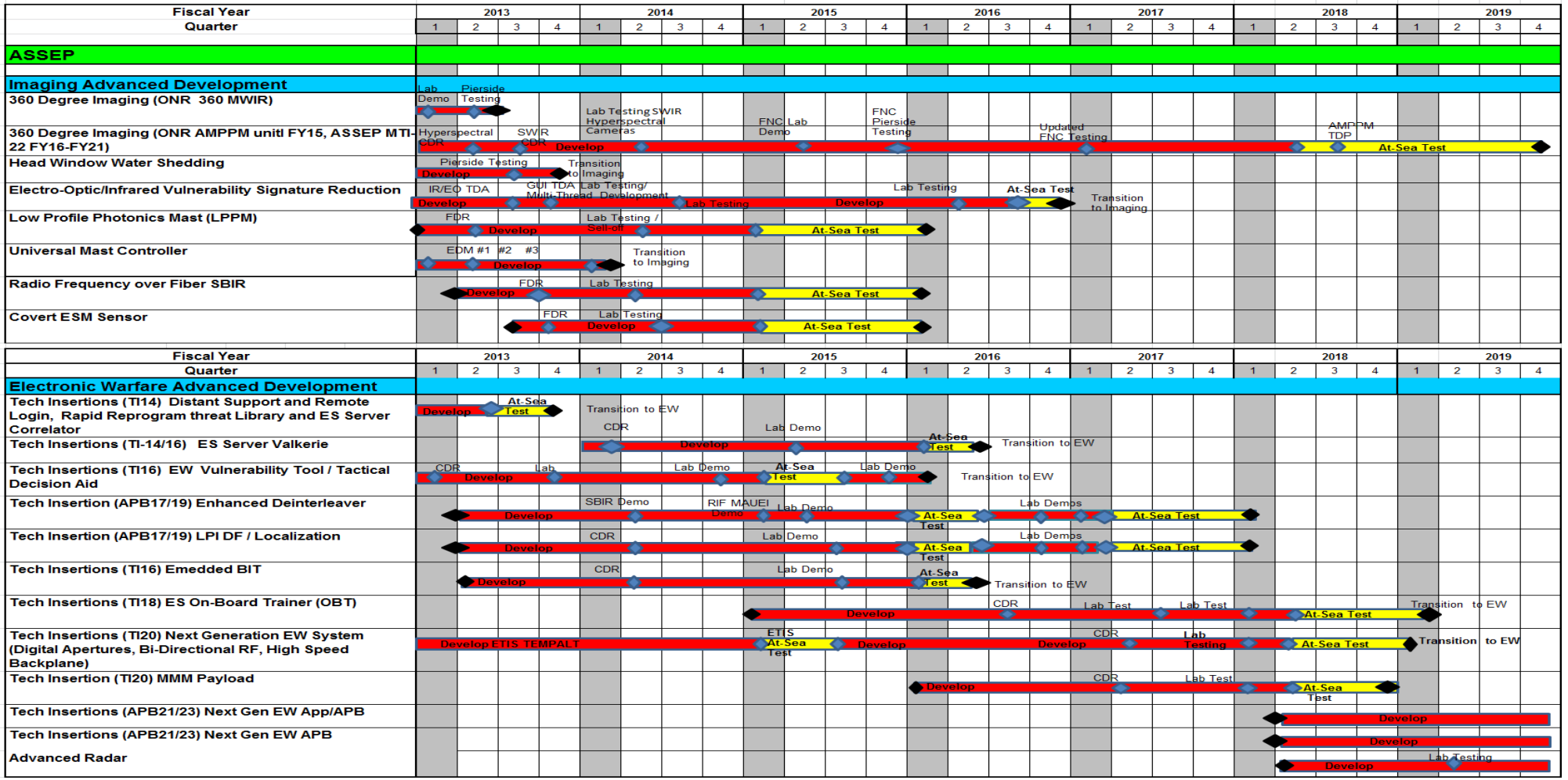


Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603562N / *Submarine Tactical Warfare Sys*	Project (Number/Name) 1739 / *Submarine Arctic W/F Development*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
1739: *Submarine Arctic W/F Development*	36.035	4.857	4.909	4.701	-	4.701	4.819	4.959	5.053	5.169	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Conduct ICEX and Arctic Transit Mission, ICEX Workup and Training, Ice Camps	4.857	4.909	4.701
Articles:	-	-	-

FY 2013 Accomplishments:

Conducted ICEX mission 1-2013. Continued planning and support for ICEX mission 1-2014 and Ice Camp 1-2014. Supported Arctic deployments, including inter-Fleet transfers, as required by the SUBFOR 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. Installed and tested mission/tactical grade equipment on SSN 688I and SSN 21 Class platforms. Developed a High Frequency Active (HFA) under-ice sonar training product. Evaluated under-ice HFA training product during Arctic training sessions. Procured two additional EdgeTech 220 Side Scan systems to support SSN 688I/774 Class Submarines. Developed and tested 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 SUBFOR 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.

FY 2015 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 1739 / *Submarine Arctic W/F Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Support Arctic deployments, including inter-Fleet transfers, as required by the SUBFOR 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.			
Accomplishments/Planned Programs Subtotals	4.857	4.909	4.701

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

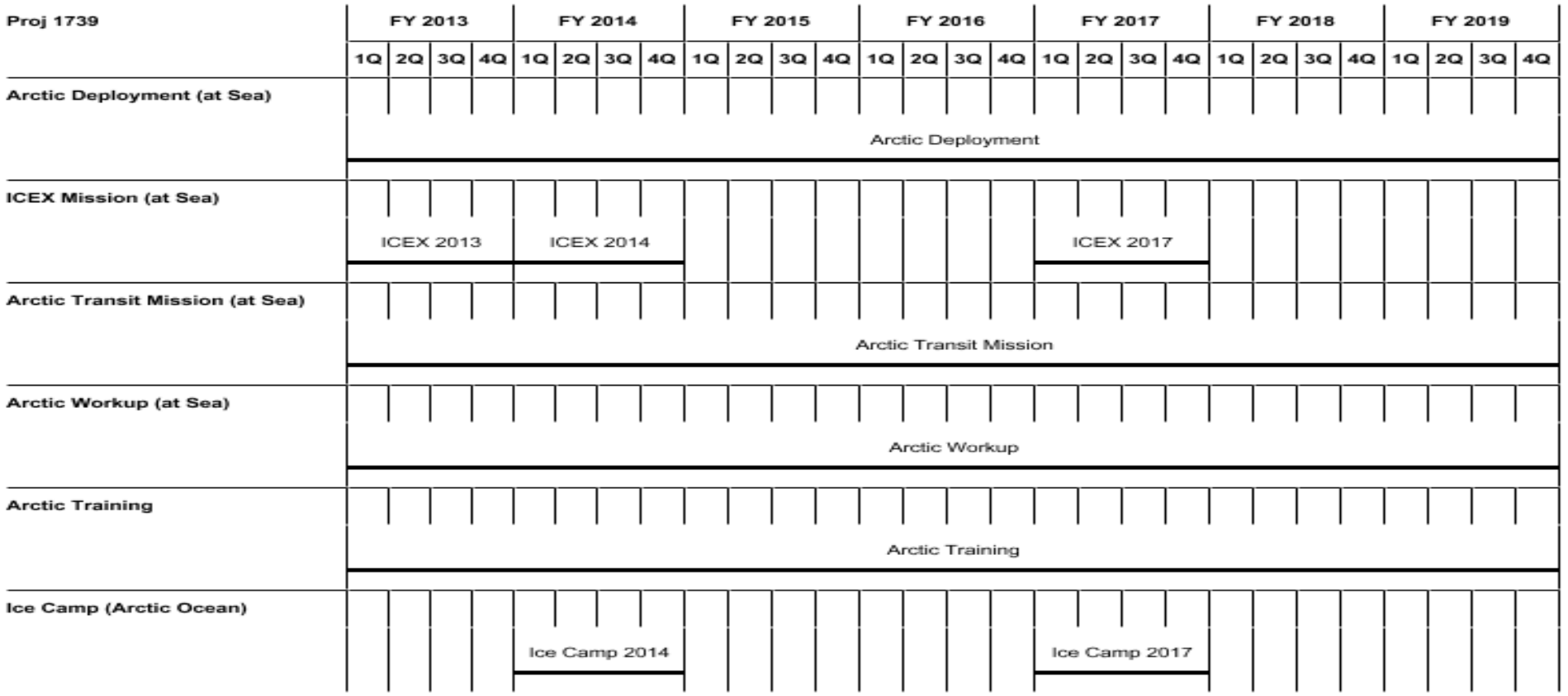
D. Acquisition Strategy

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 and support Arctic deployments, including inter-Fleet transfers, as required by the SUBFOR Commanders.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603562N / *Submarine Tactical Warfare Sys*	**Project (Number/Name)** 1739 / *Submarine Arctic W/F Development*



2015PB - 0603562N - 1739

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603563N / *Ship Concept Advanced Design*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	122.527	22.193	17.501	17.864	-	17.864	19.365	11.529	11.870	12.162	Continuing	Continuing
2196: *Design, Tools, Plans and Concepts*	0.518	0.503	0.465	0.433	-	0.433	0.446	0.452	0.458	0.468	Continuing	Continuing
3161: *NAVSEA Tech Authority*	122.009	21.690	17.036	11.838	-	11.838	13.391	5.524	5.596	5.752	Continuing	Continuing
3376: *Strategic Sealift*	0.000	-	-	5.593	-	5.593	5.528	5.553	5.816	5.942	Continuing	Continuing

The FY 2015 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. Efforts include 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 through integrated efforts in Cross Platform Systems Development (CPSD), furthering Sea Enterprise through the development of support elements meeting relevant needs of the warfare community. The areas of exploration for CPSD include surface ship concept advanced development, next generation unmanned surface vehicle, high speed ships, 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), Total Ownership Cost (TOC) pilot programs, future flexible and modular warship analyses, and development of specifications and processes to reduce production costs of platforms.

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. This project supports NAVSEA's core mission and allows for improved performance and reduced cost of current and future naval platforms.

Project 3376 - Strategic Sealift Research and Development - Develops new concepts and technologies which can be applied to or will enable future strategic sealift, and Seabasing systems. The technologies include ship configuration concepts, equipment to increase cargo handling and cargo loading/unloading rates (including commercial and merchant ship systems), improved man/machine interfaces, improved structural configurations and materials, and Logistics-Over-the-Shore (LOTS) equipment and system improvements. This project is a continuation of efforts accomplished under NDSF BA 04 Project 3116 Strategic Sealift Research and Development and is not a new start.

Note: NDSF BA 04 Project 3116 Strategic Sealift Research and Development amounts: FY 2013: $6.169M; FY 2014: $6.288M

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	24.609	20.501	16.049	-	16.049
Current President's Budget	22.193	17.501	17.864	-	17.864
Total Adjustments	-2.416	-3.000	1.815	-	1.815
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.363	-			
• Program Adjustments	-	-	2.304	-	2.304
• Rate/Misc Adjustments	0.001	-	-0.489	-	-0.489
• Congressional General Reductions Adjustments	-2.054	-	-	-	-

Change Summary Explanation

Funding:

Funding:

Projects 2196/3161: FY 2013 reductions reflect Congressionally mandated sequestration and general reductions.

Projects 2196/3161/3376: FY 2015 reductions reflect the Department's decision to reduce contracted services.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603563N *I Ship Concept Advanced Design*

Project 3161: The FY 2015 program was adjusted to properly phase program requirements with expenditures.

Project 3376: Prior to FY 2015, Project 3376 was funded in the National Defense Sealift Fund (NDSF) Appropriation, BA 04, Project 3116 Strategic Sealift Research & Development.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603563N / *Ship Concept Advanced Design*				Project (Number/Name) 2196 / *Design, Tools, Plans and Concepts*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2196: *Design, Tools, Plans and Concepts*	0.518	0.503	0.465	0.433	-	0.433	0.446	0.452	0.458	0.468	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Ship Concepts and Mission Need Analysis	0.434	0.391	0.433
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 2196 / *Design, Tools, Plans and Concepts*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Description: Develop ship concepts and perform analysis for potential ships and Force Architecture 5-10 years out in shipbuilding plan. ***FY 2013 Accomplishments:*** Continued concept designs for small surface combatants to develop flexible and affordable platforms. These efforts 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. ***FY 2015 Plans:*** Develop concepts of integrating unmanned vehicles aboard surface ships. Refine cost analyses of surface ship design and construction. Further improve surface ship design tools. Continue concept development efforts to explore flexible, modular surface combatants.			
Title: Total Ship Technology Assessment (TSTA) ***Articles:*** ***Description:*** Analyze the benefits and impacts of new ship, Hull, Mechanical & Electrical (HM&E) concepts, technologies and warfare systems. ***FY 2013 Accomplishments:*** Completed 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. ***FY 2015 Plans:*** N/A	0.069 -	0.074 -	- -
Accomplishments/Planned Programs Subtotals	0.503	0.465	0.433

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 2196 / *Design, Tools, Plans and Concepts*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN/0204202N: *DDG-1000*	120.842	187.904	202.522	-	202.522	128.998	7.226	-	-	Continuing	Continuing
• RDTEN/0603512N: *Carrier Systems Development*	97.668	80.899	5.959	-	5.959	6.368	5.570	5.566	5.702	Continuing	Continuing
• RDTEN/0603564N: *Ship Preliminary Design/Feasibility*	35.737	38.117	23.716	-	23.716	29.895	31.791	38.498	39.194	Continuing	Continuing
• RDTEN/0604567N: *Ship Contract Design/Live Fire T&E*	165.907	187.421	48.470	-	48.470	40.275	35.376	34.322	34.540	Continuing	Continuing
• RDTEN/0603582N: *Combat System Integration*	45.131	4.396	20.881	-	20.881	33.195	32.355	29.196	29.814	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

Quarterly Program Reviews

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603563N / *Ship Concept Advanced Design*	Project (Number/Name) 3161 / *NAVSEA Tech Authority*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3161: *NAVSEA Tech Authority*	122.009	21.690	17.036	11.838	-	11.838	13.391	5.524	5.596	5.752	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 force structures; advanced 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 forces including ships 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 Preliminary Design and Feasibility Studies and other Program Executive Office (PEO) ship design programs. While these efforts support concept exploration and mission needs assessment for potential future ship 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 and weapon system design, as well as 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 (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 2013	FY 2014	FY 2015
Title: Platform Concept Advanced Development (CPSD 1.0)	1.538	1.158	1.091
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3161 / *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Description: This effort directly supports the Navy's ability to understand risk and associated cost of surface warfare assets; Pre-Milestone A ship, craft, and unmanned surface vehicle (USV) design and analysis. ***FY 2013 Accomplishments:*** Developed 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. Developed design space exploration methods that leverage previous Navy design tool investments by employing behavior models of higher fidelity, but more time consuming techniques. This allowed much more comprehensive trade studies in support of Capabilities Based Assessments and Analyses of Alternatives. Continued next generation surface ship, and unmanned vehicle concept exploration. Determined ship impacts of a potential future SM-3 missile with liquid fuel. ***FY 2014 Plans:*** Continue to develop the NAVSEA ship concept development processes for supporting the LRSS, CBAs, 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. 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 2015 Plans:*** Explore concepts for flexible and modular surface ships that meet Long Range Shipbuilding Strategy capability goals at reduced cost. Develop concepts for surface ship designs that optimize the use of unmanned vehicles. Explore ways to extend mission modularity concepts from LCS to other surface ship platforms.			
Title: Platform Design and Certification Tools/Engineering and Tech Data Exchange (CPSD 2.0)	2.359	1.775	1.673
Articles:	-	-	-
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. This effort advances platform design methods, design validation tools, cost tools, manpower tools, and tools to aid in rapid total platform definition. ***FY 2013 Accomplishments:*** Continued tool development and upgrade to aide in early stage concept design including Advanced Ship Synthesis and Evaluation Tool (ASSET) and Leading Edge Architecture for Prototyping Systems (LEAPS). Continued the development of tools that allow for reliable, efficient, long-range, high-speed platforms with optimized payload capabilities. Continued the development of early			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3161 / *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
stage ship design tools supporting total ownership cost reductions through enhancements of performance based cost models and manpower assessment 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. ***FY 2015 Plans:*** Refine high-speed computer modeling tools that assist with early stage ship design. Conduct research on the replacement of two dimensional drawings with three dimensional computer models, including their use for review and approval of ship designs. Develop interfaces between tools used for design with those used for manufacture and repair.			
Title: Ship Systems Engineering /Modular Ship Systems Development (CPSD 3.0) ***Articles:*** ***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-Analysis of Alternatives (AoA) studies and ongoing program of record (PoR) ship development. ***FY 2013 Accomplishments:*** Improved processes for technology upgrades during midlife overhauls that allow for affordable fleet/force modernization. Allowed 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 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. ***FY 2015 Plans:*** Explore cross platform approaches to solving corrosion problems, techniques and applications not being developed by other programs. Develop the use of composite materials for use in more shipboard applications. Analyze the logistical and engineering aspects of the application of 3D printing technology for shipboard use in building spare parts. Assess the current state of technology of robotic methods of cleaning, welding, painting, and inspecting shipboard tank and void spaces.	2.440 -	1.837 -	1.732 -
Title: High Speed Ships and Craft Engineering (CPSD 5.0) ***Articles:***	11.739 -	9.546 -	4.780 -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3161 / *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2013 Accomplishments:*** Initiated development of improved platform stealth and survivability. Initiated development of a R&D engineering model to support the development, design, acquisition, R&D testing and acceptance of a future modular mission ice capable surface combatant. Continued the development of various analytical tools. Continued the planning and performance of a prescribed set of model tests and extensive analyses to support development of surface ship Safe Operating Envelope (SOE) and Heavy Weather Guidance (HWG) products. The analytical methods being developed include a simulation tool required to characterize ship motions in environments not within the Navy's ability to test. Continued to support software integration and associated training guidance for the ship's crew. This includes supporting 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 support the development, design, acquisition, R&D testing and acceptance of a future modular mission ice capable surface combatant. Continue the development of analytical tools, and continue a prescribed set of model tests and extensive analyses to support development of surface ship SOE and HWG products. The analytical methods being developed include a simulation tool required to characterize ship motions in environments not within the Navy's ability to test. Continue to support the integration of capability on the ship and associated training guidance for the ship's crew. This includes supporting the development of the requirements for HSI, HCI, and training. ***FY 2015 Plans:*** Continue development of analytical tools for the generation of surface ship SOE and HWG products. Complete and deliver surface ship HWG. Complete Verification, Validation, and Accreditation (VV&A) of the simulation tool for characterizing ship motions in environments not within ability to test. Continue simulation runs of ship motions in prescribed environmental conditions required to develop the surface ship SOE. Explore innovative approaches for increased waterjet efficiency. Review technologies developed for small craft over past years and assess applicability to ships.			
Title: Alternative Power Systems Engineering (CPSD 6.0)	1.525	1.148	1.081
Articles:	-	-	-
Description: This effort investigates concepts for ships and craft with alternative power/propulsion systems evaluating effectiveness in mobility, survivability, and warfare mission areas. ***FY 2013 Accomplishments:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3161 / *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Began development of processes and standards required to enable safe Fleet implementation and operation of lithium batteries and fuel cells. Developed and validated surface ship operating profiles, fuel consumption models and fuel consumption calculation tools, manuals, and instructions. ***FY 2014 Plans:*** Evaluation of pod propulsor for future ship concept design. Develop and evaluate energy harvesting technology for mobility and primary mission systems. ***FY 2015 Plans:*** Refine concepts for efficiently providing pulse power aboard ship to energy weapons. Examine energy harvesting methods for use by ship-launched unmanned vehicles. Develop products supporting Forward Deployed Energy (FDE) techniques for refueling unmanned vehicles.			
Title: Embedded Interoperability (I/O) Engineering (CPSD 8.0)	0.906	0.682	0.642
Articles:	-	-	-
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 Accomplishments:*** Focused on development of high performance, low cost communication solutions for improved information dominance and interoperability. ***FY 2014 Plans:*** Continue the focus on development of high performance, low cost communication solutions for improved information dominance and interoperability. ***FY 2015 Plans:*** Explore methods of further reducing costs of achieving certified interoperable systems. Develop concepts making use of virtual reality and automated data assistants to lessen the information overload problem for ship combat system operators.			
Title: Mission Capability Systems Engineering (CPSD 9.0)	1.183	0.890	0.839
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3161 / *NAVSEA Tech Authority*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2013 Accomplishments:*** Created design engineering standards incorporating human capacities into system performance. Incorporated the human element into design and control of autonomous and robotic systems. ***FY 2014 Plans:*** Create a federated network architecture (combat systems, HM&E, and C4I) in future Surface Combatants with the focus on integration into both LCS classes. ***FY 2015 Plans:*** Complete federated network architecture study.			
Accomplishments/Planned Programs Subtotals	21.690	17.036	11.838

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN/0204202N: *DDG-1000*	120.842	187.904	202.522	-	202.522	128.998	7.226	-	-	-	1,753.777
• RDTEN/0603512N: *Carrier Systems Development*	97.668	80.899	5.959	-	5.959	6.368	5.570	5.586	5.702	Continuing	Continuing
• RDTEN/0603564N: *Ship Preliminary Design/ Feasibility Studies*	35.737	38.117	23.716	-	23.716	29.895	31.791	38.498	39.194	Continuing	Continuing
• RDTEN/0604567N: *Ship Contract Design/Live Fire T&E*	165.907	187.421	48.470	-	48.470	40.275	35.376	34.322	34.540	Continuing	Continuing
• RDTEN/0603582N: *Combat System Integration*	45.131	4.396	20.881	-	20.881	33.195	32.355	29.196	29.814	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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3161 / *NAVSEA Tech Authority*

those concept designs and assessments. This program provides validated engineering tools, methods, and criteria for ship, 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-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603563N / *Ship Concept Advanced Design*	Project (Number/Name) 3376 / *Strategic Sealift*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3376: *Strategic Sealift*	-	-	-	5.593	-	5.593	5.528	5.553	5.816	5.942	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

Prior to FY 2015, Project 3376 was funded in PE 0408042N, National Defense Sealift Fund under Project 3116 Strategic Sealift Research & Development. This project is not a new start.

A. Mission Description and Budget Item Justification

Project 3376 - Strategic Sealift Research and Development - Develops new concepts and technologies which can be applied to or will enable future strategic sealift, and Seabasing systems. The technologies include ship configuration concepts, equipment to increase cargo handling and cargo loading/unloading rates (including commercial and merchant ship systems), improved man/machine interfaces, improved structural configurations and materials, and Logistics-Over-the-Shore (LOTS) equipment and system improvements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Shipboard Crane Systems/Shipboard Cargo Systems	-	-	0.163
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: FY15 - Continue investigation and demonstration of shipboard crane/cargo systems improvements.			
Title: Sealift Concept Development	-	-	0.430
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3376 / *Strategic Sealift*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY15 - Continue providing Advanced Planning, Sealift Research, and Technology development and program guidance.			
Title: Lighter/HSV Seabase to Shore Cargo Transfer	-	-	5.000
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: FY15 - Continue development and demonstration of at-sea vehicle transfer capability.			
Accomplishments/Planned Programs Subtotals	-	-	5.593

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

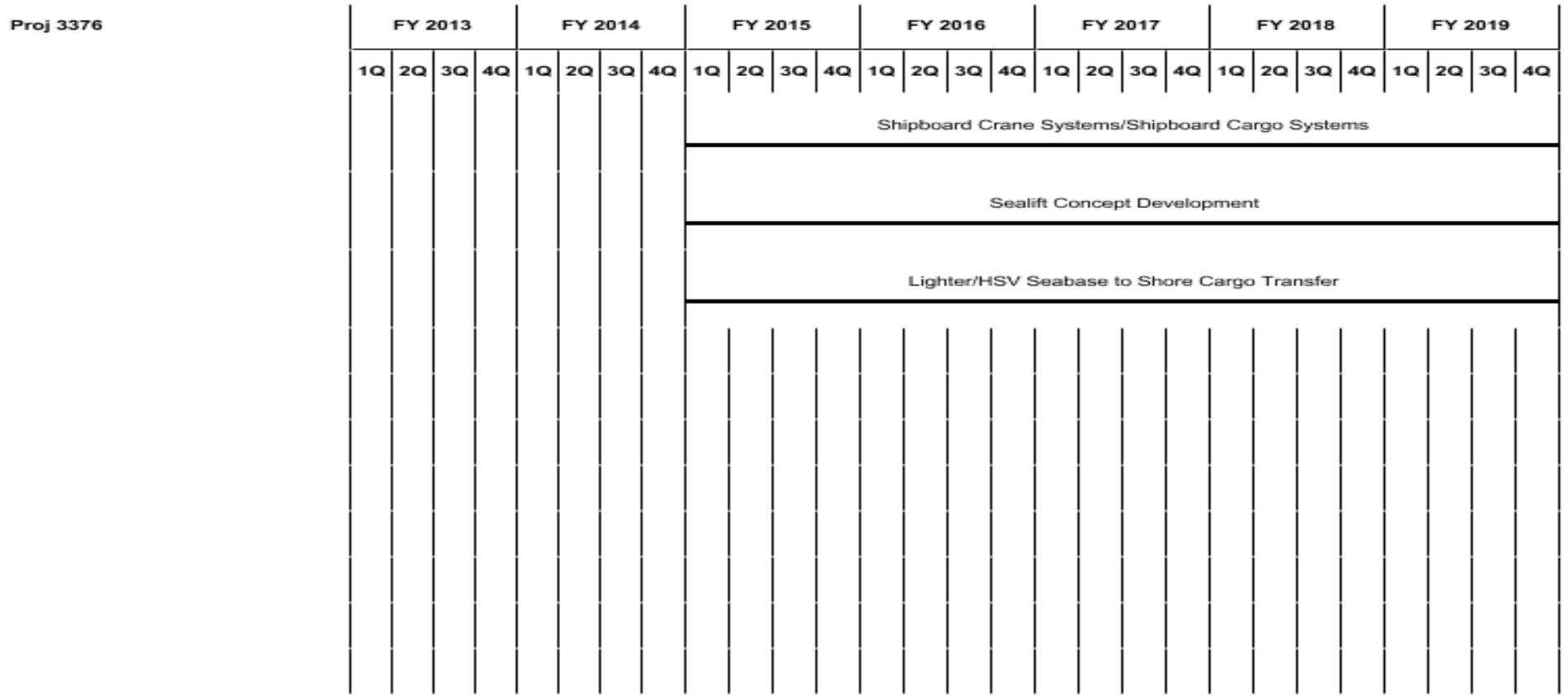
D. Acquisition Strategy

Not applicable for SEALIFT R&D efforts.

E. Performance Metrics

Annual Program Review.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603563N / *Ship Concept Advanced Design*	**Project (Number/Name)** 3376 / *Strategic Sealift*



2015OSD - 0603563N - 3376

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603564N *I Ship Prel Design & Feasibility Studies*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	27.168	35.737	38.117	23.716	-	23.716	29.895	31.791	38.498	39.194	Continuing	Continuing
0408: *Ship Development (ADV)*	0.000	-	-	-	-	-	7.500	17.500	25.000	30.000	Continuing	Continuing
0409: *DDG-51 Flt III Concept Development*	20.767	9.248	11.391	5.753	-	5.753	3.332	-	-	-	-	50.491
2474: *LX(R) Design & Total Ship Integration*	6.401	1.522	15.661	-	-	-	-	-	-	-	-	23.584
3377: *Naval Operational Logistics Integration*	0.000	-	-	17.963	-	17.963	19.063	14.291	13.498	9.194	Continuing	Continuing
9999: *Congressional Adds*	0.000	24.967	11.065	-	-	-	-	-	-	-	-	36.032
MDAP/MAIS Code: 180												

The FY 2015 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 all Gate and Milestone (MS) documentation, Capabilities Development Documentation (CDD), and Indicative Design (ID). Program is on track to support FY26 retirement of LSDs. LX(R) will move to RDTEN PE 0604454N Project 2474 starting in FY15 and out.

3377 - Naval Operational Logistics Integration (OPLOG) - Develops enabling technologies for future and in-service afloat operational logistics and integrated supply systems; defines integrated combat logistics force and combatant logistics requirements; and provides a forum for cooperative initiatives of acquisition programs, program sponsors, engineering managers, the Navy science and technology community, and fleet customers. This project was previously funded in the National Defense Sealift Fund (NDSF) Appropriation (BA 04, PE 0408042N, Project 3117 Naval Operational Logistics Integration). This project in FY 2015 and later is a continuation of efforts and is not a new start.

NDSF BA 04 Project 3117 prior year amounts: FY 2013: $18.170M; FY 2014: $20.024M

C253 - Develop concept studies, ship design, and trade off studies in support of recapitalization of the existing T-AO 187 Fleet Oiler Class. The Navy's Combat Logistics Force (CLF) oilers supply fuel and dry cargo to Navy ships at sea. The T-AO(X) will operate as a shuttle ship from resupply ports to customer ships. Additionally, in

conjunction with a T-AKE Dry Cargo/Ammunition Ship, they will accompany and stay on-station with a Carrier Strike Group (CSG) to provide fuel as required to customer ships.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	13.710	27.052	46.878	-	46.878
Current President's Budget	35.737	38.117	23.716	-	23.716
Total Adjustments	22.027	11.065	-23.162	-	-23.162
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	11.065			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.522	-			
• SBIR/STTR Transfer	-0.549	-			
• Program Adjustments	-	-	-22.590	-	-22.590
• Rate/Misc Adjustments	-	-	-0.572	-	-0.572
• Congressional General Reductions Adjustments	-0.046	-	-	-	-
• Congressional Directed Reductions Adjustments	-3.900	-	-	-	-
• Congressional Add Adjustments	25.000	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2013	FY 2014
Project: 9999: *Congressional Adds*		
Congressional Add: *T-AO(X) - Cong*	-	11.065
Congressional Add: *TAO(X) Design*	24.967	-
Congressional Add Subtotals for Project: 9999	24.967	11.065
Congressional Add Totals for all Projects	24.967	11.065

Change Summary Explanation

Schedule: The Department delayed procurement of the first LX(R) from FY 2019 to FY 2020.

Cost/Funding: Added funds in FY 2013 for project 2474 (LX(R)). The FY 2015 program for project 0409 was adjusted to properly phase program requirements with expenditures. Began funding Project 3377 which was previously funded in the NDSF Appropriation (BA 04 PE 0408042N, Project 3117 Naval Operational

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603564N *I Ship Prel Design & Feasibility Studies*

Logistics Integration). This project in FY 2015 and later is a continuation of efforts and is not a new start. Project 2474 (LX(R)) moves to new Program Element 0604454N Project 2474 (LX(R)) in FY 2015 and later.

Other: Congressional action moved FY 2014 funding from NDSF (BA 04 PE 0408042N, Project 3417 Future Combat Logistics Force Development) into this PE. FY 2013 NDSF amount: $8.971M

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / *Ship Prel Design & Feasibility Studies*	Project (Number/Name) 0408 / *Ship Development (ADV)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0408: *Ship Development (ADV)*	-	-	-	-	-	-	7.500	17.500	25.000	30.000	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This project unit supports three efforts.

SURFTECH - The evaluation of advanced and alternative technologies through the Surface Ship Technology (SURFTECH) process for examining suitability for meeting total ship concepts capability needs. The objective of this project is to provide decision makers with feasible, affordable alternatives to be selected for further development. In support of surface ship advanced technology development and transformation, the surface ship community has instituted a technology evaluation process to coordinate, identify, prioritize, and integrate technology insertion and development efforts and assist RDT&E community efforts to initiate appropriate technology development. The current acquisition guidelines require the development of critical technologies after Milestone A. If significant gap analysis, planning, and early development efforts are not conducted in parallel with Concept Development the Navy will not be able to provide broad, cross-platform direction to surface navy development efforts in an effective manner and will not effectively leverage limited resources to quicken the pace of both development and transition of critical mission technologies for timely acquisition.

AGOR OCEAN - Funding supports the acquisition of general purpose research vessels which will conduct science, educational and engineering operations in all oceans, and will be operated by the University Oceanographic Laboratory System (UNOLS).

LCC Class ESA of the LCC 19 & 20 will be conducted to determine life extensions.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

NONE

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / *Ship Prel Design & Feasibility Studies*	Project (Number/Name) 0409 / *DDG-51 Flt III Concept Development*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0409: *DDG-51 Flt III Concept Development*	20.767	9.248	11.391	5.753	-	5.753	3.332	-	-	-	-	50.491
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Proj:0409 DDG-51 Flt III Concept Development	9.248	11.391	5.753
Articles:	-	-	-
FY 2013 Accomplishments: 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. 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 0409 / *DDG-51 Flt III Concept Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. Develop Engineering Change Proposal packages to the level necessary to award Detail Design contracts. Support cost estimating. Continue development of Land Based Engineering Site modifications, equipment installation and preliminary testing. ***FY 2015 Plans:*** Continue to develop functional design Government Furnished Information for combat systems. Continue development of Engineering Change Proposal packages to level necessary to compete and award shipbuilding contracts. Support cost estimating. Continue development of Land Based Engineering Site modifications, equipment installation and preliminary testing.			
Accomplishments/Planned Programs Subtotals	9.248	11.391	5.753

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• SCN/2122: *DDG 51 Class*	4,497.011	2,085.115	2,805.454	-	2,805.454	3,201.742	3,312.269	3,354.739	3,337.383	Continuing	Continuing
• SCN/5300: *Completion of PY Shipbuilding Programs (DDG 51)*	-	-	129.144	-	129.144	75.014	-	-	-	-	204.158

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 reflects the competitive award of the FY13-17 Multi-Year Procurement in a Flight IIA configuration, and supports Flight III upgrades beginning with the second FY16 ship.

E. Performance Metrics

None

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / *Ship Prel Design & Feasibility Studies*	Project (Number/Name) 0409 / *DDG-51 Flt III Concept Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DDG 51 FLT III Concept Study	WR	NSWC : Dahlgren, VA	2.920	-		-		-		-		-	-	2.920	-
DDG 51 FLT III Concept Study	WR	NSWC : Carderock, MD	3.076	-		-		-		-		-	-	3.076	-
DDG 51 FLT III Concept Study	WR	SPAWAR : Charleston, SC	0.285	-		-		-		-		-	-	0.285	-
DDG 51 FLT III Concept Study	FFRDC	JHU : Baltimore, MD	1.447	-		-		-		-		-	-	1.447	-
DDG 51 FLT III Concept Study	MIPR	CPSD : Columbia, SC	0.000	-		-		-		-		-	-	-	-
DDG 51 FLT III Concept Study	C/CPAF	BIW : Bath, ME	0.376	-		-		-		-		-	-	0.376	-
DDG 51 FLT III Concept Study	WR	NRL : Washington, DC	0.164	-		-		-		-		-	-	0.164	-
DDG 51 FLT III Concept Study	C/CPAF	Ingalls : Pascagoula, MS	0.214	-		-		-		-		-	-	0.214	-
DDG 51 FLT III Concept Study	C/CPAF	Seaport : Washington, DC	4.819	-		-		-		-		-	-	4.819	-
DDG 51 FLT III Concept Study	MIPR	DTIC : Ft. Belvoir, VA	0.002	-		-		-		-		-	-	0.002	-
DDG 51 FLT III Concept Study	Various	Various : Washington, DC	1.653	-		-		-		-		-	-	1.653	-
DDG 51 FLT III Concept Study	WR	SPAWAR : San Diego, CA	0.244	-		-		-		-		-	-	0.244	-
DDG 51 FLT III Concept Study	WR	NAWC : Pax River, MD	0.025	-		-		-		-		-	-	0.025	-
DDG 51 FLT III Preliminary Design	WR	NSWC : Carderock, MD	1.771	3.154	Dec 2012	0.448	Jan 2014	-		-		-	-	5.373	-
DDG 51 FLT III Preliminary Design	C/CPAF	Seaport : Washington, DC	2.115	4.042	May 2013	0.518	May 2014	-		-		-	-	6.675	-
DDG 51 FLT III Preliminary Design	WR	NSWC : Dahlgren, VA	1.086	0.971	Apr 2013	0.224	Apr 2014	-		-		-	-	2.281	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 0409 / *DDG-51 Flt III Concept Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DDG 51 FLT III Preliminary Design	C/CPAF	BIW : Bath, ME	0.285	0.250	Aug 2013	0.095	Dec 2013	-		-		-	-	0.630	-
DDG 51 FLT III Preliminary Design	C/CPAF	Ingalls : Pascagoula, MS	0.285	0.250	Aug 2013	0.095	Apr 2014	-		-		-	-	0.630	-
DDG 51 FLT III Contract Design	WR	NSWC : Dahlgren, VA	0.000	-		1.846	Apr 2014	1.885	Feb 2015	-		1.885	0.352	4.083	-
DDG 51 FLT III Contract Design	WR	NSWC : Carderock, MD	0.000	0.181	Aug 2013	3.390	Apr 2014	2.310	Feb 2015	-		2.310	0.503	6.384	-
DDG 51 FLT III Contract Design	C/CPAF	Ingalls : Pascagoula, MS	0.000	-		1.000	Apr 2014	0.200	Feb 2015	-		0.200	-	1.200	-
DDG 51 FLT III Contract Design	C/CPAF	Seaport : Washington, DC	0.000	0.400	May 2013	2.775	May 2014	1.158	Feb 2015	-		1.158	2.477	6.810	-
DDG 51 FLT III Contract Design	C/CPAF	BIW : Bath, ME	0.000	-		1.000	Dec 2013	0.200	Feb 2015	-		0.200	-	1.200	-
		Subtotal	20.767	9.248		11.391		5.753		-		5.753	3.332	50.491	-

	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	20.767	9.248		11.391		5.753		-		5.753	3.332	50.491	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 0409 / *DDG-51 Flt III Concept Development*

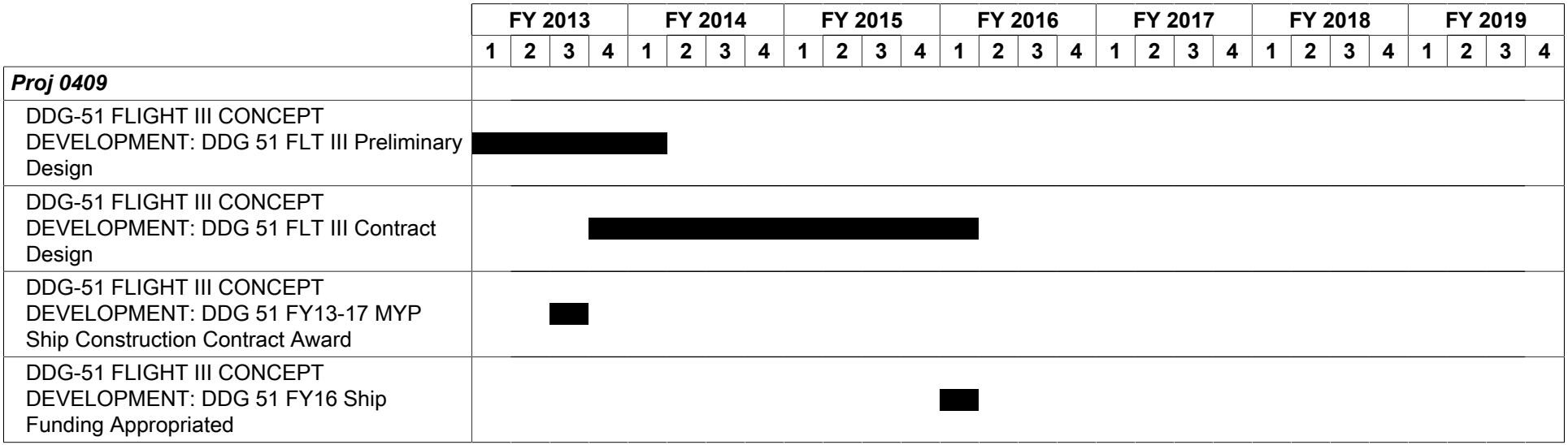


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 0409 / *DDG-51 Flt III Concept Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0409				
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FLT III Preliminary Design	1	2013	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 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603564N / *Ship Prel Design & Feasibility Studies*				Project (Number/Name) 2474 / *LX(R) Design & Total Ship Integration*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2474: *LX(R) Design & Total Ship Integration*	6.401	1.522	15.661	-	-	-	-	-	-	-	-	23.584
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

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 all Gate and Milestone (MS) documentation, Capabilities Development Documentation (CDD), and Indicative Design (ID). Program is on track to support FY26 retirement of LSDs. LX(R) will move to RDTEN PE 0604454N Project 2474 starting in FY15 and out.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: LX(R) DESIGN/TOTAL SHIP INTEGRATION	1.522	15.661	-
Articles:	-	-	-
FY 2013 Accomplishments: Material Development Decision (MDD) Acquisition Decision Memo dated 12 March 2013. Conducted Analysis of Alternatives (AoA) including an "Affordability Deep Dive" directed by Assistant Secretary of the Navy (Research, Development & Acquisition) (ASN RD&A). Issued a Request For Information (RFI) to investigate potential ship cost reductions.			
FY 2014 Plans: Conduct Alternative Systems Review. Complete Navy staffing of Capabilities Development Document (CDD). Develop documentation for Gate 2 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 Master Plan (TEMP), Life Cycle Sustainment Plan (LCSP), Acquisition Strategy (AS), etc. Begin Indicative Design (ID), and shipbuilding industry studies. Conduct Gate 2.			
FY 2015 Plans: N/A			
Accomplishments/Planned Programs Subtotals	1.522	15.661	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 2474 / *LX(R) Design & Total Ship Integration*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• SCN/3010: *Amphibious Ship Replacement LX(R)*	-	-	-	-	-	-	-	-	174.000	Continuing	Continuing
• RDTEN/0604454N: *LX (R)*	-	-	36.859	-	36.859	56.901	32.824	12.813	9.806	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 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / *Ship Prel Design & Feasibility Studies*	Project (Number/Name) 2474 / *LX(R) Design & Total Ship Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Design/Systems Integration	C/CPIF	CSC, Alion, TBD** : Washington, DC	3.898	0.252	Sep 2013	6.610	Dec 2013	-		-		-	-	10.760	-
Design/Systems Integration	WR	NSWC Carderock : NSWC Beth, MD	1.114	0.234	Jul 2013	3.558	Dec 2013	-		-		-	-	4.906	-
Design/Systems Integration	WR	NSWC Dahlgren : Dahlgren, VA	0.304	0.076	Aug 2013	2.014	Dec 2013	-		-		-	-	2.394	-
Design/Systems Integration	WR	PEO C4I, PEO IWS : Washington, DC	1.085	0.360	Aug 2013	1.289	Dec 2013	-		-		-	-	2.734	-
Design/Systems Integration	WR	NAWC Lakehurst : Lakehurst, NJ	0.000	-		0.300	Dec 2013	-		-		-	-	0.300	-
Design/Systems Integration	WR	NSLC Mechanicsburg : Mechanicsburg, PA	0.000	-		0.250	Dec 2013	-		-		-	-	0.250	-
Design/Systems Integration	WR	NSWC, Port Hueneme : Port Hueneme, CA	0.000	-		0.250	Dec 2013	-		-		-	-	0.250	-
Design/SI (Shipbuilder Participation)	C/CPFF	HII, General Dynamics : Various	0.000	0.600	Nov 2013	1.390	Feb 2014	-		-		-	-	1.990	-
		Subtotal	6.401	1.522		15.661		-		-		-	-	23.584	-

	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.401	1.522		15.661		-		-		-	-	23.584	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 2474 / *LX(R) Design & Total Ship Integration*

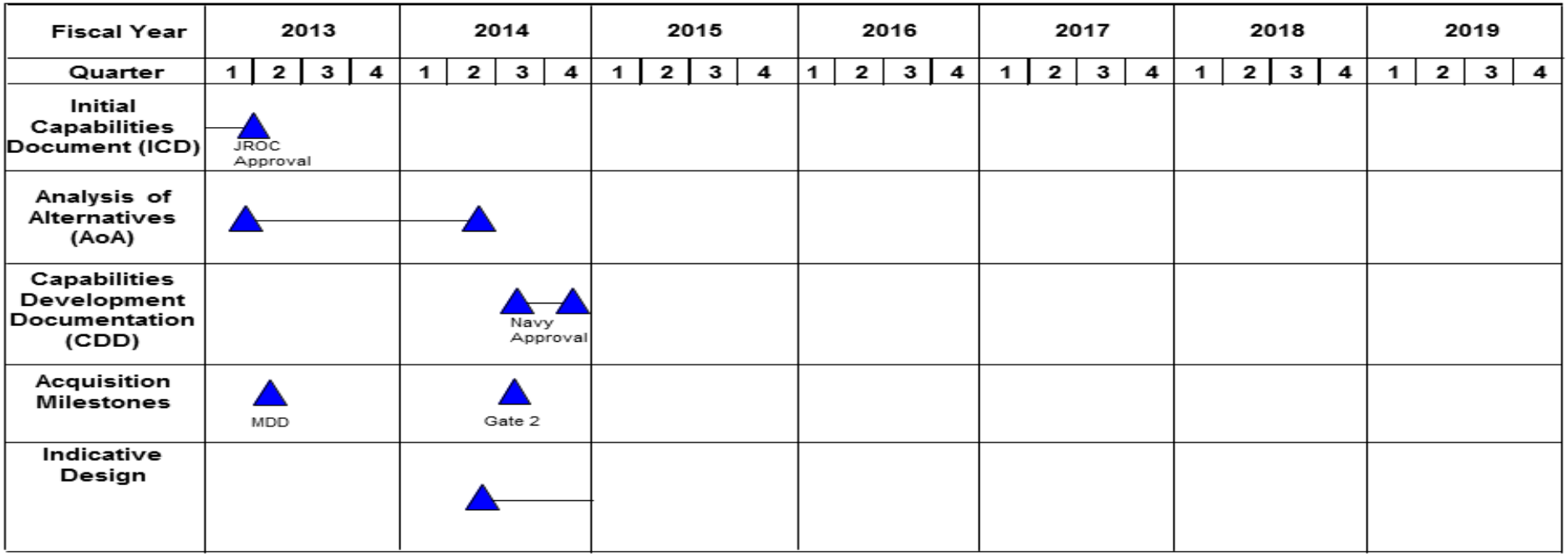


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 2474 / *LX(R) Design & Total Ship Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2474				
Initial Capabilities Document (ICD)	1	2013	2	2013
Analysis of Alternatives (AoA)	1	2013	2	2014
Capabilities Development Documentation (CDD)	3	2014	4	2014
Materiel Development Decision (MDD)	2	2013	2	2013
Gate 2	3	2014	3	2014
Indicative Design	2	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / *Ship Prel Design & Feasibility Studies*	Project (Number/Name) 3377 / *Naval Operational Logistics Integration*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3377: *Naval Operational Logistics Integration*	-	-	-	17.963	-	17.963	19.063	14.291	13.498	9.194	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

Prior to FY 2015 Project 3377 was funded in the NDSF Appropriation, BA 04 PE 0408042N under Project 3117 Naval Operational Logistics Integration. This project in FY 2015 and later is a continuation of efforts and is not a new start. NDSF BA 04 Project 3117 prior year amounts: FY 2013: $18.170M; FY 2014: $20.024M

A. Mission Description and Budget Item Justification

Project 3377 - Naval Operational Logistics Integration (OPLOG)- Develops enabling technologies for future and in-service afloat operational logistics and integrated supply systems; defines integrated combat logistics force and combatant logistics requirements; and conducts cooperative initiatives with acquisition programs, program sponsors, engineering managers, the Navy science and technology community and Fleet customers. OPLOG develops integrated, cross-platform (i.e. applicable to more than one ship class/type) operational logistics and energy conservation technologies and capabilities as well as draft acquisition and operations policy ensuring future Naval systems leverage emerging logistic capabilities and technologies to provide operationally effective and energy efficient logistics delivery.

Though the operational logistics family of systems touches all aspects of Naval presence and power projection, operational logistics capability and system interfaces typically have been left to individual acquisition programs to develop and resolve. Technology development is necessary to mitigate technological and operational risk before ship acquisition programs accept new technologies. This project provides a foundation for the transition and systems development of science & technology initiatives evolving from the Office of Naval Research (ONR) Power & Energy Future Naval Capabilities (FNC), Enterprise and Platform Enablers FNC, Seabasing FNC and from other enabling Government, industry and academia concepts to the acquisition community. Thus, this project resources continued research and development of appropriate technologies with applicability to multiple acquisition programs and defines and matures performance and interface requirements for those technologies. This project continues to identify, develop, integrate, demonstrate and transition logistics technologies to improve the cost effectiveness of Fleet at sea logistics delivery through outreach, coordination and collaboration with industry, academia, Fleet and Enterprise representatives.

This project will continue to develop improved shipboard replenishment, transfer, and handling systems and components as well as asset visibility and standardized packaging technologies. This project will include development of approaches to support Service goals for reduced energy consumption by the logistics Fleet. This integrated suite of
developed capabilities will enable multiple ship types to leverage common technologies common across DoD (Joint) and commercial transportation networks providing a more affordable, energy efficient, mission capable force. This capabilities and system-of-systems approach will be applied to concept development of future auxiliary force
architectures.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 3377 / *Naval Operational Logistics Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Advanced Replenishment Systems	-	-	2.063
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: FY15 - Continue testing of land-based prototype Electric-Standard Tensioned Replenishment Alongside Method (ESTREAM) fueling-at-sea station. Complete environmental and electromagnetic testing of ESTREAM replenishment at sea control cabinets and equipment. Develop designs for technology insertion into legacy STREAM stations to keep them supportable and operational throughout existing ship lives.			
Title: Standard Packaging Interfaces & Technologies	-	-	0.100
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: FY15 - Continue market surveillance of commercial and shipboard standardized packaging & interface technologies to identify cost effective and TOC reducing approaches for the Navy.			
Title: Asset Visibility and Planning	-	-	0.100
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 3377 / *Naval Operational Logistics Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY15 - Continue market surveillance of commercial and shipboard asset visibility and planning technologies to identify cost effective and TOC reducing equipment and approaches for the Navy.			
Title: Logistics Architectures	-	-	0.200
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** FY15 - Continue to identify operational cost drivers, develop solutions for future fleet improvements to MSC.			
Title: Integrated Naval Logistics	-	-	0.200
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** FY15 - Work within the NLI community to identify and implement cost savings naval logistics approaches.			
Title: Shipboard Material Transport	-	-	0.200
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** FY15 - First article testing heavy container mover built to meet Navy shipboard requirements.			
Title: Shipboard Energy Conservation	-	-	8.100
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 3377 / *Naval Operational Logistics Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** FY15 - Continue energy management approach improvements, validation of energy savings from implementation of energy conservation measures, identification and evaluation of additional energy conservation concepts, transition of successful energy conservation measures to MSC and coordination with other Navy energy conservation programs to leverage successful energy reduction approaches.			
Title: Ship Concept Development	-	-	7.000
Articles:	-	-	-
Description: Ship Concept Development for future common hull form tug and salvage capability. ***FY 2013 Accomplishments:*** N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** Conduct source selection, award multiple competitive Phase I design contracts, and oversee design phase; continue development of acquisition documentation for Milestone B.			
Accomplishments/Planned Programs Subtotals	-	-	17.963

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable for OPLOG R&D efforts.

E. Performance Metrics

Annual Program Review.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / *Ship Prel Design & Feasibility Studies*	Project (Number/Name) 3377 / *Naval Operational Logistics Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various	Various Contractors : Various	0.000	-		-		3.833	Jan 2015	-		3.833	Continuing	Continuing	Continuing
Ancillary Hardware Development	Various	Various Contractors : Various	0.000	-		-		2.000	Jan 2015	-		2.000	Continuing	Continuing	Continuing
Ship Integration	Various	Various Contractors : Various	0.000	-		-		1.000	Jan 2015	-		1.000	Continuing	Continuing	Continuing
Ship Suitability	Various	Various Contractors : Various	0.000	-		-		1.500	Jan 2015	-		1.500	Continuing	Continuing	Continuing
Systems Engineering	Various	Various Contractors : Various	0.000	-		-		1.500	Jan 2015	-		1.500	Continuing	Continuing	Continuing
Preliminary Contract Design	TBD	Various Contractors : Various	0.000	-		-		4.000	Feb 2015	-		4.000	-	4.000	-
		Subtotal	0.000	-		-		13.833		-		13.833	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various	Various Contractors : Various	0.000	-		-		0.450	Jan 2015	-		0.450	Continuing	Continuing	Continuing
Integrated Logistics Support	Various	Various Contractors : Various	0.000	-		-		0.180	Jan 2015	-		0.180	Continuing	Continuing	Continuing
Configuration Management	Various	Various Contractors : Various	0.000	-		-		0.200	Jan 2015	-		0.200	Continuing	Continuing	Continuing
Technical Data	Various	Various Contractors : Various	0.000	-		-		0.400	Jan 2015	-		0.400	Continuing	Continuing	Continuing
Studies & Analyses	Various	Various Contractors : Various	0.000	-		-		0.100	Jan 2015	-		0.100	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		1.330		-		1.330	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / *Ship Prel Design & Feasibility Studies*	Project (Number/Name) 3377 / *Naval Operational Logistics Integration*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various Contractors : Various	0.000	-		-		0.500	Jan 2015	-		0.500	Continuing	Continuing	Continuing
Operational Test & Evaluation	Various	Various Contractors : Various	0.000	-		-		0.500	Jan 2015	-		0.500	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		1.000		-		1.000	-	-	-

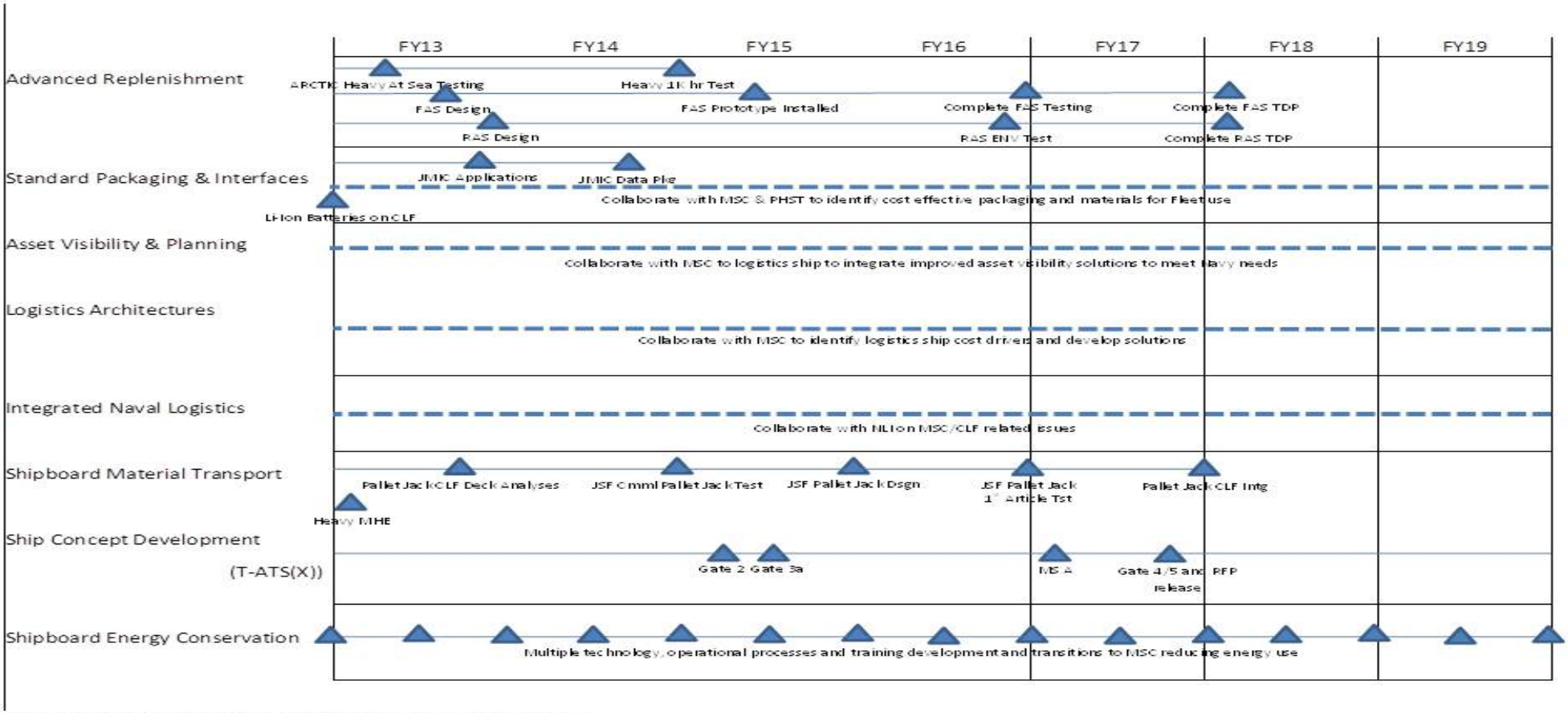
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	Various Contractors : Various	0.000	-		-		0.200	Jan 2015	-		0.200	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various Contractors : Various	0.000	-		-		0.400	Jan 2015	-		0.400	Continuing	Continuing	Continuing
Project/Acquisition Management	Various	Various Contractors : Various	0.000	-		-		1.200	Jan 2015	-		1.200	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		1.800		-		1.800	-	-	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		17.963		-		17.963	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 3377 / *Naval Operational Logistics Integration*



Note: FY 13/14 efforts funded under NDSF BA 04 Project 3117.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / *Ship Prel Design & Feasibility Studies*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
9999: *Congressional Adds*	-	24.967	11.065	-	-	-	-	-	-	-	-	36.032
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

Beginning in FY13, Research and Development efforts for T-AO(X) (3417) is funded under RDTE,N PE 0603564N, PROJ C253 by a FY13 congressional add vice NDSF. FY14 RDTE,N efforts are funded under PROJ 3375C.

A. Mission Description and Budget Item Justification

T-AO(X) Design - Develop concept studies, ship design, and trade off studies in support of recapitalization of the existing T-AO 187 Fleet Oiler Class. The Navy's Combat Logistics Force (CLF) oilers supply fuel and dry cargo to Navy ships at sea. The T-AO(X) will operate as a shuttle ship from resupply ports to customer ships. Additionally, in conjunction with a T-AKE Dry Cargo/Ammunition Ship, they will accompany and stay on-station with a Carrier Strike Group (CSG) to provide fuel as required to customer ships.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014
Congressional Add: T-AO(X) - Cong ***FY 2013 Accomplishments:*** Efforts funded under RDTE,N PE 0603564N, PROJ C253. ***FY 2014 Plans:*** Efforts funded under RDTE,N PE 0603564N, PROJ C253. FY 2015 Plans: Support the conduct of OSD Pre-B Decision Point. Issue DD&C RFP after Pre-B Decision Point, begin conduct of source selection. Support development and staffing of Milestone B (MS B) documents. Develop Developmental Testing Phase A (DT-A) Report in support of MS B. Support conduct of Preliminary Survivability Assessment Report (PSAR). Coordinate efforts with NAVSEA, MSC, PEO Ships, CNO, ASN RD&A, OSD and Fleet.	-	11.065
Congressional Add: TAO(X) Design ***FY 2013 Accomplishments:*** Supported the conducted of originally planned Milestone A. Issued Industry Studies RFP, conducting source selection and awarded Industry Studies contracts. Provided engineering support to the T-AO(X) design process and validation of requirements. Supported update of the T-AO(X) System Specification and began the development of the Detail Design and Construction (DD&C) RFP. Developed the	24.967	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 9999 / *Congressional Adds*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014
Service Cost Position (SCP) and conducted cost/capability tradeoffs and affordability analysis. Coordinated efforts with NAVSEA, MSC, PEO Ships, CNO, ASN RD&A, OSD and Fleet. ***FY 2014 Plans:*** Continue to provide engineering support for the T-AO(X) design process, validation of requirements and oversight of Industry Studies contracts. Support initial development and staffing of Pre-B documents. Support the conduct of Systems Functional Review (SFR). Coordination efforts with NAVSEA, MSC, PEO Ships, CNO, ASN RD&A, OSD and Fleet. FY 2014 efforts financed with FY 2013 carryover.		
Congressional Adds Subtotals	24.967	11.065

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• SCN/5025: *Fleet Oiler Recapitalization T-AO(X)*	-	-	-	-	-	682.054	-	587.160	588.979	-	1,858.193

Remarks

D. Acquisition Strategy

The first Fleet Oiler will be awarded in FY16. Fleet oilers will comply with the Oil Pollution Act of 1990 (OPA-90) and International Marine Pollution Regulation (MARPOL) requirements.

E. Performance Metrics

None.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / *Ship Prel Design & Feasibility Studies*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Integration and Design	Various	SPAWAR, NSWC, NAVAIR, CSC & Alion : Charleston, Carderock & Pt Hueneme, Pax River & DC	0.000	5.150	Oct 2013	5.215	Jan 2015	-		-		-	-	10.365	-
Engineering System Spec Development	C/CPFF	Alion : DC	0.000	0.800	Sep 2013	-		-		-		-	-	0.800	-
Design Concepts/TOC/ Trade Off Studies	TBD	Various : Various	0.000	9.000	Jul 2013	-		-		-		-	-	9.000	-
Expanded Industry Studies	Various	Various : Various	0.000	4.000	Nov 2013	-		-		-		-	-	4.000	-
		Subtotal	0.000	18.950		5.215		-		-		-	-	24.165	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics, Risk Management, RFP Development	C/CPFF	Alion : DC	0.000	1.000	Sep 2013	1.000	Jan 2015	-		-		-	-	2.000	-
MilestoneA/B & Pre-B Documentation Support	C/CPFF	Alion & CSC : DC	0.000	1.500	Sep 2013	2.000	Jan 2015	-		-		-	-	3.500	-
		Subtotal	0.000	2.500		3.000		-		-		-	-	5.500	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	Various	Various : Various	0.000	0.550	Dec 2013	0.250	Jan 2015	-		-		-	-	0.800	-
Operational Test & Evaluation	Various	Various : Various	0.000	0.750	Dec 2013	0.350	Jan 2015	-		-		-	-	1.100	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603564N / *Ship Prel Design & Feasibility Studies*	Project (Number/Name) 9999 / *Congressional Adds*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Live Fire Test & Evaluation	Various	Various : Various	0.000	0.650	Dec 2013	0.350	Jan 2015	-		-		-	-	1.000	-
		Subtotal	0.000	1.950		0.950		-		-		-	-	2.900	-

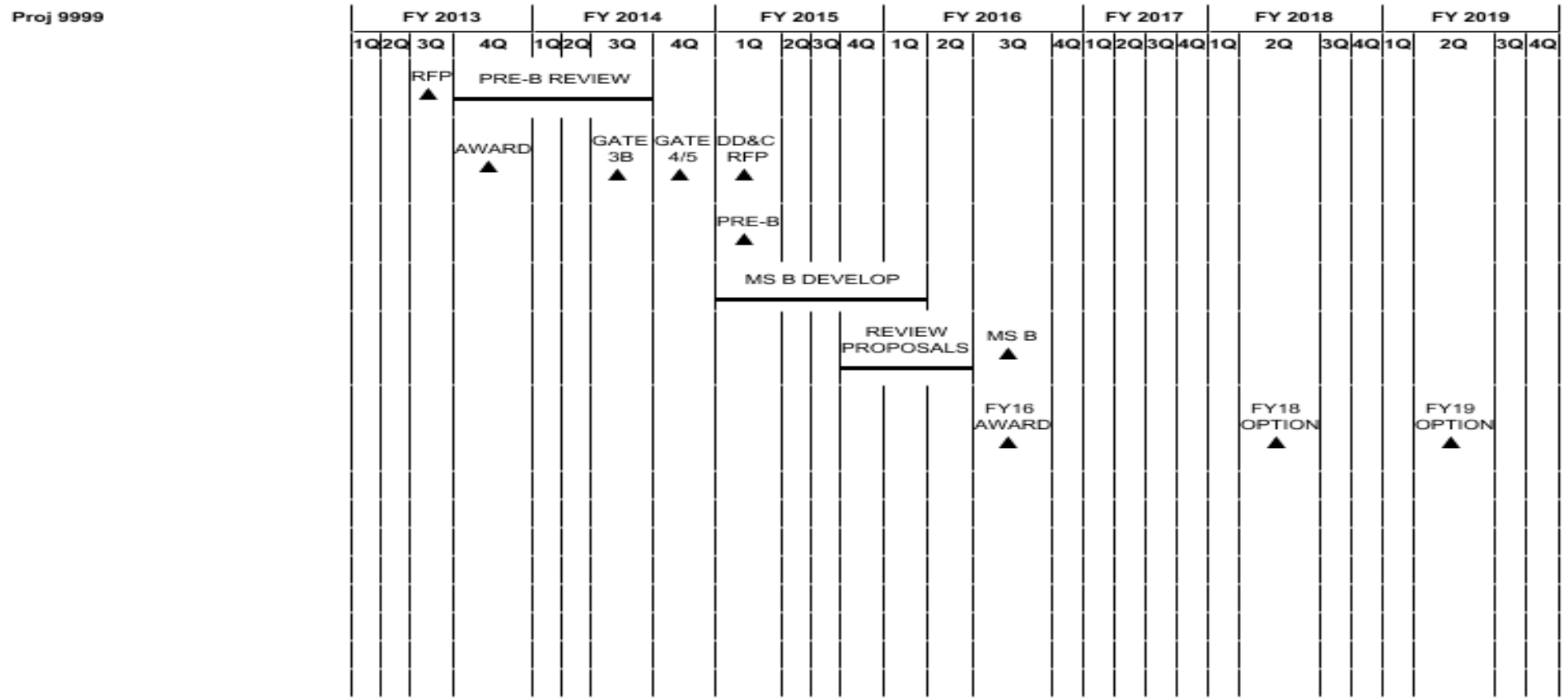
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Source Selection Documentation	WR	NSWC : Carderock	0.000	0.200	Sep 2013	0.900	Jan 2015	-		-		-	-	1.100	-
Program Management Support	C/CPFF	Alion & CSC : DC	0.000	1.367	Sep 2013	1.000	Jan 2015	-		-		-	-	2.367	-
		Subtotal	0.000	1.567		1.900		-		-		-	-	3.467	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	24.967		11.065		-		-		-	-	36.032	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 9999 / *Congressional Adds*



2015PB - 0603564N - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603564N / *Ship Prel Design & Feasibility Studies*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
RELEASE T-AO(X) INDUSTRY STUDIES RFP	3	2013	3	2013
T-AO(X) PRE-B REVIEW DOCUMENTATION DEVELOPMENT	4	2013	3	2014
T-AO(X) INDUSTRY STUDIES AWARD	4	2013	4	2013
T-AO(X) GATE 3B	3	2014	3	2014
T-AO(X) GATE 4/5	4	2014	4	2014
T-AO(X) PRE-B REVIEW	1	2015	1	2015
RELEASE T-AO(X) DD&C RFP	1	2015	1	2015
T-AO(X) MS B DOCUMENTATION DEVELOPMENT	1	2015	1	2016
EVALUATE T-AO(X) DD&C PROPOSALS	4	2015	2	2016
T-AO(X) MILESTONE B	3	2016	3	2016
T-AO(X) 1601 DD&C AWARD	3	2016	3	2016
T-AO(X) 1801 DD&C OPTION	2	2018	2	2018
T-AO(X) 1901 DD&C OPTION	2	2019	2	2019

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603570N *I Advanced Nuclear Power Systems*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	228.861	428.933	499.961	-	499.961	485.933	476.226	467.646	358.901	Continuing	Continuing
1258: *Nuclear Technology Development*	0.000	54.947	60.727	65.204	-	65.204	63.272	64.628	65.948	67.599	Continuing	Continuing
2692: *CVN 21 Propulsion Plant Development*	0.000	58.193	57.499	60.459	-	60.459	-	-	-	-	-	176.151
3219: *SBSD Nuclear Technology Development*	0.000	73.714	296.050	369.964	-	369.964	422.661	411.598	401.698	291.302	Continuing	Continuing
3221: *Training Platform Replacement*	0.000	40.218	14.657	4.334	-	4.334	-	-	-	-	-	59.209
4000: *Tactical Energy Investment*	0.000	1.789	-	-	-	-	-	-	-	-	-	1.789

The FY 2015 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.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	249.748	428.933	481.232	-	481.232
Current President's Budget	228.861	428.933	499.961	-	499.961
Total Adjustments	-20.887	-	18.729	-	18.729
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.064	-			
• Program Adjustments	-	-	20.682	-	20.682
• Rate/Misc Adjustments	-	-	-1.953	-	-1.953
• Congressional General Reductions Adjustments	-20.823	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603570N *I Advanced Nuclear Power Systems*

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603570N / *Advanced Nuclear Power Systems*				Project (Number/Name) 1258 / *Nuclear Technology Development*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
1258: *Nuclear Technology Development*	-	54.947	60.727	65.204	-	65.204	63.272	64.628	65.948	67.599	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603570N / *Advanced Nuclear Power Systems*				Project (Number/Name) 2692 / *CVN 21 Propulsion Plant Development*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2692: *CVN 21 Propulsion Plant Development*	-	58.193	57.499	60.459	-	60.459	-	-	-	-	-	176.151
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603570N / *Advanced Nuclear Power Systems*				Project (Number/Name) 3219 / *SBSD Nuclear Technology Development*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
3219: *SBSD Nuclear Technology Development*	-	73.714	296.050	369.964	-	369.964	422.661	411.598	401.698	291.302	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603570N / *Advanced Nuclear Power Systems*				Project (Number/Name) 3221 / *Training Platform Replacement*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
3221: *Training Platform Replacement*	-	40.218	14.657	4.334	-	4.334	-	-	-	-	-	59.209
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603570N / *Advanced Nuclear Power Systems*				Project (Number/Name) 4000 / *Tactical Energy Investment*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
4000: *Tactical Energy Investment*	-	1.789	-	-	-	-	-	-	-	-	-	1.789
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603573N *I Advanced Surface Machinery Sys*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	82.619	26.642	18.144	21.026	-	21.026	26.384	23.262	18.209	18.573	Continuing	Continuing
2471: *Integrated Power Systems (IPS)*	82.619	26.642	18.144	21.026	-	21.026	26.384	23.262	18.209	18.573	Continuing	Continuing

The FY 2015 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 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603573N *I Advanced Surface Machinery Sys*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	29.897	27.154	29.167	-	29.167
Current President's Budget	26.642	18.144	21.026	-	21.026
Total Adjustments	-3.255	-9.010	-8.141	-	-8.141
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-9.010			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.822	-			
• Rate/Misc Adjustments	-	-	-8.141	-	-8.141
• Congressional General Reductions Adjustments	-2.433	-	-	-	-

Change Summary Explanation

FY 2013 reductions reflect Congressionally mandated sequestration and general reductions.

FY 2014 reflects Congressional reductions.

FY 2015 reductions reflect the Department's decision to reduce contracted services.
FY 2015 program was also adjusted to properly phase program requirements with expenditures.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603573N / *Advanced Surface Machinery Sys*	Project (Number/Name) 2471 / *Integrated Power Systems (IPS)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2471: *Integrated Power Systems (IPS)*	82.619	26.642	18.144	21.026	-	21.026	26.384	23.262	18.209	18.573	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 DDG51 Flight III 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.

Mission Power: Designs, develops, tests and integrates shipboard power systems to incorporate advanced sensors, Directed Energy and other advanced weapons. Design and testing includes Modeling and Simulation, as well as land based testing, to reduce risk and demonstrate readiness for shipboard use. AMDR PCM provides power conversion from ship's 4160 VAC distribution systems to 1000 VDC at 1.4MW to support ship installation of AMDR Radar.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Energy Efficiency	20.341	10.200	8.931
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603573N / *Advanced Surface Machinery Sys*	**Project (Number/Name)** 2471 / *Integrated Power Systems (IPS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Completed testing of the Energy Storage Module (ESM) Proof Of Concept (POC) which was developed by the Office of Naval Research (ONR). PMS-320 leveraged ONR's development investment and conducted land based testing of this unit. PMS-320 incorporated lessons learned into the ESM Increment 1 specification. Awarded contracts and commenced design for Gas Turbine (GT) Efficiency Upgrades Phases I-II and ESM Increment 1. GT Efficiency Upgrades and ESM increment 1 directly support the Navy's Energy Efficiency Initiatives and are projected to save approx. 8,390 barrels (352,380 gallons) of fuel per ship per year. Commenced design of the Advanced Power Generation Module (APGM) High Efficiency (HE)+ engine which directly supports the Navy's Energy Efficiency Initiatives. APGM provides reduced fuel consumption, increased time on station, and higher installed power (Single Shaft) for advanced sensors and future weapons. Initiated ESM Increment 1 test planning. 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 2014 Plans:*** Complete design of ESM Increment 1 system. Order portions of Long Lead Time Material (LLTM) for ESM Increment 1 First Article Unit (FAU). Continue ESM Increment 1 test planning and commence land based test site modifications. Continue design and begin procurement of the APGM HE+ gas turbine engine. Commence design of APGM Generator Set. Commence APGM land based test planning. Continue development of Gas Turbine (GT) Efficiency Upgrades. ***FY 2015 Plans:*** Order remaining LLTM for ESM Increment 1 FAU. Commence build of ESM Increment 1 FAU. Continue ESM Increment 1 land based test planning and land based test site modifications. Complete design of APGM HE+ gas turbine engine and Generator Set. Procure material required for build of APGM Generator Set. Continue test planning for DDG51 Flight III electric system testing. The APGM is an upgrade to the DDG1000 auxiliary gas turbine. The APGM will meet DDG51 Flight III power requirements and reduce life cycle costs through increased fuel efficiency over legacy gas turbine generator sets.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603573N / *Advanced Surface Machinery Sys*	**Project (Number/Name)** 2471 / *Integrated Power Systems (IPS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue development of Gas Turbine (GT) Efficiency Upgrades.			
Title: Mission Power	4.049	5.200	9.900
Articles:	-	-	-
FY 2013 Accomplishments: Developed DDG 51 Flight III AMDR power interface requirements for ship / radar electrical interface. Completed specification and initiated AMDR PCM acquisition. Continued developing, building, and commenced testing of Functional Equivalent Modules (FEMs) in support of DDG 51 Flight III AMDR land based testing. Support testing of the ONR developed Solid State Power Substation (SSPS) 4160 VAC to 1000 VDC power converter. ***FY 2014 Plans:*** Conduct Source Selection, award contract, and commence design of DDG 51 Flight III AMDR PCM. Transition ONR developed compact power components, (Bi-directional Power Converter, Multi-Function Power Converter, and Power Management Controller) per the signed Technology Transition Agreements (TTAs). Commence validation testing of compact power Multi - Function Power Converter. Complete testing of FEMs in support of DDG 51 Flight III AMDR land based testing. ***FY 2015 Plans:*** Complete design of DDG51 Flight III AMDR PCM shipboard units. Commence planning DDG51 Flight III AMDR PCM LRIP Factory Acceptance Test (FAT) and Environmental Qualification Tests(EQT). Continue planning for LBES test and initiate planning for AMDR / PCM integration testing and Developmental Testing (DT). Order LLTM for LRIP units 1,2,3,and 4. Begin transition to manufacture and begin build of the first 2 LRIP units which will support development testing of the DDG51 FLight III AMDR / PCM integration testing at the Surface Combat System Center (SCSC) wallops Island, VA.			
Title: Naval Power Technology Development / Platform Integration & Transition	2.252	2.744	2.195
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603573N / *Advanced Surface Machinery Sys*	**Project (Number/Name)** 2471 / *Integrated Power Systems (IPS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Continued to execute the The Advanced Electric Power and Propulsion Project, Project Arrangement (short title AEP3 PA or PA) ref DoD-MOD-N-12-0001 which is an agreement between the US and UK Governments to cooperate on a scope of work associated with characterising, developing, modelling and de-risking electrical power and propulsion system architectures and equipment for future surface and submarine platforms to meet the needs of both Navies. Continued to develop power and propulsion system configurations in support of future surface ship acquisition programs. Developed alternative power and propulsion solutions for future surface combatants and amphibious ships. 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, Directed Energy Weapons). 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. Completed writing and issued the Naval Power Systems Technology Development Roadmap. Led Platform Integration Integrated Product Team (IPT) for DoN's Directed Energy Roadmap. Initiated studies to determine appropriate Energy Magazine (EM) (previously referred to as ESM Increment 3) design requirements to support advanced weapons and sensors. Commenced design of compact militarized Vacuum Circuit Breakers (VCB) for transition to LHA-8 and DDG 51 Flight III.			
FY 2014 Plans: Continue to execute the The Advanced Electric Power and Propulsion Project, Project Arrangement (short title AEP3 PA or PA) ref DoD-MOD-N-12-0001 which is an agreement between the US and UK Governments to cooperate on a scope of work associated with characterising, developing, modelling and de-risking electrical power and propulsion system architectures and equipment for future surface and submarine platforms to meet the needs of both Navies. 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 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, Directed Energy			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603573N / *Advanced Surface Machinery Sys*	**Project (Number/Name)** 2471 / *Integrated Power Systems (IPS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Weapons). 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. Continue studies to determine appropriate Energy Magazine (EM) (previously referred to as ESM Increment 3) design requirements to support advanced weapons and sensors in conjunction with Laser and Railgun ONR efforts. Determine appropriate top level requirements and begin EM specification development. Complete design and commence manufacture and test VCB for compliance with required specifications. ***FY 2015 Plans:*** Continue to execute the The Advanced Electric Power and Propulsion Project, Project Arrangement (short title AEP3 PA or PA) ref DoD-MOD-N-12-0001 which is an agreement between the US and UK Governments to cooperate on a scope of work associated with characterising, developing, modelling, and de-risking electrical power and propulsion system architectures and equipment for future surface and submarine platforms to meet the needs of both Navies. 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 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 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 bi-annual update of the Naval Power Systems Technology Development Roadmap. Continue Energy Magazine (EM), previously referred to as ESM Increment 3, specification development and begin acquisition documentation.			
Accomplishments/Planned Programs Subtotals	26.642	18.144	21.026

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603573N / *Advanced Surface Machinery Sys*	**Project (Number/Name)** 2471 / *Integrated Power Systems (IPS)*

C. Other Program Funding Summary ($ in Millions)

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. When able to meet Navy requirements, Commercial technology is leveraged to further minimize cost to the Navy.

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 up to 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 up to a 3% improvement in existing gas turbine engine SFC over engine operating profile.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603576N *I (U)CHALK EAGLE*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	0.000	453.935	518.804	542.700	-	542.700	430.379	217.513	74.323	4.704	Continuing	Continuing
0000: *UNDIST*	0.000	-	-	0.289	-	0.289	0.153	0.067	0.018	0.002	Continuing	Continuing
1578: *Chalk Eagle*	0.000	453.935	518.804	542.411	-	542.411	430.226	217.446	74.305	4.702	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	509.988	519.140	495.196	-	495.196
Current President's Budget	453.935	518.804	542.700	-	542.700
Total Adjustments	-56.053	-0.336	47.504	-	47.504
• Congressional General Reductions	-	-0.336			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-6.632	-			
• Program Adjustments	-	-	7.832	-	7.832
• Rate/Misc Adjustments	-	-	39.672	-	39.672
• Congressional General Reductions Adjustments	-39.421	-	-	-	-
• Congressional Directed Reductions Adjustments	-10.000	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603576N / *(U)CHALK EAGLE*	Project (Number/Name) 0000 / *UNDIST*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0000: *UNDIST*	-	-	-	0.289	-	0.289	0.153	0.067	0.018	0.002	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603576N / *(U)CHALK EAGLE*				Project (Number/Name) 1578 / *Chalk Eagle*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
1578: *Chalk Eagle*	-	453.935	518.804	542.411	-	542.411	430.226	217.446	74.305	4.702	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603581N *I (U)LITTORAL COMBAT SHIP*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	3,143.183	374.966	210.217	88.734	-	88.734	109.146	33.481	33.922	34.930	Continuing	Continuing
3096: *Littoral Combat Ship*	815.424	133.995	163.337	88.734	-	88.734	109.146	33.481	33.922	34.930	Continuing	Continuing
3129: *LCS Mission Package Development*	815.409	196.903	42.000	-	-	-	-	-	-	-	-	1,054.312
4018: *Littoral Combat Ship Construction*	1,502.350	34.902	4.880	-	-	-	-	-	-	-	-	1,542.132
9999: *Congressional Adds*	10.000	9.166	-	-	-	-	-	-	-	-	-	19.166

MDAP/MAIS Code:
Other MDAP/MAIS Code(s): 374, 443

The FY 2015 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, issue resolution, certification, 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 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603581N *I (U)LITTORAL COMBAT SHIP*

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	429.420	406.389	337.220	-	337.220
Current President's Budget	374.966	210.217	88.734	-	88.734
Total Adjustments	-54.454	-196.172	-248.486	-	-248.486
• Congressional General Reductions	-	-0.043			
• Congressional Directed Reductions	-	-34.358			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-203.771			
• Reprogrammings	-	42.000			
• SBIR/STTR Transfer	-4.641	-			
• Program Adjustments	-	-	-241.402	-	-241.402
• Rate/Misc Adjustments	0.001	-	-7.084	-	-7.084
• Congressional General Reductions Adjustments	-35.314	-	-	-	-
• Congressional Directed Reductions Adjustments	-24.500	-	-	-	-
• Congressional Add Adjustments	10.000	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2013	FY 2014
Project: 9999: *Congressional Adds*		
Congressional Add: *LCS MM SBIR (Cong)*	9.166	-
Congressional Add Subtotals for Project: 9999	9.166	-
Congressional Add Totals for all Projects	9.166	-

Change Summary Explanation

FY 2014 changes result from Project Unit 3129 transferred to PE 0603596N and congressional reduction due to inflation. FY 2015 changes result from the Department's decision to reduce contracted services, rephasing requirements to match anticipated expenditures, re-phasing funds to FY 2016 due to delay of Full Ship Shock Trial (FSST) and Project Unit 3129 transferred to PE 0603596N.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603581N / *(U)LITTORAL COMBAT SHIP*				Project (Number/Name) 3096 / *Littoral Combat Ship*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
3096: *Littoral Combat Ship*	815.424	133.995	163.337	88.734	-	88.734	109.146	33.481	33.922	34.930	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: 374

The FY 2015 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 field the LCS Class Ships, including integration with the Mission Packages (MCM, ASW and SUW) activities both pre and post delivery. It includes the design and development effort required to support the introduction and deployment of a Flight 0+ baseline (LCS 3/4 And Follow) with incorporation of lessons learned from the design and construction of USS Freedom (LCS 1) and USS Independence (LCS 2). Additionally, it includes design, development, issue resolution, certification and testing 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, ship system design and integration, hull platform testing, development of Technical Data Packages (TDPs), total ship system engineering and integration, combat systems and warfare systems certification, and planning and conduct of system testing. These efforts include procurement of combat and warfare system elements and /or simulators to support production representative testing in support of design, development, and certification efforts and 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 2013**	**FY 2014**	**FY 2015**
Title: LCS System-of-Systems Development, Engineering & Experimentation	29.954	26.929	20.229
Articles:	-	-	-
Description: Provides for LCS Program systems engineering in support of Flight 0, Flight 0+, the FY10 Block Buy baseline design, and future procurement 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603581N / *(U)LITTORAL COMBAT SHIP*	**Project (Number/Name)** 3096 / *Littoral Combat Ship*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015

product development; and various systems engineering activities required to perform risk analyses of new design and production technology concepts.

FY 2013 Accomplishments:

Flight 0 baseline:

Continued Seaframe systems engineering support for USS Independence Post Shakedown Availability (PSA). Resolved emergent design issues identified during Seaframe DT and Special Trials. Provided engineering support in preparation for USS Independence Post Delivery Trials. Provided Seaframe and Mission Systems engineering support for USS Coronado Builders and Acceptance Trials. Provided Seaframe and Mission Systems engineering support to investigate, design, and develop technical solutions for design and production issues identified during USS Coronado Trials. Continued Seaframe and MP integration engineering support for USS Freedom and USS Independence. Conducted systems engineering support for MCM DT, air warfare and surface warfare firing events, sea-keeping trials, and aviation-integration trials for USS Independence. Continued deployment preparations of USS Freedom by supporting engineering solutions discovered and corrected via system engineering process are implemented and tested prior to deployment. Investigated, designed, and developed engineering solutions for design and production issues identified during USS Freedom and USS Independence operations (including testing). Developed solutions for emergent design and production issues highlighted in USS Freedom and USS Independence testing, certification and trials. Engineering analyses included combat system integration, off-board vehicle communications, and watercraft launch, recovery, and handling. Continued completion testing and certification of Seaframe systems on USS Independence. Continued to lead the transition of multiple Science and Technology (S&T) projects into the LCS baseline. Provided 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:

Provided Seaframe systems engineering support for USS Fort Worth Final Contract Trials and PSA and for USS Fort Worth DT. Continued Seaframe and MP integration engineering support for USS Fort Worth and USS Coronado. Investigated, designed, and developed engineering solutions for design and production issues identified during USS Fort Worth operations (including testing). Provided systems engineering support for planning of DT of the SUW mission package DT on USS Fort Worth, tested some of the solutions highlighted on USS Freedom and USS Independence, and supported the integration of these capabilities into their respective Seaframes. Began planning for DT that will be conducted on USS Coronado. Began planning for the Total Ship Survivability Trial (TSST) for USS Fort Worth and USS Coronado. Continued planning for Aluminum Compartmentalization on the Independence Variant to support Live Fire Test and Evaluation (LFT&E) requirements. Continued support for Navy Classification design site including facility, Integrated Digital Environment (IDE) support, and engineering support for drawing review. Continued to lead the transition of multiple Science and Technology projects into the LCS Baseline. Continued the transition from American

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Bureau of Shipping (ABS) to Navy Classification and the stand up of the Navy Design Site for Classification and Systems Engineering support. ***FY 2014 Plans:*** Flight 0 Baseline: Provide systems engineering support for Seaframe and MCM Technical Evaluation (TECHEVAL) and Initial Operational Test and Evaluation (IOT&E) on USS Independence. Provide systems engineering support for the Seaframe and ASW capability integration on USS Freedom. Flight 0+ and FY10 Block Buy Baselines: Provide systems engineering support for Seaframe and SUW MP OT, TECHEVAL, IOT&E, and TSST on USS Fort Worth. Provide systems engineering support for Seaframe DT on USS Coronado. Provide systems engineering support for MP/DT and MCM DT on USS Milwaukee and USS Detroit. Begin planning for TSST on USS Fort Worth and USS Coronado and for FSST on USS Milwaukee and USS Jackson. Conduct the Aluminum Compartmentalization on the Independence Variant to support LFT&E requirements. Provide Seaframe and Mission Systems engineering support to investigate, design, and develop technical solutions for design and production issues identified during USS Independence IOT&E. Provide Seaframe and Mission Systems engineering support for USS Milwaukee and USS Jackson Builders Sea Trials preparations and execution. Continue support for Navy Classification design site including facility, IDE support, and engineering support for drawing review. Develop technical and performance baseline for future ship procurements based on systems design and testing execution. Conduct studies in support of development of future technical and performance baseline design upgrades. ***FY 2015 Plans:*** Flight 0 Baseline: Provide systems engineering support for completion of Seaframe and MCM Technical Evaluation (TECHEVAL) and Initial Operational Test and Evaluation (IOT&E) on USS Independence. Continue systems engineering support for ASW capability integration on USS Freedom. Flight 0+ and FY10 Block Buy Baselines: Provide systems engineering support for Seaframe and SUW MP OT, TECHEVAL, and IOT&E on USS Coronado. Provide systems engineering support for Seaframe and MCM MP OT on USS Milwaukee. Continue engineering support for planning and conduct TSST on LCS 4. Continue FSST planning on LCS 5 and 6. Provide engineering support for DT on USS Milwaukee and USS Jackson. Provide Seaframe and Mission Systems engineering support to investigate, design, and develop technical solutions for design. Provide Seaframe and Mission Systems engineering support for USS Coronado PSA and and USS Milwaukee and USS Jackson USS Detroit IPDA and PSA. Finalize technical and performance baseline for future ship procurements based on			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
systems design and testing execution. Continue conducting studies in support of development of future technical and performance baseline design upgrades.			
Title: LCS Total System Training Architecture	67.512	73.620	19.547
Articles:	-	-	-
Description: LCS is a minimally manned ship. 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 2013 Accomplishments:*** Transitioned and implemented Training Front End Assessment (FEA) output in association 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), 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, and continued LCS Training Facility (LTF) San Diego Department of Defense (DoD) Information Assurance (IA) Certification and Accreditation (C&A) Package (DIACAP). Awarded Immersive Virtual Shipboard Environment (IVSE) Courseware Development contracts and delivery order for the Engineering Plant Technician in support of Hull, Mechanical and Electical (HM&E) system operations and Preventative maintenance courses based on data supported by a Job, Duty, Task, and Analysis. Continued Mission Bay Trainer development contract efforts, which culminated in a late CY13 contract award. Through the TSEA, conducted LCS 1 and 2 Rediness Control Officer (RCO) JDTA, to support curriculum design, and began RCO and Engineering Plant Technician Virtual Reality Courseware Development. ***FY 2014 Plans:*** Conduct the Combat Systems JDTA and continue to pursue instructor-led and interactive courseware development, coordinate LCS Training Facility Electronic Infrastructure and Infrastructure Integrated Product Team (LTF EII IPT) efforts, continue development of Learning Management System (LMS) installation and configuration, and continue LCS Training Facility (LTF) San Diego Department of Defense (DoD) Information Assurance (IA) Certification and Accreditation (C&A) Package (DIACAP).			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue development of courseware in support of Hull, Mechanical, and Electical (HM&E) system operations and preventative maintenance courses. Execute Phase II of the LCS 1 Integrated Tactical Trainer upgrade. Executing Mission Bay Trainer contract (awarded in CY13) ***FY 2015 Plans:*** Through the TSEA, deliver the Immersive Virtual Shipboard Environment curriculum for the LCS 1 and LCS 2 variants to support the LCS Readiness Control Officer and Engineering Plant Technician T2Q and T2C training. Award delivery order against IVSE to support the T2Q and T2C training for the Combat Systems watchstanders for the LCS 1 and 2 variants. Coordinate and deliver the LCS Training Facility Electronic Infrastructure to the LCS Training Facility (LTF) San Diego. Award the NAVFAC contract in support of the Mayport LCS Training Facility. Complete LCS Training Facility (LTF) San Diego.			
Title: LCS Test & Evaluation	36.529	62.788	48.958
Articles:	-	-	-
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 2013 Accomplishments:*** Flight 0 baseline: Continued Seaframe testing on USS Independence, air warfare and surface warfare firing events, aviation integration, and selected sea-keeping trials. Conducted detailed Seaframe DT and MCM Mission Package (MP) testing on USS Independence, and conducted analysis efforts for emergent integration issues. Developed solutions for USS Independence Post Delivery tests and trials including Seaframe DT and Post Shakedown Availability (PSA). Updated the LCS Test and Evaluation Master Plan (TEMP) to reflect revised Acquisition Strategy and program schedule. Flight 0+ and FY10 Block Buy baselines: Conducted advance DT/OT planning for the SUW MP on the LCS 3. Conducted DT/CSSQT testing on the LCS 3. Began planning for aluminum surrogate testing in the areas of multi-hull blast and fire testing to support LFT&E requirements. Also, planned for the Total Ship Survivability Trial (TSST) to be conducted on LCS 3 and LCS 4. ***FY 2014 Plans:*** Flight 0 baseline: Conduct DT/Rough Water trials on USS Independence. Continue Surface Warfare (SUW), Air Defense and Mine Counter Measure (MCM) developmental testing on USS Independence.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Flight 0+ baseline: Conduct Vertical Takeoff Unmanned Aerial Vehicle (VTUAV) Dynamic Interface testing on LCS 3. Seaframe and SUW DT events for LCS 3 and LCS 4. Conduct Techeval and IOT&E for the Seaframe and SUW MP on LCS 3. Continue planning for LCS 3 and LCS 4 TSST. Conduct TSST on LCS 3. Continue aluminum surrogate testing in the areas of multi-hull blast and fire testing to support LFT&E requirements. Begin blast and fire testing on multi-compartment surrogate test article in support of LFT&E requirements, and conduct small component surrogate testing to address knowledge gaps. Begin planning for FSST on LCS 5 and 6.			
FY 2015 Plans: Flight 0 Baseline: Complete 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 4 with the SUW MP. Continue planning and conduct TSST on LCS 4. Continue planning for FSST on LCS 5 and 6. Conduct DT testing on LCS 5 and 6. Complete blast and fire testing on multi-compartment surrogate test article in support of LFT&E requirements.			
Accomplishments/Planned Programs Subtotals	133.995	163.337	88.734

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 2127: *Littoral Combat Ship*	1,821.001	1,793.014	1,427.049	-	1,427.049	1,423.337	1,470.017	1,504.143	1,067.189	10,691.300	26,634.250
• 1600: *LCS Modules*	25.087	35.966	37.413	-	37.413	24.518	20.139	25.015	19.281	Continuing	Continuing
• 5110: *Outfitting/Post Delivery .*	50.065	68.165	118.282	-	118.282	164.545	204.046	205.954	209.777	1,647.600	2,701.853
• 1320: *LCS Training*	22.220	26.726	9.630	-	9.630	20.002	21.278	19.004	19.394	Continuing	Continuing
• 0944: *LCS Class Support Equipment*	8.566	47.078	36.206	-	36.206	67.109	73.526	78.854	88.111	Continuing	Continuing
• 1601: *MCM Mission Modules*	31.829	34.885	15.270	-	15.270	211.821	158.536	146.157	151.464	Continuing	Continuing
• 1602: *ASW Mission Modules*	-	-	2.729	-	2.729	30.108	47.852	48.562	48.831	Continuing	Continuing
• 1603: *SUW Mission Modules*	30.301	19.481	44.208	-	44.208	39.231	45.907	66.591	70.779	Continuing	Continuing
• 1605: *Remote Minehunting System (RMS)*	-	-	42.276	-	42.276	70.976	67.471	67.708	68.343	-	316.774

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost

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 Milestone B in February 2011. The LCS program conducts annual Defense Acquisition Board In-Process Reviews (DAB IPRs). The first Seaframe and Mission Module integrated program DAB IPR was conducted in January 2013 and will be held in September hereafter.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LCS 1 & 2 Shore Trainers	C/CPAF	LM, BIW : Various	56.536	-		-		-		-		-	Continuing	Continuing	Continuing
Program Office Support	C/CPAF	Various : Various	0.000	9.100	Jan 2013	10.600	Nov 2013	4.460	Nov 2014	-		4.460	Continuing	Continuing	Continuing
Training Development - Support	WR	NAWC TSD : Orlando, FL	3.000	7.413	Nov 2012	9.500	Nov 2013	-		-		-	Continuing	Continuing	Continuing
LCS Courseware Development	C/FFP	Cubic Corp : San Diego, CA	0.000	30.000	Sep 2013	28.100	May 2014	-		-		-	-	58.100	-
LCS1 & LCS2 Bridge Part Task Trainers	C/FFP	Computer Sciences Corp. (CSC) : Falls Church, VA	0.000	4.700	Jul 2013	5.175	May 2014	2.404	May 2015	-		2.404	Continuing	Continuing	Continuing
LCS1 & LCS2 TAO Trainers	C/FFP	Northrop Grumman Corp. : Falls Church, VA	0.000	5.000	Jul 2013	6.000	May 2014	2.107	May 2015	-		2.107	Continuing	Continuing	Continuing
LCS Mission Bay Trainer	C/FFP	TBD : Various	0.000	1.600	Aug 2013	3.500	May 2014	5.576	May 2015	-		5.576	Continuing	Continuing	Continuing
Training Development - Support	WR	Various : Various	0.000	5.359	Jul 2013	4.995	Nov 2013	1.600	Nov 2014	-		1.600	Continuing	Continuing	Continuing
Training Development - Industry	C/CPAF	Lockheed Martin : Various	8.800	2.000	Jun 2013	2.500	May 2014	1.000	May 2015	-		1.000	Continuing	Continuing	Continuing
Training Operations	WR	NSWC DD/CSCS : Various	0.000	2.340	Dec 2012	3.250	Nov 2013	2.400	Nov 2014	-		2.400	-	7.990	-
Class Design Services	SS/CPAF	LM, GD : Various	48.340	-		-		-		-		-	-	48.340	-
Final Design(Flight 0)	C/CPAF	LM, BIW : Various	175.263	-		-		-		-		-	-	175.263	-
Flight 0 C41	WR	PEO C41 : Various	5.506	-		-		-		-		-	-	5.506	-
SH-60B Datalink	C/CPAF	LM, BIW : Various	2.435	-		-		-		-		-	-	2.435	-
Distance Support	WR	NAWC TSD : Orlando, FL	4.900	-		-		-		-		-	-	4.900	-
		Subtotal	304.780	67.512		73.620		19.547		-		19.547	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NSWC/DD : Dahlgren, VA	46.406	6.623	Nov 2012	6.490	Nov 2013	7.521	Nov 2014	-		7.521	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/PC : Panama City, FL	23.142	2.540	Nov 2012	1.854	Nov 2013	0.451	Nov 2014	-		0.451	Continuing	Continuing	Continuing
Government Engineering Support	WR	NUWC : Newport, RI	9.061	0.250	Nov 2012	0.265	Nov 2013	0.098	Nov 2014	-		0.098	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWC AD : Pax River, VA	19.384	3.149	Nov 2012	1.456	Nov 2013	1.102	Nov 2014	-		1.102	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/CR : Crane, IN	16.051	0.725	Nov 2012	0.625	Nov 2013	0.321	Nov 2014	-		0.321	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/SSES : Philadelphia, PA	49.996	6.749	Nov 2012	9.043	Nov 2013	4.000	Nov 2014	-		4.000	Continuing	Continuing	Continuing
Government Engineering Support	Various	Government Activities : Various	30.828	5.070	Dec 2012	6.596	Oct 2013	5.526	Nov 2014	-		5.526	Continuing	Continuing	Continuing
Contractor Engineering Support	C/CPAF	Alion/CSC : Arlington, VA	41.990	4.623	Jan 2013	0.600	Jan 2014	1.210	Nov 2014	-		1.210	Continuing	Continuing	Continuing
Contractor Engineering Support	C/CPAF	Various : Various	18.248	0.225	Jan 2013	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	255.106	29.954		26.929		20.229		-		20.229	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	C/CPAF	Alion/CSC : Arlington, VA	17.490	4.800	Dec 2012	7.931	Dec 2013	5.623	Dec 2014	-		5.623	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/PHD : Port Hueneme, CA	31.671	9.770	Oct 2012	9.652	Oct 2013	5.685	Oct 2014	-		5.685	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/SSES : Philadelphia, PA	37.967	6.023	Oct 2012	11.911	Oct 2013	12.456	Oct 2014	-		12.456	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/PC : Panama City, FL	10.431	2.467	Oct 2012	2.955	Oct 2013	2.410	Oct 2014	-		2.410	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	COMOPTEVFOR : Norfolk, VA	8.139	1.872	Nov 2012	2.845	Nov 2013	1.521	Nov 2014	-		1.521	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/COR : Corona, CA	8.287	2.550	Nov 2012	2.950	Nov 2013	1.451	Nov 2014	-		1.451	Continuing	Continuing	Continuing
Test & Evaluation	WR	Various : Various	51.169	2.929	Dec 2012	10.785	Oct 2013	9.404	Oct 2014	-		9.404	Continuing	Continuing	Continuing
Test & Evaluation	C/CPAF	LM/GD : Various	42.560	3.016	Dec 2012	10.745	Dec 2013	8.756	Dec 2014	-		8.756	Continuing	Continuing	Continuing
Test & Evaluation	WR	PEO C4I : Charleston, SC	5.956	2.852	Oct 2012	2.754	Oct 2013	1.652	Oct 2014	-		1.652	Continuing	Continuing	Continuing
T&E Ordnance	WR	PEO IWS : Various	7.027	0.250	Dec 2012	0.260	Oct 2013	-	Oct 2014	-		-	Continuing	Continuing	Continuing
		Subtotal	220.697	36.529		62.788		48.958		-		48.958	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support- SEAPORT	C/CPAF	Alion/CSC : Arlington, VA	20.593	-		-		-		-		-	Continuing	Continuing	Continuing
Program Management Support	Various	Various : Various	12.212	-		-		-		-		-	Continuing	Continuing	Continuing
Program Management Support - Design	C/CPAF	Various : Arlington, VA	2.036	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	34.841	-		-		-		-		-	-	-	-

	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	815.424	133.995		163.337		88.734		-		88.734	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
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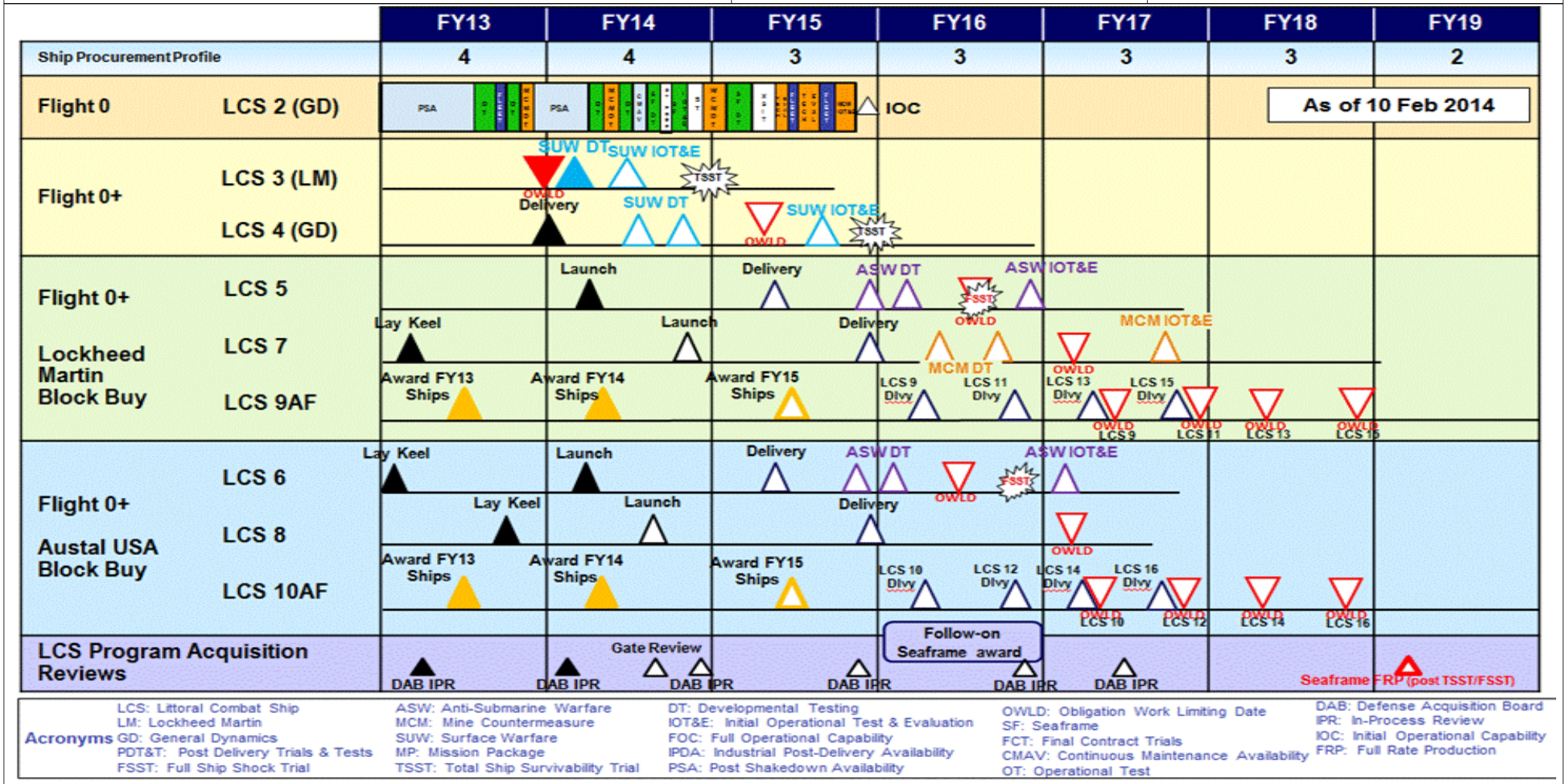

Acronyms
LCS: Littoral Combat Ship
LM: Lockheed Martin
GD: General Dynamics
PDT&T: Post Delivery Trials & Tests
FSST: Full Ship Shock Trial
ASW: Anti-Submarine Warfare
MCM: Mine Countermeasure
SUW: Surface Warfare
MP: Mission Package
TSST: Total Ship Survivability Trial
DT: Developmental Testing
IOT&E: Initial Operational Test & Evaluation
FOC: Full Operational Capability
IPDA: Industrial Post-Delivery Availability
PSA: Post Shakedown Availability
OWLD: Obligation Work Limiting Date
SF: Seaframe
FCT: Final Contract Trials
CMAV: Continuous Maintenance Availability
OT: Operational Test
DAB: Defense Acquisition Board
IPR: In-Process Review
IOC: Initial Operational Capability
FRP: Full Rate Production

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3096				
Post Delivery DT 2: Flight 0: Post Delivery Developmental Testing (DT)	3	2013	3	2013
Post Delivery DT 3: Flight 0: Post Delivery Developmental Testing (DT)	2	2014	3	2014
TECHEVAL: Flight 0: Technical Evaluation(TECHEVAL)	3	2015	3	2015
IOT&E: Flight 0: Initial Operational Test and Evaluation (IOT&E)	4	2015	4	2015
Post Delivery DT 4: Flight 0: Post Delivery Developmental Testing (DT)	1	2015	1	2015
TSST - LCS 3: Total Ship Survivability Trial (TSST) LCS 3	4	2014	1	2015
TSST - LCS 4: Total Ship Survivability Trial (TSST) LCS 4	4	2015	1	2016
FSST - LCS 5: LCS 5 FSST	3	2016	4	2016
FSST - LCS 6: LCS 6 FSST	3	2016	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
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COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
3129: *LCS Mission Package Development*	815.409	196.903	42.000	-	-	-	-	-	-	-	-	1,054.312
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: 443

The FY 2015 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), 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 a Remote Multi-Mission Vehicle (RMMV)

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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 Aviation Module.

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 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.

Per the FY14 Appriopriations Act, the LCS Mission Modules Program has been assigned its own PE of 0603596N. Prior year funding is located in PE 0603581N. FY14 funding was transferred to the greatest extent practicable.

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: System Engineering	13.478	2.259	-
Articles:	-	-	-

FY 2013 Accomplishments:

Supported 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-KPP) update; Identified capabilities and limitations for SUW Increment 2 and MCM MP Increment 1; Supported engineering and programmatic analysis for future capabilities.

LCS MM Baselines Development: aligned baseline nomenclatures toward common schema that is aligned with the MM Increments; established 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; established product baselines for SUW Increment 2 and MCM Increment 1 Capability; supported efforts to authorize/certify MP product baselines.

Developed a strategic plan for M&S to include Modeling and Simulation (M&S) tools, which primarily support performance prediction; validating T&E plans; and/or training and stim/sim efforts.

Developed FY13 LCS MM System Engineering Technical Review (SETR) Plans through SUW Increment 3, MCM Increment 4, and ASW Capability. Closed Preliminary Design Review (PDR) equivalency report look-ups, incorporated and aligned Software (SW) SETR events with HW SETR planning. Improve and standardize SE inputs to PARM system System Project Directives (SPDs). Tracked lead/lag SE Metrics including requirements volatility; engineering Change volatility; LCS MM Systems Readiness Level (SRL) assessments and improved issue tracking through resolution. Updated mission threads to the Concept of Employment (CONEMP), Naval Mine Warfare Simulation (NMWS), System of System Analysis Tool Set (SOSAT), and other models; coordinated the development of integrated Reliability Block Diagrams (RBDs) to support Reliability Availability and Maintainability (RAM) analyses; verify data, architecture, and mission thread assumptions in RAM model; allocated required reliability improvement to targeted mission systems through the Common Logistic Requirements Document (CLRD); standardied and improved RAM data collection; implemented Failure Reporting, Analysis, and Corrective Action System (FRACAS) and Failure Review Boards (FRBs)

Developed draft outline for SEP v2.0 iaw 2011 policy and latest streamlined template; close PDR report/PSR/or other MS B look-ups.

Developed and maintained 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.

Performed Environment, Safety, and Occupational Health (ESOH) risk/hazard analysis and mitigation tracking; align hazards and MARs to product baseline; completed ESOH risk/hazard analysis and mitigation tracking; developed and implement Hazardous Material Management Program (HMMP).

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Implemented 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. 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 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. ***FY 2015 Plans:*** N/A			
Title: Program Management	6.108	3.985	-
Articles:	-	-	-
FY 2013 Accomplishments:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***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. ***FY 2015 Plans:*** N/A			
Title: System Test and Evaluation	26.019	7.706	-
Articles:	-	-	-
FY 2013 Accomplishments: Planned and conducted SUW MP DT phase 1 aboard LCS 1 variant. Completed data analysis and report. SUW MP DT consisted of increasingly stressing scenarios to characterize performance of SUW MP against requirements. SUW Test events included 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. Conducted test planning for SUW MP DT phase 2, TECHEVAL and IOT&E and Operational Test Readiness Review (OTRR) preparation for SUW MP IOT&E. Began 30mm live fire test program to include data analysis, report preparation, and preliminary live fire events. Continue to prepare the 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. Conducted test planning, test execution, data analysis, and test reporting for MCM MP DT-B2 Phase 4 Period 1 aboard LCS 2 variant. Conducted test planning, preparation, and documentation for MCM MP TECHEVAL and IOT&E. Conducted initial test planning of the ASW MP on the LCS platform. Conducted National Environmental Policy Act (NEPA) and environmental planning and coordination to support DT/TECHEVAL/OT/FOTE. Conducted and supported certification test and evaluation to include software certification/assessment testing, reporting, and events such as MPRAs, MRAs, Test Readiness Reviews, WSESRB, etc in order to support fleet deployment upon completion of the IOT&E and FOTE events. Conducted planning and preparation of an MDEMO. ***FY 2014 Plans:*** 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			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** N/A			
Title: Integration, Assemble, Test and Checkout	5.588	3.553	-
Articles:	-	-	-
FY 2013 Accomplishments: Performed 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: Completed coordination of VTUAV Baseline Integration, INCO, AVCERT & Dynamic Interface LCS 2 & LCS 3. Transitioned VTUAV Baseline from MP R&D to Sea Frame production. Enabled TCDL Data Link Capability (first event will be SUW DT/TECHEVAL on LCS 3). Implemented Tactical Common Data Link radio monitor & control for LCS 1 & LCS 3. Mitigated OAMCM shipboard operating environment and tempo issues and risks. Enabled AMNS and ALMDS loading onto the helo in operational sea states and ship motion. Optimized AVDET, VTUAV PUK & Sup Container/RO-ROs for MP deployment & sustainment. Continued 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			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** N/A			
Title: Training Systems Development	14.311	3.723	-
Articles:	-	-	-
FY 2013 Accomplishments: Continued development of training and training systems for MCM and SUW Mission Module (MM) Detachments. 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. Updated formal curriculum to incorporate findings from program test events, operations and classroom experience. Delivered Common Mission Package Trainer (CMPT) software update to RMMV 4.0 capability. Continued development of CMPT RMMV 6.X and dual RMMV capability. Began integration of updated common visualization software. Delivered MPTS software update to incorporate RMMV 4.0 capability and an initial Gun Console Operator trainer. Continued Mine Warfare Evaluator (MIWE), Remote Vehicle Operator (RVO) and Remote Sensor Operator (RSO) training precursors to LCS MCM MM Fundamentals and Capstone courses. Delivered curriculum for LCS MCM MM Fundamentals, Capstone and Planning curriculum in preparation for FY14 initial RFT. Continued SUW formal training curriculum development for LCS SUW MM Fundamentals, Capstone and Planning Courses necessary to achieve partial RFT in FY15. Performed instructor training on Naval Tactical Training System (NTTS) MCM and SUW watch station trainer capabilities. Completed Information Assurance requirements to integrate with Ship type tactical team trainers and connect to Navy Cooperative Training Environment (NCTE). Continued transition from vendor training to formal SUW Gun Mission Module (GMM) system course. Interim GMM differences training transitioned from NSWC Dahlgren to CSCS Dam Neck. Continued curriculum development for Mission Package Computing Environment (MPCE) and Multi-Vehicle Communications System (MVCS) for delivery to and incorporation into Ship type IT Total Ships Computing Environment (TSCE) training. Funded 12 contract instructors (9 MCM and 3 SUW) for LTF prior to transition to N1 funding coincident with RFT in FY14.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Conducted initial end to end exercise of MCM detachment to validate training delivery, sailor performance and software tool usability. Performed vendor and interim training for formal MCM, and SUW test events using MCM MP and SUW MP tactical hardware to train sailors. Funded training related detachment travel and provided 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. ***FY 2015 Plans:*** N/A			
Title: Program Technical Data	1.279	0.432	-
Articles:	-	-	-
FY 2013 Accomplishments: Updated Program Technical Data packages in preparation for SUW MP TECHEVAL test events. Continued Integrated Logistics Support efforts for the scheduled test events. Implemented Technical Manual Management Activity to review, and produced and distributed technical documentation. Continued development of Maintenance Figure of Merit (MFOM) to maintenance management that incorporated engineering, failure, technical and provisioning into single model that uses criticality factors to assist prioritization of maintenance management. Implemented MPSF inventory management system (IMS) based on pRFID solution. Provided overarching provision for Program. ***FY 2014 Plans:***			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** N/A			
Title: Common Equipment	11.892	3.321	-
Articles:	-	-	-
FY 2013 Accomplishments: Mission Package Computing: Completed MPCE v1.9 First Articles Unit (FAU) hardware evaluation and validation for MCM and SUW Mission Package Application Software (MPAS). Conducted two MPCE v1.9 In-Process Reviews and established hardware tech refresh production baseline. Conducted an MPCE Utility Services (MUS) IPR and MUS Test Readiness Review (TRR). Completed MUS 1.0 backfit on LCS 2. Provided MPCE technical support to MSSIT for Mission Package Console mod definition and retrofit on LCS 3. Conducted INCO for MPCE v1.8 on LCS 4. Provided maintenance deliveries for MPS/MPOE. Completed final versions of the ACSN and ECP for MUS v1.0; received ECP apporval for MUS v1.0. Initiated planning for transition of 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: Completed MVCS v1.0.0 baseline installation and activities to support MCM MP Operational Test on LCS 2. Conducted MVCS Communications Characterization on LCS 2. Conducted MVCS and RMS PECP Offshore Demonstration testing to validate the integration of MVCS v1.0.0 on RMMV 5.0 and 5.1. Initiated MVCS 1.1 baseline software development to support integration on SMCM UUV and Unmanned Influence Sweep System (UISS). Conducted Demonstration Design Review (DDR) for the Data Mission Payload (DMP) prototype for integration on the Fire Scout air vehicle. Conducted activities to support High Frequency Ground Wave (HFGW) radio Rapid Technology Transition (RTT) effort. Conducted activities to identify anti-jamming requirements for MVCS. ***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			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** N/A			
Title: Mine Countermeasures (MCM) Mission Package	53.804	3.125	-
Articles:	-	-	-
FY 2013 Accomplishments: Initial design for Surface Mine Countermeasures (SMCM) UUV container initiated. Initiated integration of SMCM UUV into MCM MPs. Groomed and conducted MVCS dual control/RGP 4.2 RMMV End-to-End testing to ensure MCM mission package readiness to enter OPEVAL. Conducted KPP modeling analysis. Resolved hardware PTRs identified during MCM Developmental Testing through development of ACSNs. In support of MCM mission package TECHEVAL and OPEVAL, incorporated the following items into MPAS: RMMV RGP V4.2 improvements, correction of software PTRs identified during end-to-end testing. Delivered next MPAS build in support of TECHEVAL and OPEVAL. Performed systems engineering (risk management, information assurance, human systems integration, safety), configuration management, and Integrated Logistics Support. Prepared for and conducted 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. ***FY 2015 Plans:*** N/A			
Title: Anti-Submarine Warfare (ASW) Mission Package	34.024	5.175	-
Articles:	-	1.000	-
FY 2013 Accomplishments:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Completed System Requirement Review (SRR). Updated CDD, DRMPs, CONOPs, DODAFs, MM Specs, DOORS, TPMs, TEMP, & TSN. Whiteship Final Report complete. LHRE-2 CDR complete. LWT RFI complete. LCS-3 TDP (50% drawings) complete. LCS-4 Feasibility Study complete. Initiated final LCS-3/4 TDPs (SPECs). Initiating Functional Allocations for SFR scheduled for Q1FY13. Initiated SW Integration and Design for SSR/PDR scheduled for 2QFY14. Initiated LCS-1 TDP TEMPALT. Initiatiated LCS-1 SCD & Test Planning for LCS-1 ASW MP At Sea Test in 4QFY14. Draft CONEMP completed. Continuing development of the ASW Mission Modules (MM) that were transitioned from IWS 5 and NUWC Newport, including ASW Escort capability and Torpedo Defense. Initiated development of the Common Mission Management/Decision Support system required for the integration of the ASW MMs, including manned and unmanned aircraft integration. Initiated detailed LCS ASW Mission Module systems engineering and integration plans. Developed Ship integration plan and required shipboard integration mods. Conducted component and system level testing and related predictive performance modeling and simulation. Managed and administered required Systems Engineering Technical Reviews (SETR), and required systems Certification Reviews. Conducting risk mitigation efforts necessary to cost effectively minimize residual risk to mission module and overall program performance. Conducted technology demonstrations to benchmark technology system performance and related potential to mitigate current risks and acknowledged capability gaps. Initiated efforts to 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. Established helicopter interface requirements, integrate, and demonstrate end-to-end capability. Conducting ASW MP ILS planning to include development of ASW MP Reliability Growth Plan. Reviewed environmental impacts and assess testing requirements to ensure NEPA compliance. Conducting 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
(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 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. ***FY 2015 Plans:*** N/A			
Title: Surface Warfare (SUW) Mission Package	28.439	8.349	-
Articles:	-	-	-
FY 2013 Accomplishments: Continue design and development of SSMM Increment 1. Initiated Longbow Hellfire alternative for SSMM Inc 1. 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 developmental testing, procure seven GMS prototypes to support flight testing. Procured three SSMM Increment 1 launch systems to support flight testing and procure four suites of BMS hardware and software to support flight testing. Generate SSMM Increment 2 MEP requirements and architecture. Conducted Critical Design Reviews (CDRs) that focuses on the GMM and MSM. Find/Fix/Repair technical issues associated with GMM and MPAS identified during STF and DT/OT events. Maintained configuration control of SUW MP data, hardware, and software. Collected data and performed analysis associated with the SUW MP Reliability, Maintainability, and Availability (RMA) program. Conducted 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. Supported formal testing of the SUW MP for LCS 1 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** N/A			
Title: Reliability, Availability and Maintainability	1.961	0.372	-
Articles:	-	-	-
FY 2013 Accomplishments: Monitored Reliability Growth and updated plans as necessary. Continued 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; continued to refine RAM model assumptions based on actual data and conducted 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. Drafted MCM and SUW MP RAM-C Analysis Report and RAM-C Rationale Report. Performed modeling of MCM MP Increment 1 and SUW MP Increment 2 in support of development of sustainment requirements for the respective CPDs. The following tasks were deferred to FY14: 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. Incorporate more cost data into RAM-C analysis. ***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. ***FY 2015 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	196.903	42.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 2127: *Littoral Combat Ship*	1,821.001	1,793.014	1,427.049	-	1,427.049	1,423.337	1,470.017	1,504.143	1,067.189	10,691.300	26,634.250
• 1600: *LCS Common Mission Modules Equipment*	25.087	35.966	37.413	-	37.413	24.518	20.139	25.015	19.281	Continuing	Continuing
• 0443: *Aircraft Procurement, Navy*	110.402	-	-	-	-	-	-	-	-	-	643.533
• 5110: *Outfitting/Post Delivery*	50.065	68.165	118.282	-	118.282	164.545	204.046	205.954	209.777	1,647.600	2,701.853
• 1320: *LCS Training Equipment*	22.220	26.726	9.630	-	9.630	20.002	21.278	19.004	19.394	Continuing	Continuing
• 0944: *LCS Class Support Equipment*	8.566	47.078	36.206	-	36.206	67.109	73.526	78.854	88.111	Continuing	Continuing
• 1601: *LCS MCM Mission Modules*	31.829	34.885	15.270	-	15.270	211.821	158.536	146.157	151.464	Continuing	Continuing
• 1602: *LCS ASW Mission Modules.*	-	-	2.729	-	2.729	30.108	47.852	48.562	48.831	Continuing	Continuing
• 1603: *LCS SUW Mission Modules*	30.301	19.481	44.208	-	44.208	39.231	45.907	66.591	70.779	Continuing	Continuing
• 1605: *Remote Minehunting System (RMS)*	-	-	42.276	-	42.276	70.976	67.471	67.708	68.343	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 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / *(U)LITTORAL COMBAT SHIP*	Project (Number/Name) 3129 / *LCS Mission Package Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.1 System Engineering	WR	NSWC PC : Panama City, FL	5.547	1.597	Oct 2012	0.461	Oct 2013	-		-		-	-	7.605	-
1.1 System Engineering	WR	NSWC DD : Dahlgren, VA	5.800	1.228	Oct 2012	0.516	Oct 2013	-		-		-	-	7.544	-
1.1 System Engineering	C/CPFF	Northrop Grumman : Bethpage, NY	9.980	1.196	Dec 2012	0.495	Oct 2013	-		-		-	-	11.671	-
1.1 System Engineering	WR	SPAWAR PAC : San Diego, CA	2.450	1.134	Nov 2012	0.703	Oct 2013	-		-		-	-	4.287	-
1.1 System Engineering	WR	NUWC NPT : Newport, RI	2.300	1.207	Oct 2012	0.026	Oct 2013	-		-		-	-	3.533	-
1.1 System Engineering	C/CPFF	CACI : Fairfax, VA	3.000	0.137	Dec 2012	-		-		-		-	-	3.137	-
1.1 System Engineering	C/CPFF	AAC : Uniontown, PA	0.000	6.979	Jan 2013	-		-		-		-	-	6.979	-
1.1 System Engineering	WR	NSWC PHD : Port Hueneme, CA	1.362	-		0.039	Oct 2013	-		-		-	-	1.401	-
1.1 System Engineering	WR	NSWC Carderock : Bethesda, MD	0.000	-	Nov 2012	0.178	Oct 2013	-		-		-	-	0.178	-
1.1 System Engineering	C/CPFF	JHU/APL : Laurel, MD	0.000	-	Jan 2013	-		-		-		-	-	-	-
1.1 System Engineering	WR	NUWC KPT : Keyport, WA	0.000	-		0.140	Oct 2013	-		-		-	-	0.140	-
1.1 System Engineering	WR	CDSA Dam Neck : Virginia Beach, VA	0.000	-		0.005	Oct 2013	-		-		-	-	0.005	-
1.1 System Engineering	WR	NSWC Corona : Corona, CA	0.000	-		0.053	Oct 2013	-		-		-	-	0.053	-
1.1.7 System Engineering RAM-C Project	WR	Various : Various	1.500	-		-		-		-		-	-	1.500	-
1.4 Integration, Assembly, Test and Check	WR	NAWC AD : Patuxent River, MD	1.134	0.486	Nov 2012	0.358	Oct 2013	-		-		-	-	1.978	-
1.4 Integration, Assembly, Test and Checkout	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	0.857	Dec 2012	0.671	Oct 2013	-		-		-	-	1.528	-
1.4 Integration, Assembly, Test and Check	WR	SPAWAR PAC : San Diego, CA	1.229	1.204	Nov 2012	-		-		-		-	-	2.433	-

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.4 Integration, Assembly, Test and Check	WR	NUWC NPT : Newport, RI	0.944	0.202	Oct 2012	-		-		-		-	-	1.146	-
1.4 Integration, Assembly, Test and Check	WR	NSWC PC : Panama City, FL	2.000	0.128	Oct 2012	0.095	Oct 2013	-		-		-	-	2.223	-
1.4 Integration, Assembly, Test and Check	WR	SUPSHIP Gulfcoast : Pascagoula, MS	1.500	0.543	Jan 2013	-		-		-		-	-	2.043	-
1.4 Integration, Assembly, Test and Check	WR	SUPSHIP Bath : Bath, ME	1.500	0.550	Jan 2013	-		-		-		-	-	2.050	-
1.4 Integration, Assembly, Test and Check	WR	NSWC DD : Dahlgren, VA	4.792	0.768	Oct 2012	0.766	Oct 2013	-		-		-	-	6.326	-
1.4 Integration, Assembly, Test and Checkout	WR	NSWC PHD : Port Hueneme, CA	0.000	0.850	Oct 2012	-		-		-		-	-	0.850	-
1.4 Integration, Assembly, Test and Checkout	WR	NSWC Crane : Crane, Indiana	0.000	-	Nov 2012	-		-		-		-	-	-	-
1.4 Integration, Assembly, Test and Checkout	WR	NSWC Carderock : Bethesda, MD	0.000	-	Oct 2012	1.505	Oct 2013	-		-		-	-	1.505	-
1.4 Integration, Assembly, Test and Checkout	C/CPFF	CACI : Fairfax, VA	0.000	-	Dec 2012	-		-		-		-	-	-	-
1.4 Integration, Assembly, Test and Checkout	Sub Allot	CECOM Bldg 1207 : Various	0.000	-	Nov 2012	0.158	Oct 2013	-		-		-	-	0.158	-
1.12 Common Equipment Development	WR	NSWC PC : Panama City, FL	78.962	5.364	Oct 2012	1.226	Oct 2013	-		-		-	-	85.552	-
1.12 Common Equipment Development	C/CPFF	Northrop Grumman : Bethpage, NY	18.727	3.001	Dec 2012	0.627	Oct 2013	-		-		-	-	22.355	-
1.12 Common Equipment Development	WR	NUWC NPT : Newport, RI	7.829	0.840	Nov 2012	0.064	Oct 2013	-		-		-	-	8.733	-
1.12 Common Equipment Development	WR	NSWC DD : Dahlgren, VA	1.921	2.687	Oct 2012	0.402	Oct 2013	-		-		-	-	5.010	-
1.12 Common Equipment Development	WR	NAVAIR PMA266 : Patuxent River, MD	6.500	-		-		-		-		-	-	6.500	-
1.12 Common Equipment Development	C/CPFF	AAC : Uniontown, PA	0.000	-	Jan 2013	0.483	Oct 2013	-		-		-	-	0.483	-

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.12 Common Equipment Development	WR	PMW 760 : Various	0.000	-	Nov 2012	-		-		-		-	-	-	-
1.12 Common Equipment Development	WR	SPAWAR PACIFIC : San Diego, CA	0.000	-	Nov 2012	0.521	Oct 2013	-		-		-	-	0.521	-
1.12 Common Equipment Development	C/CPFF	ARL/UT : Austin, TX	0.000	-	Dec 2012	-		-		-		-	-	-	-
1.13 MCM MP	WR	NSWC PC : Panama City, FL	132.896	9.265	Oct 2012	1.546	Oct 2013	-		-		-	-	143.707	-
1.13 MCM MP	WR	NSWC CD : Little Creek, VA	6.000	-		-		-		-		-	-	6.000	-
1.13 MCM MP	Sub Allot	PMS 406 : Various	0.000	5.999	Oct 2012	-		-		-		-	-	5.999	-
1.13 MCM MP	C/CPFF	Lockheed Martin : Riviera Beach, FL	0.000	38.540	Oct 2012	0.526	Oct 2013	-		-		-	-	39.066	-
1.13 MCM MP	C/CPFF	Raytheon : Tewksbury, MA	0.000	-		1.052	Oct 2013	-		-		-	-	1.052	-
1.14 ASW MP	Sub Allot	PEO IWS5 : Various	0.000	10.734	Nov 2012	1.830	Oct 2013	-		-		-	-	12.564	-
1.14 ASW MP	WR	NUWC NPT : Newport, RI	0.000	11.000	Oct 2012	1.297	Oct 2013	-		-		-	-	12.297	-
1.14 ASW MP	TBD	Various : Various	153.473	10.070	Dec 2012	-		-		-		-	-	163.543	-
1.14 ASW MP	WR	NSWC Dam Neck : Virginia Beach, VA	0.000	0.920	Dec 2012	0.130	Oct 2013	-		-		-	-	1.050	-
1.14 ASW MP	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	1.300	Dec 2012	1.057	Oct 2013	-		-		-	-	2.357	-
1.14 ASW MP	C/CPFF	SPA : Washington, DC	0.000	-		0.169	Oct 2013	-		-		-	-	0.169	-
1.14 ASW MP	Sub Allot	TBD Activity Placeholder : TBD	0.000	-		-		-		-		-	-	-	-
1.14 ASW MP	WR	NSWC PCD : Panama City, FL	0.000	-		-		-		-		-	-	-	-
1.14 ASW MP	WR	NSWC DD : Dahlgren, VA	0.000	-		0.182	Oct 2013	-		-		-	-	0.182	-
1.14 ASW MP	C/CPFF	CACI : Arlingrton, VA	0.000	-		-		-		-		-	-	-	-

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.14 ASW MP	WR	NUWC KPT : Keyport, WA	0.000	-		0.064	Oct 2013	-		-		-	-	0.064	-
1.14 ASW MP	WR	SSC PAC : San Diego, CA	0.000	-		-		-		-		-	-	-	-
1.14 ASW MP	WR	Lockheed Martin : Riviera Beach, FL	0.000	-		0.447	Oct 2013	-		-		-	-	0.447	-
1.15 SUW MP	WR	NSWC DD : Dahlgren, VA	185.800	13.769	Oct 2012	6.018	Oct 2013	-		-		-	-	205.587	-
1.15 SUW MP	WR	NSWC PHD : Port Hueneme, CA	8.500	2.558	Oct 2012	0.177	Oct 2013	-		-		-	-	11.235	-
1.15 SUW MP	WR	SPAWAR PACIFIC : San Diego, CA	2.142	1.117	Oct 2012	-		-		-		-	-	3.259	-
1.15 SUW MP	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	10.995	Dec 2012	1.568	Oct 2013	-		-		-	-	12.563	-
1.15 SUW MP	WR	NAWC WD : Ridgecrest, CA	0.000	-	Dec 2012	-		-		-		-	-	-	-
1.15 SUW MP	WR	NSWC CD : Crane, IN	0.000	-		-		-		-		-	-	-	-
1.15 SUW MP	WR	NSWC Corona : Corona, CA	0.000	-		-		-		-		-	-	-	-
1.15 SUW MP	WR	NSWC PC : Panama City, FL	0.000	-		0.074	Oct 2013	-		-		-	-	0.074	-
1.15 SUW MP	WR	PEO IWS 3 : Various	0.000	-		0.526	Oct 2013	-		-		-	-	0.526	-
1.16 MP-PCS Equipment	WR	Various : Various	3.547	-		-		-		-		-	-	3.547	-
1.19 Pre-Production Engineering	WR	Various : Various	8.425	-		-		-		-		-	-	8.425	-
1.20 Irregular Warfare Module	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	-		-		-		-		-	-	-	-
1.20 Irregular Warfare Module	WR	SPARWAR PAC : San Diego, CA	0.000	-		-		-		-		-	-	-	-
		Subtotal	659.760	147.225		26.155		-		-		-	-	833.140	-

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.1.10 Reliability, Maintainability, and Availability	C/CPFF	CACI : Fairfax, VA	0.000	-		-		-		-		-	-	-	-
1.1.10 Reliability, Maintainability, and Availability	WR	NSWC PC : Panama City, FL	0.000	0.881	Dec 2012	-		-		-		-	-	0.881	-
1.1.10 Reliability, Maintainability, and Availability	WR	NUWC, NPT : Newport, RI	0.000	-		-		-		-		-	-	-	-
1.1.10 Reliability, Maintainability, and Availability	C/BA	NSWC, Dahlgren : Dahlgren, VA	0.000	1.080	Dec 2012	-		-		-		-	-	1.080	-
1.5 Training Systems Development	WR	NAWC TSD : Orlando, FL	9.820	4.579	Jan 2013	-		-		-		-	-	14.399	-
1.5 Training Systems Development	WR	NSWC PC : Panama City, FL	15.538	1.215	Oct 2012	0.613	Oct 2013	-		-		-	-	17.366	-
1.5 Training Systems Development	WR	NSWC PHD : Port Hueneme, CA	5.400	1.054	Dec 2012	-		-		-		-	-	6.454	-
1.5 Training Systems Development	C/CPFF	AAC : Uniontown, PA	7.800	3.010	Jan 2013	2.307	Oct 2013	-		-		-	-	13.117	-
1.5 Training Systems Development	C/CPFF	CACI : Fairfax, VA	0.000	0.576	Nov 2012	-		-		-		-	-	0.576	-
1.5 Training Systems Development	WR	CSCS : Dahlgren, VA	1.240	0.843	Jan 2013	-		-		-		-	-	2.083	-
1.5 Training Systems Development	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	1.934	Dec 2012	0.703	Oct 2013	-		-		-	-	2.637	-
1.5 Training Systems Development	WR	CNSF : San Diego, CA	1.000	1.100	Dec 2012	-		-		-		-	-	2.100	-
1.5 Training Systems Development	WR	NSWC, Dahlgren : Dahlgren, VA	0.000	-		0.053	Oct 2013	-		-		-	-	0.053	-
1.5 Training Systems Development	WR	NUWC, Newport : Newport, RI	0.000	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / *(U)LITTORAL COMBAT SHIP*	Project (Number/Name) 3129 / *LCS Mission Package Development*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.5 Training Systems Development	WR	JHU/APL : Laurel, MD	0.000	-		-		-		-		-	-	-	-
1.5 Training Systems Development	C/BA	CDSA, Dam Neck : Dam Neck, VA	0.000	-		0.046	Oct 2013	-		-		-	-	0.046	-
1.6 Program Technical Data	WR	NSWC PC : Panama City, FL	1.082	0.279	Nov 2012	0.266	Oct 2013	-		-		-	-	1.627	-
1.6 Program Technical Data	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	0.750	Dec 2012	0.081	Oct 2013	-		-		-	-	0.831	-
1.6 Program Technical Data	WR	CACI : Fairfax, VA	0.000	0.250	Dec 2012	-		-		-		-	-	0.250	-
1.6 Program Technical Data	WR	NUWC KPT : Keyport, WA	0.000	-		0.084	Oct 2013	-		-		-	-	0.084	-
		Subtotal	41.880	17.551		4.153		-		-		-	-	63.584	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.3 System Test and Evaluation	WR	NSWC PCD : Panama City, FL	27.165	9.844	Nov 2012	3.663	Oct 2013	-		-		-	-	40.672	-
1.3 System Test and Evaluation	WR	NSWC DD : Dahlgren, VA	29.000	5.513	Nov 2012	3.001	Oct 2013	-		-		-	-	37.514	-
1.3 System Test and Evaluation	WR	NUWC NPT : Newport, RI	6.200	-	Nov 2012	-		-		-		-	-	6.200	-
1.3 System Test and Evaluation	WR	NSWC PHD : Port Hueneme, CA	10.718	5.852	Oct 2012	0.403	Oct 2013	-		-		-	-	16.973	-
1.3 System Test and Evaluation	WR	SPAWAR PAC : San Diego, CA	4.713	0.984	Nov 2012	-		-		-		-	-	5.697	-
1.3 System Test and Evaluation	WR	COMOPTEVFOR : Norfolk, VA	2.835	0.248	Nov 2012	0.421	Oct 2013	-		-		-	-	3.504	-
1.3 System Test and Evaluation	WR	PMA 266 : Patuxent River, MD	0.000	0.344	Jan 2013	-		-		-		-	-	0.344	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / *(U)LITTORAL COMBAT SHIP*	Project (Number/Name) 3129 / *LCS Mission Package Development*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.3 System Test and Evaluation	C/BA	Silver Ships : Theodore, AL	0.000	0.550	Jan 2013	-		-		-		-	-	0.550	-
1.3 System Test and Evaluation	C/BA	CNSF : Norfolk, VA	0.000	0.264	Nov 2012	-		-		-		-	-	0.264	-
1.3 System Test and Evaluation	C/BA	NAWC WD : Point Mugu, CA	0.000	2.420	Nov 2012	-		-		-		-	-	2.420	-
1.3 System Test and Evaluation	C/BA	NSWC Corona : Corona, CA	0.000	-		0.219	Oct 2013	-		-		-	-	0.219	-
		Subtotal	80.631	26.019		7.707		-		-		-	-	114.357	-

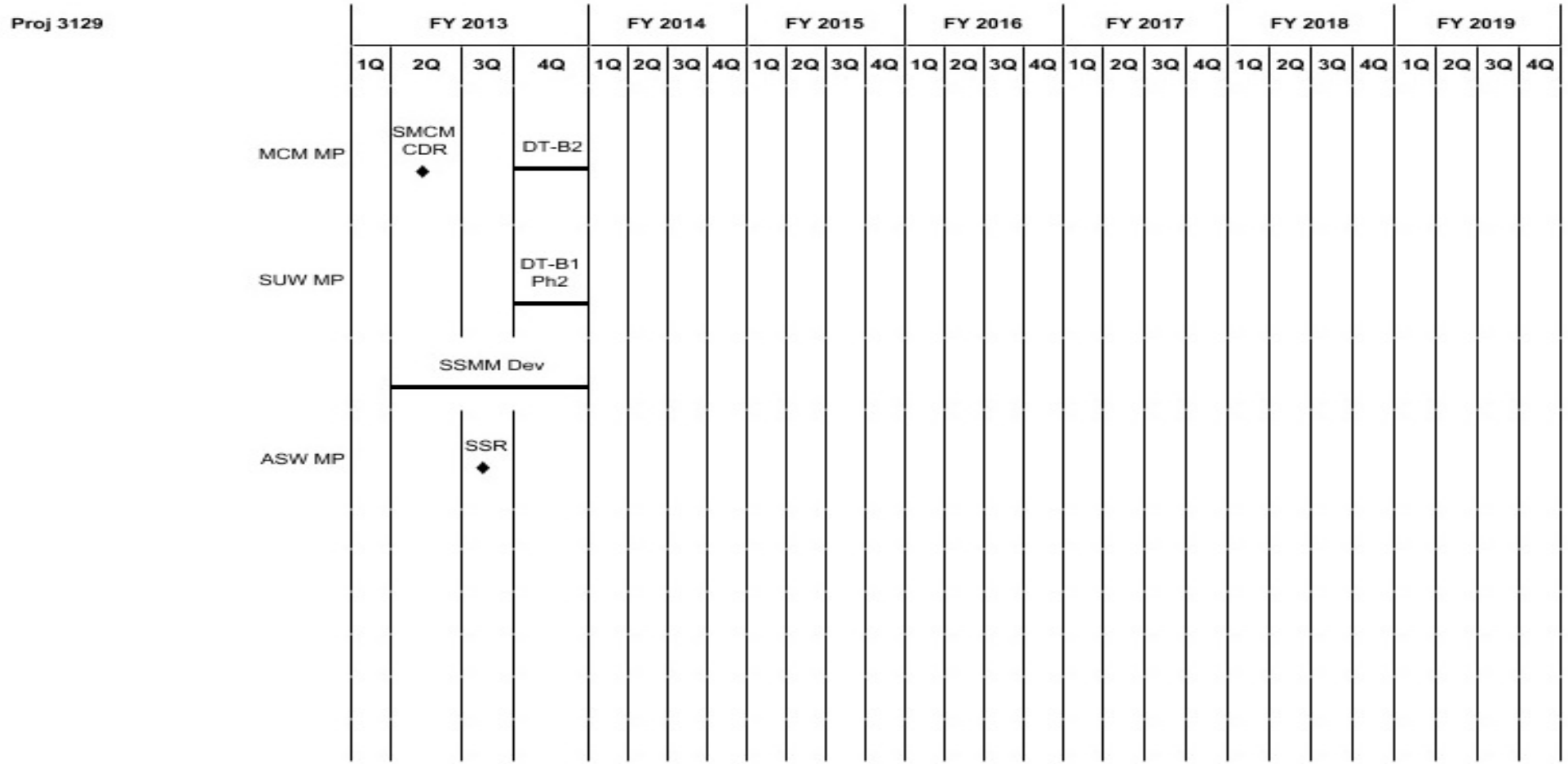
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	Various	Various : Various	1.047	-		-		-		-		-	-	1.047	-
1.2 Program Management	C/CPFF	CACI : Fairfax, VA	32.091	3.175	Nov 2012	3.985	Oct 2013	-		-		-	-	39.251	-
1.2 Program Management	WR	NSWC PCD : Panama City, FL	0.000	1.453	Oct 2012	-		-		-		-	-	1.453	-
1.2 Program Management	WR	NSWC DD : Dahlgren, VA	0.000	1.480	Oct 2012	-		-		-		-	-	1.480	-
		Subtotal	33.138	6.108		3.985		-		-		-	-	43.231	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	815.409	196.903		42.000		-		-		-	-	1,054.312	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603581N / *(U)LITTORAL COMBAT SHIP*	**Project (Number/Name)** 3129 / *LCS Mission Package Development*



2015PB - 0603581N - 3129

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603581N / *(U)LITTORAL COMBAT SHIP*	**Project (Number/Name)** 3129 / *LCS Mission Package Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3129				
MCM MP: MCM MP Increment I DT-B2 Phase 4 (Independence Variant)	4	2013	4	2013
MCM MP: MCM - SMCM UUV CDR	2	2013	2	2013
SUW MP: SUW MP Increment I & II DT-B1 Phase 2 (Freedom Variant)	4	2013	4	2013
SUW MP: SUW MM SSMM Development	2	2013	4	2013
ASW MP: ASW MP Increment II SSR	3	2013	3	2013

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603581N / *(U)LITTORAL COMBAT SHIP*				Project (Number/Name) 4018 / *Littoral Combat Ship Construction*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
4018: *Littoral Combat Ship Construction*	1,502.350	34.902	4.880	-	-	-	-	-	-	-	-	1,542.132
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: 374

The FY 2015 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, 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 Feb 2014:
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 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603581N / *(U)LITTORAL COMBAT SHIP*	**Project (Number/Name)** 4018 / *Littoral Combat Ship Construction*

GFE: 7.0
Other: 7.5
Total Cost*: 653.0

* Does not include OF/PD and FSD/MSSIT.

Non End Cost Item: FSD/MSSIT 25.0 (LCS1), 54.0 (LCS2) Non End Cost Item: OF/PD 120.3 (LCS1), 145.6 (LCS2);FSD/MSSIT costs for USS Freedom and USS Independence are not true construction costs and are costs associated with design completion.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Outfitting and Post Delivery	34.902	4.880	-
Articles:	-	-	-

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 2013 Accomplishments:
For USS Freedom (LCS 1): Completed PSA 2 to accomplish engineering changes, mission critical upgrades, and correction of trial cards and seaframe discrepancies identified during PDT&T. Utilized window of opportunity in January 2013 to accomplish engineering changes, mission critical upgrades to include the steel stern ramp installation, and correction of trial card discrepancies prior to deployment.

For USS Independence (LCS 2): Complete PSA 1 to accomplish dry-docking, engineering changes, mission critical upgrades, and correction of trial cards and seaframe discrepancies identified during PDT&T. Continued PSA 2 planning to include engineering and design efforts, work package development, and procurement of long-lead materials. Begin PSA 2 to accomplish engineering changes, mission critical upgrades, and correction of trial cards and seaframe discrepancies identified during PDT&T.

FY 2014 Plans:
For USS Independence (LCS 2): Conduct Special Trials (ST) and provide technical support for the Board of Inspection and Survey (INSURV). Complete PSA 2 to accomplish engineering changes, mission critical upgrades, and correction of trial cards and seaframe discrepancies identified during PDT&T.

FY 2015 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603581N / *(U)LITTORAL COMBAT SHIP*	**Project (Number/Name)** 4018 / *Littoral Combat Ship Construction*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A			
Accomplishments/Planned Programs Subtotals	34.902	4.880	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 2127: *Littoral Combat Ship*	1,821.001	1,793.014	1,427.049	-	1,427.049	1,423.337	1,470.017	1,504.143	1,067.189	10,691.300	26,634.250
• 1600: *LCS Modules*	25.087	35.966	37.413	-	37.413	24.518	20.139	25.015	19.281	-	542.263
• 5110: *Outfitting/Post Delivery*	50.065	68.165	118.282	-	118.282	164.545	204.046	205.954	209.777	1,647.600	2,701.853
• 1320: *LCS Training*	27.291	36.145	27.748	-	27.748	28.832	31.032	31.538	32.138	Continuing	Continuing
• 0944: *LCS Class Support Equipment*	8.566	47.078	53.469	-	53.469	44.940	50.800	58.794	67.998	Continuing	Continuing
• 1601: *MCM Mission Modules*	31.829	34.885	15.270	-	15.270	211.821	158.536	146.157	151.464	-	749.962
• 1602: *ASW Mission Modules*	-	-	2.729	-	2.729	30.108	47.852	48.562	48.831	-	178.082
• 1603: *SUW Mission Modules*	30.301	19.481	44.208	-	44.208	39.231	45.907	66.591	70.779	-	316.498
• 1605: *Remote Minehunting System (RMS)*	-	-	42.276	-	42.276	70.976	67.471	67.708	68.343	-	316.774
• 3129: *LCS Mission Package Development*	196.903	42.000	-	-	-	-	-	-	-	-	238.903

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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603581N / *(U)LITTORAL COMBAT SHIP*	**Project (Number/Name)** 4018 / *Littoral Combat Ship Construction*

E. Performance Metrics

The LCS Program achieved Milestone A and Program Initiation in May 2004 and Milestone B in February 2011. The LCS program conducts annual Defense Acquisition Board In-Process Reviews (DAB IPRs). The first Seaframe and Mission Module integrated program DAB IPR was conducted in January 2013 and will be held in September hereafter.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603581N / *(U)LITTORAL COMBAT SHIP*	**Project (Number/Name)** 4018 / *Littoral Combat Ship Construction*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LCS Ship 1 Construction	C/CPAF	Lockheed Martin : Moorestown, NJ	521.000	-		-		-		-		-	-	521.000	521.000
LCS Ship 1 Change Orders	C/CPAF	Lockheed Martin : Moorestown, NJ	0.500	-		-		-		-		-	-	0.500	0.500
LCS Ship 1 GFE	C/CPAF	Lockheed Martin : Moorestown, NJ	12.000	-		-		-		-		-	-	12.000	12.000
LCS Ship 2 Construction	C/CPAF	General Dynamics : Bath, ME	635.000	-		-		-		-		-	-	635.000	635.000
LCS Ship 2 Change Orders	C/CPAF	General Dynamics : Bath, ME	3.500	-		-		-		-		-	-	3.500	3.500
LCS Ship 2 GFE	C/CPAF	General Dynamics : Bath, ME	7.000	-		-		-		-		-	-	7.000	7.000
LCS Ship 1 FSD/MSSIT	C/CPAF	Lockheed Martin : Moorestown, NJ	25.000	-		-		-		-		-	-	25.000	25.000
LCS Ship 2 FSD/MSSIT	C/CPAF	General Dynamics : Bath, ME	54.000	-		-		-		-		-	-	54.000	54.000
Initial Outfitting/Logistics	Various	Various : Various	21.601	-		-		-		-		-	-	21.601	21.601
Test and Trials	WR	Various : Various	40.425	0.300	Nov 2012	0.400	Nov 2013	-		-		-	-	41.125	-
Post Delivery ECP	C/CPAF	Lockheed Martin - General Dynamics : Various	47.457	0.400	Oct 2012	0.700	Nov 2013	-		-		-	-	48.557	57.457
PSA/PSA Planning/ INSURV/OPTAR	WR	Various : Various	123.186	34.202	Oct 2012	3.780	Mar 2014	-		-		-	-	161.168	-
		Subtotal	1,490.669	34.902		4.880		-		-		-	-	1,530.451	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	WR	SUPSHIP : Various	0.460	-		-		-		-		-	-	0.460	-
Other Program Costs	WR	Various : Various	11.000	-		-		-		-		-	-	11.000	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / *(U)LITTORAL COMBAT SHIP*	Project (Number/Name) 4018 / *Littoral Combat Ship Construction*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	11.460	-		-		-		-		-	-	11.460	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	Various	Various : Various	0.221	-		-		-		-		-	-	0.221	-
		Subtotal	0.221	-		-		-		-		-	-	0.221	-

	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,502.350	34.902		4.880		-		-		-	-	1,542.132	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603581N / *(U)LITTORAL COMBAT SHIP*	**Project (Number/Name)** 4018 / *Littoral Combat Ship Construction*

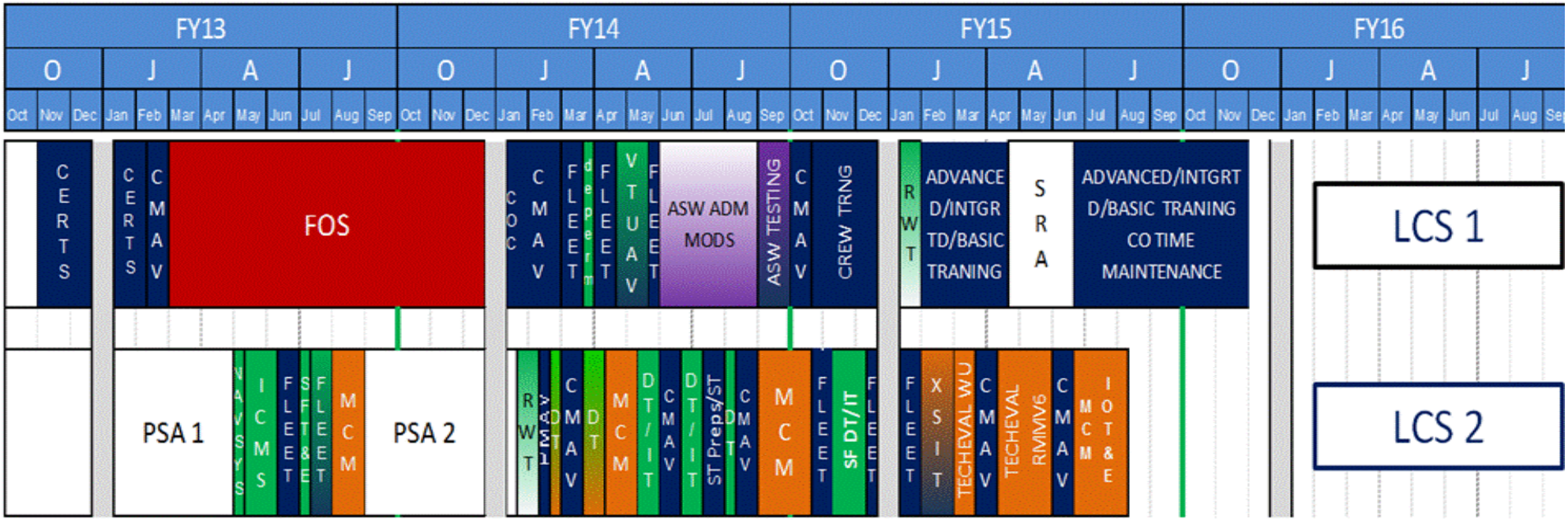


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603581N / *(U)LITTORAL COMBAT SHIP*	**Project (Number/Name)** 4018 / *Littoral Combat Ship Construction*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4018				
LCS 2 PSA 2	4	2013	2	2014
LCS 2 Final Contract Trials/ Special Trials	4	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / *(U)LITTORAL COMBAT SHIP*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
9999: *Congressional Adds*	10.000	9.166	-	-	-	-	-	-	-	-	-	19.166
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: 374

The FY 2015 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 2013	FY 2014
Congressional Add: LCS MM SBIR (Cong)	9.166	-
FY 2013 Accomplishments: Continued 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: Delivered LCS Universal Gateway (UGW) to be included as part of the ONR FY13 Limited Technology Experimentation (LTE) which validate data / information flow between two secured enclaves: Mission Package Command and Control (C2) system and LCS combat system.		
FY 2014 Plans: N/A		
Congressional Adds Subtotals	9.166	-

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 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / *(U)LITTORAL COMBAT SHIP*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.18 Technology Insertion	C/CPFF	AAC : Uniontown, PA	0.204	-		-		-		-		-	-	0.204	-
1.18 Technology Insertion	C/CPFF	Lockheed Martin : Riveria Beach, FL	1.617	-		-		-		-		-	-	1.617	-
1.18 Technology Insertion	WR	NSWC DD : Dahlgren, VA	0.118	0.273	Jul 2013	-		-		-		-	-	0.391	-
1.18 Technology Insertion	WR	NSWC PC : Panama City, FL	0.523	1.198	Jul 2013	-		-		-		-	-	1.721	-
1.18 Technology Insertion	WR	NSWC NPT : Rhode Island	0.435	0.327	Jul 2013	-		-		-		-	-	0.762	-
1.18 Technology Insertion	C/CPFF	Adaptive Methods : Centreville, VA	0.200	-		-		-		-		-	-	0.200	-
1.18 Technology Insertion	C/CPFF	Progeny : Manassas, VA	6.000	6.034	Aug 2013	-		-		-		-	-	12.034	-
1.18 Technology Insertion	C/CPFF	TBD : TBD	0.383	0.979	Oct 2013	-		-		-		-	-	1.362	-
1.18 Technology Insertion	WR	NSWC KPT : Keyport, WA	0.125	-		-		-		-		-	-	0.125	-
1.18 Technology Insertion	WR	SSC PAC : San Diego, CA	0.260	0.355	Jul 2013	-		-		-		-	-	0.615	-
		Subtotal	9.865	9.166		-		-		-		-	-	19.031	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.2 Program Management	C/CPFF	CACI : Fairfax, VA	0.135	-		-		-		-		-	-	0.135	-
		Subtotal	0.135	-		-		-		-		-	-	0.135	-

	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.000	9.166		-		-		-		-	-	19.166	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603581N / *(U)LITTORAL COMBAT SHIP*	Project (Number/Name) 9999 / *Congressional Adds*	

	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603582N *I Combat System Integration*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	329.953	45.131	4.396	20.881	-	20.881	33.195	32.355	29.196	29.814	Continuing	Continuing
0164: *Combat System Integration*	316.943	33.208	-	11.528	-	11.528	24.147	23.033	21.377	21.825	Continuing	Continuing
3312: *MTMD-Maritime Theater Missile Defense Forum*	3.135	3.952	4.396	9.353	-	9.353	9.048	9.322	7.819	7.989	Continuing	Continuing
9B88: *Automated Test and Re-Test*	9.875	7.971	-	-	-	-	-	-	-	-	-	17.846

The FY 2015 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 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603582N *I 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 (Australia, Canada, France, Germany, Italy, Netherlands, Spain, United Kingdom and the United States). This project funds participation in several Project Arrangements and includes maritime contribution to the NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) project, now known as NATO Ballistic Missile Defense (BMD). Engineering analysis and recommendations from MTMD activities are provided to European, Pacific and Central Combatant Commands to influence present day operations. Specifically, the MTMD Forum is addressing challenges with "Maritime Allied Air Defense in Support of Ballistic Missile Defense Operations" that face the Combatant Commanders during present day operations.

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.

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.

Per Congressional direction, starting in FY14, the ATRT project moves to Program Element 0603597N under Project Unit 9B88C: "Automated Test and Re-Test - Congressional".

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	56.551	36.570	41.949	-	41.949
Current President's Budget	45.131	4.396	20.881	-	20.881
Total Adjustments	-11.420	-32.174	-21.068	-	-21.068
• Congressional General Reductions	-	-0.069			
• Congressional Directed Reductions	-	-22.100			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-10.005			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.691	-			
• Program Adjustments	-	-	-20.641	-	-20.641
• Rate/Misc Adjustments	-	-	-0.427	-	-0.427
• Congressional General Reductions Adjustments	-4.729	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603582N *I Combat System Integration*

• Congressional Directed Reductions	-6.000	-	-	-	-
Adjustments					

Change Summary Explanation

1. FY13 reflects congressionally mandated sequestration reduction, FY13 Small Business Innovative Research Assessments and Division G, Section 3001 and 3004 reductions.
2. FY14 decrease in funding resulted from Congressional reductions and transfer of ATRT.
3. FY15 decrease in funding from previous President's Budget submission is due to transfer of ATRT, reductions in contracted services, Navy Warfare Center Fee Rate adjustments, and realignment of funds to match projected expenditures.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603582N / *Combat System Integration*				Project (Number/Name) 0164 / *Combat System Integration*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0164: *Combat System Integration*	316.943	33.208	-	11.528	-	11.528	24.147	23.033	21.377	21.825	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013**	**FY 2014**	**FY 2015**
Title: Navigation System Certification (NAVCERT)	1.462	-	1.200
Articles:	-	-	-
Description: This project funds assessments in support of NAVCERT associated with modernizations and/or new capability upgrades. A NAVCERT communicates to NAVSEA, Ship Program Managers (SPMs), Type Commanders (TYCOMs), and the Fleet that shipboard navigation systems are properly installed and in good physical condition and 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 0164 / *Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Decisions (WSCD), TOMAHAWK Weapons System (TTWCS) Certifications, Precision Approach Landing Systems (PALS) Certifications, and Electronic Charting and Display System-Navy (ECDIS-N) Certification. OPNAVINST 9420.2 and NAVSEAINST 9420.4 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 to ensure safe navigation. ***FY 2013 Accomplishments:*** Performed 26 NAVCERTs on cruisers, destroyers, carriers, and amphibs. Initiate update of NAVSEA Instruction 9420.4A to incorporate fleet input and lessons learned. ***FY 2014 Plans:*** Continuing critical NAVCERT efforts to include performing limited NAVCERTs on cruisers, destroyers, carriers and amphibs. ***FY 2015 Plans:*** Plans are to perform 18 NAVCERTs on cruisers, destroyers, carriers, and amphibs. Issue update of NAVSEA Instruction 9420.4A.			
Title: Command, Control, Communications, Computer, Combat Systems, and Intelligence Modernization Process (C5IMP) and Fleet Readiness (C5ISR)	2.060	-	1.000
Articles:	-	-	-
Description: This project funds engineering assessments of proposed C5I capability modernizations to determine maturity for installation and risk associated with installs of equipment outside of normal modernization windows. This project is required to support the fleet C5I Modernization Policy (per COMUSFLTFORCOM/COMPACFLT Inst. 4720.3B), to manage operational risks associated with C5ISR modernization in both afloat and ashore units ensuring deploying units receive improved, interoperable, and certified warfighting capabilities in order to meet theater operational requirements. This is done by determining the maturity, through engineering analysis, of the critical linchpins needed to achieve interoperability for each proposed C5IMP capability improvement item to be installed in a ships baseline (Baseline Change), developing installation recommendations of C5I system upgrades for the Fleet Commanders, and researching and analyzing installation or operating problems. Failure to achieve required maturity can break the warfare system package installed on a ship and impact strike group capabilities. There is 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.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 0164 / *Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Provided C5IMP and Strike Group Engineering support for all CSGs, ARGs, and independent deployers throughout the interdeployment cycle, including preparations for deployment of 6 CSGs, 3 ARGs and 40 independent deployers during FY13. Facilitated review, assessment, and execution of C5I installations during 100 CNO availabilities in FY 13. Supported 1 Naval C5I Modernization Conference (NCMC) and 12 monthly baseline events. Risk Assessment & Mitigation: Identification and analysis of risk related to the installation of Consolidated Afloat Network and Enterprise Services (CANES) onboard 12 ships to provide decision makers with a clear understanding of the risks, benefits, and mitigations related to this installation; the CANES Program Office is now executing these key mitigation steps toward achieving interoperable installation of this system. Reviewed the MH-60R LAMPS helicopter interoperability with the AEGIS Combat System (ACS). ***FY 2014 Plans:*** Continuing critical C5IMP efforts to include facilitating review, assessment, and execution of C5I installations during CNO Availabilities in FY14. ***FY 2015 Plans:*** Facilitate review, assessment, and execution of C5I installations during approximately 100 CNO Availabilities in FY15. Support 1 NCMC and 12 monthly baseline events.			
Title: Combat System Integration Testing (CSIT)	2.200	-	-
Articles:	-	-	-
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. ***FY 2013 Accomplishments:*** Program Combat Systems integration planning/conduct/execution/OQE reporting for the following platforms: LHD 1, SSDS MOD 5C (LSD 50/52) & CVN 75/76. This effort will end in FY13. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 0164 / *Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A			
Title: Interoperability Certification and Assessment	17.068	-	3.552
Articles:	-	-	-

Description: This project funds Interoperability assessments via the Distributed Engineering Plant, the technical assessment of interoperable systems to meet mission requirements, the updating of Strike Group Capabilities and Limitations (C&L) and the updating of the Tactical Information Coordinator Technical Aids (TIC TECHAIDs). Efforts of the project 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 result of DEP testing is fed into the development of fleet tactical tools: C&L and TIC TECHAIDs, which ensure that operators understand the interoperability capabilities and limitations of their combat systems. C&Ls are delivered for Strike Groups and their Coalition and Joint partners. TIC TECHAIDS are delivered to deploying ships prior to workups and then a final copy prior to deployment.

FY 2013 Accomplishments:
The Distributed Engineering Plant (DEP) conducted seven test events culminating in 224 lab hours of testing. Testing included the following:
1. DEP Common Connectivity Device (CCD)/Gateway Terminal Emulator (GTE) comparison testing.
2. Digital Air Control (DAC) testing and test bed validation.
3. Aegis AMIIP Risk Mitigation Test
4. Aegis AMIIP Interoperability Certification Test
5. Navy Continuous Training Environment (NCTE) Proof of Concept, network engineering test

DEP executed requisite pre-test planning, network engineering and data analysis to include development of products and deliverables. These products and deliverables include: (1) event scheduling and planning, (2) test procedure development and test planning working group meetings, (3) network maintenance, configuration management and equipment configuration list, (4) data management and analysis plan, data analysis working groups, analysis briefs and assessment final reports. DEP

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 0164 / *Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
testing, network configuration and data analysis supports the Naval Warfare Systems Certification Policy (NWSCP) and produces Objective Quality Evidence (OQE) used in Warfare Systems Certification Installation Assessment (WSIA) and Warfare System Certification Decision (WSCD). DEP completed development to one of four Interoperability Mission Area Scenarios (IMAS) for use as a common certification scenario. DEP completed a Navy Continuous Training Environment (NCTE) Proof of Concept test to explore feasibility of connecting DEP to the NCTE network therefore potentially creating a land based test bed for LCS, DDG-1000 and elements of CVN-78. DEP conducted connectivity and stability analysis of Multi-TDL-J communications during Ballistic Missile Defense (BMD) Exercise 13-2. Conducted interoperability assessments of LCS-1 and AEGIS AMIIP Baselines. DEP provided connectivity and support of a Cross Domain Solution leading to a completion of MTMD CDEP PA-2 interoperability events. 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). Conducted analysis of force level engagement threads, aircraft control, air battlespace management, and operational displays, focusing on deploying Strike Groups and new systems and platforms under development. TIC TECHAIDs delivered for 35 SG ships, 15 ARG ships, 45 independent deploying ships, and 10 Land Based Sites. ***FY 2014 Plans:*** Continuing critical Interoperability Certification and Assessment efforts to include limited interoperability assessments of SSDS AMIIP baselines and AEGIS Baseline 9. Conduct research and provide limited updates to Interoperability C&L documents on the C&L website for 65 strike groups comprised of 237 ships, 110 Naval Air Squadrons (covering F/A 18s, E-2Cs, MH-60s, EA-6Bs and P-3s). Limited deliveries of TIC TECHAIDS for SG ships, ARG ships, and independent deploying ships. ***FY 2015 Plans:*** Conduct one DEP test event to support the Interoperability Assessment for certification of SSDS Baseline 10, including planning, execution, and reconstruction with data analysis. Conduct 2 Interoperability Certification assessments (SSDS baseline 10.09.00, & AEGIS baseline 9) to provide OQE for Warfare Systems Certification. Conduct research and provide updated Interoperability C&L documents on the C&L website for 65 strike groups comprised of 237 ships, 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, 15 ARG ships, and 40 independent deploying ships.			
Title: Warfare Systems Certification	10.418	-	5.776
Articles:	-	-	-
Description: This project funds the conduct of Warfare Systems Certification against set criteria. This includes providing operational risk assessments, using Objective Quality Evidence (OQE), to ensure installation readiness and deployment readiness of warfare systems and Navy surface platforms. 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 perform these assessments based on OQE obtained through testimony of subordinate activities and/or independent testing. NAVSEA engineering analyses are developed and staffed for criteria not met. NAVSEA accomplishes these efforts through Warfare Systems Certification Readiness Reviews (WSCRR), Warfare Systems Installation Assessment (WSIA), and			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 0164 / *Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 the Fleet with 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. This allows the Fleet to make informed installation, testing/exercise, and training decisions. 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. An operational risk assessment characterizing warfare systems maturity and readiness to support the subject ship's deployment is developed from OQE gathered from 20 different criteria for each decision point meeting/panel. This pillar also ensures that aggregate deficiencies and workarounds do not render the operator ineffective by conducting an analysis of all work-arounds documented in Techniques & Procedures (TTPs), Capabilities & Limitations (C&L), and Trouble Reports (TR). ***FY 2013 Accomplishments:*** Conducted 152 Warfare Systems Certification Events (WSCRRs, WSIAs, and WSCDs), involving CG 47, DDG 51/1000, CVN 68/78, LHA 1/6, LHD 1, LPD 17, LSD 41/49 and LCS Ship Class and amphibious assault ships. Funding provided supported the development and implementation of processes to support the increase in necessary criteria identified in the update NWSCP from 17 to 20 to include: review and adjudication of Warfare Systems trouble reports; review of Tactics, Techniques and Procedures (TTP) and workarounds to assess the aggregate workload of the operators to meet mission requirements; develop method to test the stressful endurance of warfare systems; Develop an Integrated Product Data Management (iPDM) Tool for a unified data environment, classified to secret level. ***FY 2014 Plans:*** Continuing critical Warfare System Certification efforts to include supporting limited Warfare Systems Certification Events for above ship classes. ***FY 2015 Plans:*** Support approximately 64 Warfare Systems Certification Events for above ship classes. Update the NWSCP and implement revised Naval Warfare Systems Certification Policy.			
Accomplishments/Planned Programs Subtotals	33.208	-	11.528

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 0164 / *Combat System Integration*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN 2960: *(ICSTD/ DEP): Integrated Combat System Test Division/ Distributed Engineering Plant*	5.240	4.963	4.016	-	4.016	9.031	9.230	9.389	9.588	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-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603582N / *Combat System Integration*	Project (Number/Name) 3312 / *MTMD-Maritime Theater Missile Defense Forum*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3312: *MTMD-Maritime Theater Missile Defense Forum*	3.135	3.952	4.396	9.353	-	9.353	9.048	9.322	7.819	7.989	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 (Australia, Canada, France, Germany, Italy, Netherlands, Spain, United Kingdom and the United States). This project funds participation in several Project Arrangements and includes maritime contribution to the NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) project, now known as NATO Ballistic Missile Defense (BMD). Engineering analysis and recommendations from MTMD activities are provided to European, Pacific and Central Combatant Commands to influence present day operations. Specifically, the MTMD Forum is addressing challenges with "Maritime Allied Air Defense in Support of Ballistic Missile Defense Operations" that face the Combatant Commanders during present day operations.

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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Maritime Theater Missile Defense Forum (MTMD)	3.952	4.396	9.353
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 3312 / *MTMD-Maritime Theater Missile Defense Forum*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015

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), Coalition Distributed Engineering Plant (CDEP), Test Planning and Execution (TPEX), Open Architecture (OA), and Operational Requirements (OR).

FY 2013 Accomplishments:

(1) BMC4I: Completed version 1.0 of MTMD Target Architecture No. 1, updated the Coalition Capability and Interoperability Report and completed version 1.0 of the System Tactical Data Link Interoperability Report. Conducted limited test operations at the Integrated Warfare Systems Laboratory and provided risk assessments in support of Combatant Commander requests for allied air defense in support of present-day ballistic missile defense missions.

(2) M&S completed Polaris Air Defense Model tuning to enable Navy participation in Joint Project Optic Windmill, a hardware-in-the-loop, modeling & simulation and tactical BMD exercise in June 2013. Completed the MTMD M&S testbed and conducted risk reduction and run-for-record M&S tests of the MTMD Baseline Architecture.

(3) CDEP project completed the multi-national hardware-in-the-loop testbed and conducted a test readiness review, risk reduction tests and the run-for-record hardware-in-the-loop tests of the MTMD Baseline Architecture, and established the Single Encryption Enclave for data sharing among the nations and projects within the MTMD Forum.

(4) The Open Architecture Radar Interface Standard (OARIS) was completed and submitted to the Object Management Group, an international standards body for review and approval.

(5) TPEX conducted Rapid Arrow 2012 at-sea demonstrations and conducted initial post-test analysis, Joint Warrior 152 Test Readiness Review #1, Rim of the Pacific Exercise (RIMPAC) 2014 Initial Planning and delivered the Master Test Plan Version 3.0.

(6) Operational Requirements working group completed an update to the MTMD Operational Concept Document, provided fleet operational guidance to the M&S and CDEP tests, and provided operators to participate in Joint Project Optic Windmill for operational events.

(7) Completed the Project Arrangement for Next Generation Infrared Search and Track, which included industry surveys and cost estimates for prototype development. Cost estimates were considered prohibitive in the current state of declining defense budgets of all the nations and it was agreed to not start a new project for prototype development (prototype development was not funded in previous budget exhibits).

FY 2014 Plans:

(1) BMC4I will provide architecture inputs to M&S, CDEP, and TPEX to finalize test architectures consistent with Target Architecture No. 1. BMC4I will develop initial information exchange requirements between systems and nations to enable mission threads.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 3312 / *MTMD-Maritime Theater Missile Defense Forum*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
(2) M&S will update system models and the M&S testbed to meet Target Architecture No. 1 requirements. M&S will conduct analysis of Baseline Architecture tests completed in FY13 and provide results and recommendations to support at-sea demonstration risk reduction activities. (3) CDEP will update the hardware-in-the-loop testbed to meet Target Architecture No. 1 requirements and conduct data analysis of Baseline Architecture tests completed in FY13. CDEP will deliver Version 1 of the Integrated Capabilities & Limitations document Version 1 (Baseline Architecture). (4) Development of the Force Level Open Architecture Technical Standard will commence. This standard will be developed to establish minimum requirements for a multinational data model to improve interoperability among the nations. (5) TPEX will continue planning and range preparations for the major at-sea demonstrations during Joint Warrior 152 in 2015 and RIMPAC 2016. An update to the Master Test Plan will be delivered following the Test Readiness Review in March 2014. Targets will be configured for the 2015 test events. Test architectures will be developed and negotiated with NATO BMD and the Missile Defense Agency. Risk Reduction analysis and tests will be completed. (6) Operational Requirements working group will continue to provide fleet inputs and operator oversight to test and evaluation events, support Force-Level function development/maturation, support training development for test events and coordinate development of tactics, techniques and procedures. Operational framework guidance will be provided for the development of MTMD multi-national, Force-Level mission planning.			
FY 2015 Plans: (1) BMC4I will continue engineering analysis and multi-national interoperability gap assessment and will develop Target Architecture No. 2. BMC4I will evaluate Recommended Point Solutions and provide final recommendations for the implementation in correcting coalition interoperability gaps. BMC4I will finalize information exchange requirements in preparation for at-sea demonstrations. (2) M&S will complete analysis of Target Architecture No. 1 M&S tests and provide assessments and recommendations to improve information exchange requirements identified by BMC4I. (3) CDEP will complete analysis of Target Architecture No. 2 hardware-in-the-loop tests and provide assessments and recommendations to improve information exchanges required to conduct the at-sea demonstrations. CDEP will provide the final architecture risk assessment and Version 2 of the Capabilities & Limitations document to support the at-sea demonstrations. (4) Open Architecture will continue development of the Force Level Open Architecture Technical Standard. Inputs from M&S and CDEP test results will be used to improve the details of the standard. (5) TPEX will finalize preparations for and conduct MTMD participation as part of Joint Warrior 152. This 2015 At-Sea Demonstration will include live tracking events and a combination of live and simulated engagements. Integrated Air Defense and Ballistic Missile Defense test scenarios among the nations will be conducted. This will be the first multi-national maritime test of it's kind ever conducted. Planning for RIMPAC 2016 will continue and will include target configuration/procurement.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 3312 / *MTMD-Maritime Theater Missile Defense Forum*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
(6) Operational Requirements working group will continue to provide fleet inputs and operator oversight to test and evaluation events. The Operational Concept Document will be updated as will final tactics, techniques and procedures in support of the at-sea demonstrations in 2015 and 2016.			
Accomplishments/Planned Programs Subtotals	3.952	4.396	9.353

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 0605853N: *PU 0149 INTERNATIONAL COOP MANAGEMENT, TECHNICAL AND INTL SUPT*	1.771	2.500	2.563	-	2.563	2.627	2.692	2.760	-	Continuing	Continuing
• 0603790N: *PU 2293 NATO RESEARCH & DEVELOPMENT*	0.500	0.500	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Quarterly Program Reviews and Baseline Assessments

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603582N / *Combat System Integration*	Project (Number/Name) 9B88 / *Automated Test and Re-Test*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
9B88: *Automated Test and Re-Test*	9.875	7.971	-	-	-	-	-	-	-	-	-	17.846
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The use of these funds by Navy, through Automated Test and Re-Test (ATRT), will further develop an automated test/analysis capability, which is applicable at phases within system development, integration, and certification 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 Integrated Combat System Test Facility (ICSTF), AEGIS Combat System Advanced Capability Build (ACB) 16, Submarine Federated Tactical System and Virginia Class Submarines, the Littoral Combat Ship (LCS) Mission Module/ Combat Management System 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.

Per Congressional direction, starting in FY14 and through the outyears, the ATRT project moves to Program Element 0603597N under Project Unit 9B88C: "Automated Test and Re-Test - Congressional".

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Automated Test and Re-Test	7.971	-	-
Articles:	-	-	-
Description: The use of these funds by Navy, through Automated Test and Re-Test (ATRT), will further develop an automated test/analysis capability, which is applicable at phases within system development, integration, and certification 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 Integrated Combat System Test Facility (ICSTF), AEGIS Combat System Advanced Capability Build (ACB) 16, Submarine Federated Tactical System and Virginia Class Submarines, the Littoral Combat Ship (LCS) Mission Module/ Combat Management System 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 2013 Accomplishments: The ATRT program will be concluding (8) FY12 ATRT pilot implementation projects throughout NAVSEA-affiliated PEOs. Because of Sequestration, there are only (2) FY13 efforts in process for award for PEO IWS and PEO LCS to execute. The ATRT program			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 9B88 / *Automated Test and Re-Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
has continued to facilitate the development of 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 being developed across the system commands to further engage programs about the automated testing disciplines established and in development. ***FY 2014 Plans:*** Per Congressional direction, starting in FY14 and through the outyears, the ATRT project moves to Program Element 0603597N under Project Unit 9B88C: "Automated Test and Re-Test - Congressional". FY14 plans stated under the new Program Element. ***FY 2015 Plans:*** Per Congressional direction, starting in FY14 and through the outyears, the ATRT project moves to Program Element 0603597N under Project Unit 9B88C: "Automated Test and Re-Test - Congressional". FY15 plans stated under the new Program Element.			
Accomplishments/Planned Programs Subtotals	7.971	-	-

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:
- Progress Briefs at Quarterly ATRT Stakeholders Meetings
- Bi- Monthly ATRT Program Reviews

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 9B88 / *Automated Test and Re-Test*

- Return on Investment Metrics based on work hours for test process execution - before and after automation
- Return on Investment Metrics based on work hours for test process execution - before and after automation

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603595N *I (U)Ohio Replacement*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	-	-	849.277	-	849.277	994.926	696.281	709.471	394.450	Continuing	Continuing
3220: *SBSD Advanced Submarine System Development*	0.000	-	-	812.807	-	812.807	994.926	696.281	709.471	394.450	Continuing	Continuing
3237: *Launch Test Facility*	0.000	-	-	36.470	-	36.470	-	-	-	-	-	36.470
MDAP/MAIS Code: P444												

The FY 2015 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, Mechanical and Electrical (HM&E) 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 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.

Project Unit 3237:

The Launch Test Facility project constructs the Launch Test Facility at Naval Air Warfare Center, China Lake, CA to enable Full Scale Surface Launch Testing and evaluation / qualification of the TRIDENT II D5LE SWS missile launcher subsystem for the OHIO Replacement Submarine. The project construction will be authorized by 10 U.S.C. Section 2353, funded from Research, Development, Test, and Evaluation (RDT&E) appropriations, and will have no general utility and will be utilized solely to meet RDT&E contractual requirements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603595N *I (U)Ohio Replacement*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	849.277	-	849.277
Total Adjustments	-	-	849.277	-	849.277
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	864.269	-	864.269
• Rate/Misc Adjustments	-	-	-14.992	-	-14.992

Change Summary Explanation

Note: Beginning in 2015, there is an administrative change that shifts efforts funded from PE 0603561N (Advanced Submarine System Development) / Project 3220 to PE 0603595N (Ohio Replacement) / Project 3220. This shift is consistent with Congressional intent identified in HR 933 (FY13).

Reduced FY 15 funding due to the Department's decision to reduce contracted services.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603595N / *(U)Ohio Replacement*				Project (Number/Name) 3220 / *SBSD Advanced Submarine System Development*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
3220: *SBSD Advanced Submarine System Development*	-	-	-	812.807	-	812.807	994.926	696.281	709.471	394.450	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

Beginning in 2015, there is an administrative change that will shift efforts funded from PE 0603561N (Advanced Submarine System Development) / Project 3220 to PE 0603595N (Ohio Replacement) / Project 3220. This shift is consistent with Congressional intent identified in HR 933 (FY13).

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 the SEAWOLF and VIRGINIA Classes (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 requested funding levels support the Technology Development, Design, and Engineering Integration efforts to support the OHIO Replacement SSBN lead ship construction start in FY 2021.

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 developmental technology to inform the establishment of detailed requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

The Navy continues investing in program funded affordability initiatives similar to those employed successfully for VIRGINIA Class, but tailored to the unique SSBN mission and operational tempo 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 to include multi-class multiyear procurement (MYP) and economic order quantity (EOQ).

Activities planned for FY 2015 are required to maintain the first article prototype of the CMC to support the UK SUCCESSOR programme. 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 that are required to support ship design and construction schedules such as the propulsor, maneuvering/ship control and 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 finalizing ship requirements, risk characterization of developmental technology, improvement and validation of performance prediction tools and improvement of design tools. Technology development will address maturation of technologies.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: CMC Design and Prototyping	-	-	324.376
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: Commence development of first article missile tubes. Complete missile tube confirmation model. 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. Continue development of 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 design for the missile compartment. Finalize, first article prototype, quad pack design.			
Title: Ship Study and Design	-	-	100.668
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue design of forward and aft ends of OHIO Replacement Class. Continue Rest of Ship concept development, system integration, component design, system diagrams, ship arrangements, construction drawings, control surface design, and studies. Continue CMC interface with Rest of Ship. Begin ship integration of generation 1 Propulsor design decision.			
Title: NAVSEA R&D and Prototyping	-	-	148.606
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** Test Generation 1 Propulsor models on the large scale vehicle. Begin the Generation 2 Propulsor design. Start manufacturing of full scale prototype quick disconnect hardware. Initial full scale bearing test rig evaluation of prototype OR bearing design. Conduct high Reynolds number testing for control surface design. Conduct final CMC pressure hull model testing. Complete low voltage anode testing. Begin Phase II of the Concept of Operations Experiment (COOPEX) to support Hovering and Missile Compensation Control System (HMCCS) and Ship Control Designs. Conduct full scale at-sea test on surrogate platform to inform stern design. Continue component development to support ship requirements. Continue development and delivery of preliminary GFI for NPES.			
Title: Systems Engineering/Program Management	-	-	86.569
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 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. Complete the OHIO Replacement Service Capabilities Development Document (CDD) and receive approval from the Joint Requirements Oversight Counsel (JROC). Continue to identify and assess issues with the platform, shore facilities, and infrastructure as well as their impact on program costs. Refine OR T&E requirements and continue coordination interface with OSD T&E oversight organizations. After approval of the JROC CDD, obtain TEMP and LFT&E Master Plan approval. Obtain waiver for Full-Up-			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
System Level (FUSL) testing. Continue program funded affordability initiatives in order to drive down overall program costs. Specific initiatives include robotic welding, Integrated Product Development Environment (IPDE) process development, and material reuse. Continue program affordability efforts targeted to achieving potential savings associated with multi-year and/or Economic Order Quantity (EOQ) procurements across submarine classes, investigating the government vs. contractor furnished equipment mix for potential efficiencies, and potential savings associated with continuous missile tube and/or launch tube production runs. Continue efforts for Milestone B document preparation to fulfill OSD oversight requirements.			
Title: Strategic Weapons Systems Integration	-	-	152.588
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: Continue system engineering efforts required for the re-hosting and integration of the TRIDENT II (D5) SWS on the OHIO Replacement submarine including review and modification of SWS Coordination, Interface and Arrangement Drawings for SWS equipment within the CMC and Missile Control Center Module (MCCM), SWS system and subsystem preliminary design, and Hardware and Software requirements development. Continue 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. Complete build and deliver 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 program. Continue design and development efforts for shipboard SWS Navigation. Continue systems engineering design efforts related to the OHIO Replacement guidance handling carts and procurement of a prototype guidance handling cart.			
Accomplishments/Planned Programs Subtotals	-	-	812.807

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN/3219: *SBSD Nuclear Technology Development*	73.714	296.050	369.964	-	369.964	422.661	411.598	401.698	291.302	Continuing	Continuing
• SCN/1045: *OHIO Replacement Submarine*	-	-	-	-	-	13.200	777.793	791.793	2,887.937	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN/3220: *Advanced Submarine System Development*	784.823	-	-	-	-	-	-	-	-	-	1,216.684

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

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	SS/CPFF	Ship Design Contractor-EB : Groton, CT	0.000	-		-		425.044	Dec 2014	-		425.044	Continuing	Continuing	Continuing
Product Development	WR	NSWC : Carderock, MD	0.000	-		-		161.615	Oct 2014	-		161.615	Continuing	Continuing	Continuing
Product Development	WR	NUWC : Newport, RI	0.000	-		-		14.808	Oct 2014	-		14.808	Continuing	Continuing	Continuing
Product Development	Various	NAVSEA : Various	0.000	-		-		19.921	Oct 2014	-		19.921	Continuing	Continuing	Continuing
Product Development	SS/CPFF	ARL Penn State University : State College, PA	0.000	-		-		0.377	Oct 2014	-		0.377	Continuing	Continuing	Continuing
Product Development	SS/CPFF	NGMS : Sunnyvale, CA	0.000	-		-		38.490	Oct 2014	-		38.490	Continuing	Continuing	Continuing
Product Development	SS/CPFF	JHU/APL : Laurel, MD	0.000	-		-		6.002	Oct 2014	-		6.002	Continuing	Continuing	Continuing
Product Development	SS/CPFF	CSDL : Cambridge, MA	0.000	-		-		4.368	Oct 2014	-		4.368	Continuing	Continuing	Continuing
Product Development	SS/CPFF	LMFS : Mitchel Field, NY	0.000	-		-		9.377	Oct 2014	-		9.377	Continuing	Continuing	Continuing
Product Development	SS/CPFF	LMMSC : Sunnyvale, CA	0.000	-		-		29.495	Dec 2014	-		29.495	Continuing	Continuing	Continuing
Product Development	C/CPFF	GDAIS : Pittsfield, MA	0.000	-		-		20.821	Nov 2014	-		20.821	Continuing	Continuing	Continuing
Product Development	SS/CPFF	IEC : Anaheim, CA	0.000	-		-		0.734	Oct 2014	-		0.734	Continuing	Continuing	Continuing
Product Development	WR	NSWC : Dahlgren, VA	0.000	-		-		7.500	Oct 2014	-		7.500	Continuing	Continuing	Continuing
Product Development	SS/CPFF	BAE : Rockville, MD	0.000	-		-		8.134	Oct 2014	-		8.134	Continuing	Continuing	Continuing
Product Development	SS/CPFF	BNA : Huntington Beach, CA	0.000	-		-		1.454	Dec 2014	-		1.454	Continuing	Continuing	Continuing
Product Development	WR	NSWC Crane : Crane, IN	0.000	-		-		13.666	Nov 2014	-		13.666	Continuing	Continuing	Continuing
Product Development	SS/CPFF	SPA : Alexandria, VA	0.000	-		-		3.468	Oct 2014	-		3.468	Continuing	Continuing	Continuing
Product Development	Various	SSP : Various	0.000	-		-		8.702	Oct 2014	-		8.702	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	-		-		773.976		-		773.976	-	-	-

Management Services ($ in Millions)

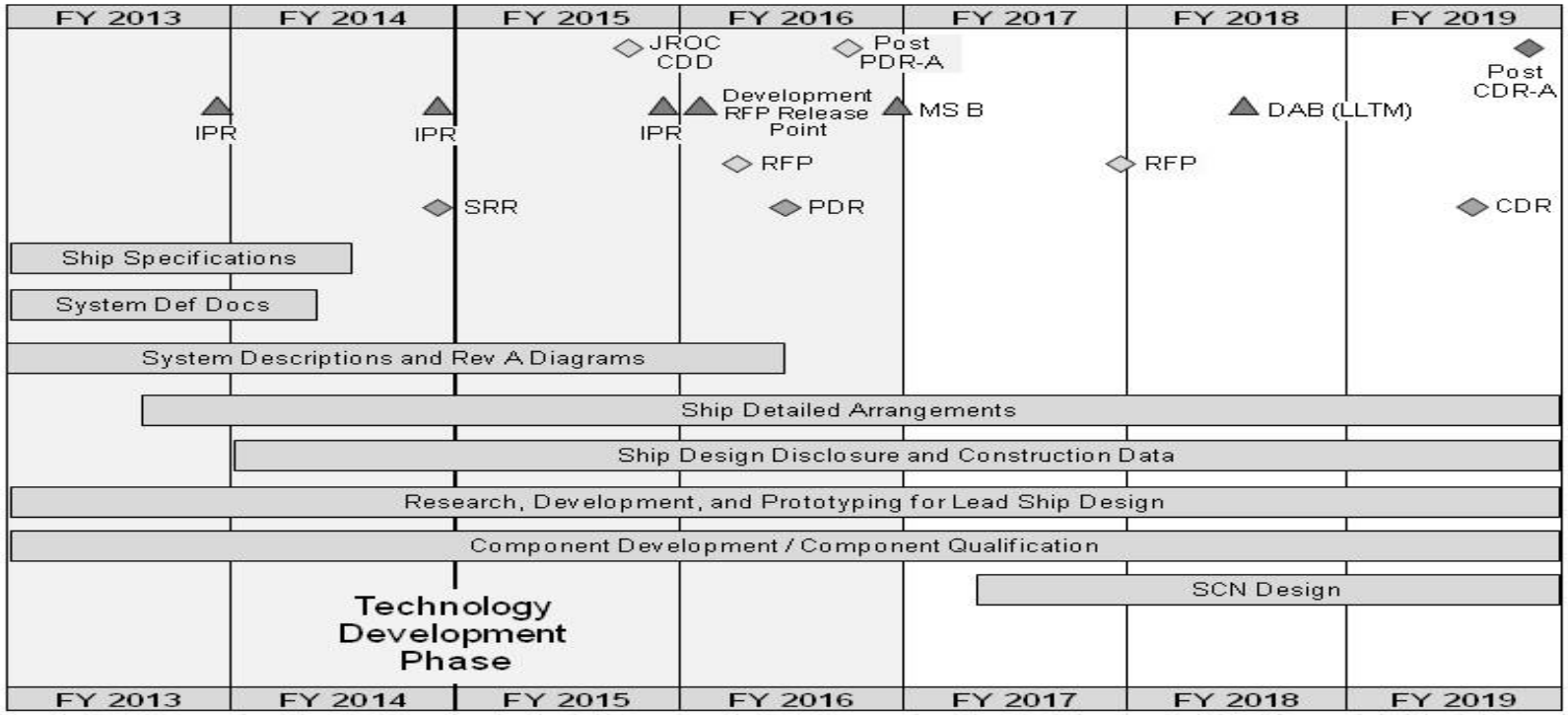
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Management Support	C/CPFF	Various : Multiple Awards	0.000	-		-		19.938	Oct 2014	-		19.938	Continuing	Continuing	Continuing
Government Management Support	WR	Various: NSWC : Carderock, MD	0.000	-		-		18.477	Oct 2014	-		18.477	Continuing	Continuing	Continuing
Travel	WR	NAVSEA HQ : Washington, D.C.	0.000	-		-		0.416	Oct 2014	-		0.416	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		38.831		-		38.831	-	-	-

	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		812.807		-		812.807	-	-	-

Remarks

Note: Beginning in 2015, there is an administrative change that shifts efforts funded from PE 0603561N (Advanced Submarine System Development) / Project 3220 to PE 0603595N (Ohio Replacement) / Project 3220. This shift is consistent with Congressional intent identified in HR 933 (FY13).

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3220 / *SBSD Advanced Submarine System Development*



CDD - Capabilities Development Document
CDR - Critical Design Review
DAB - Defense Acquisition Board
IPR - In Progress Review
JROC - Joint Requirements Oversight Council
LLTM - Long Lead Time Material
MS - Milestone
PDR - Preliminary Design Review
RDT&E - Research, Development, Test, & Evaluation
RFP - Request for Proposal
SCN - Shipbuilding and Conversion, Navy
SRR - System Requirements Review

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 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 2013. ** Effort continues past 4th Quarter FY 2019.				
Ship Specifications*	1	2013	2	2014
System Definition Documents*	1	2013	2	2014
System Descriptions and REV A Diagrams*	1	2013	2	2016
Ship Detailed Arrangements**	2	2013	4	2019
Ship Design Disclosure and Construction Data**	1	2014	4	2019
Research Development and Prototyping for Lead Ship Design* **	1	2013	4	2019
Component Development/Component Qualification* **	1	2013	4	2019
SCN Design / IPPD**	2	2017	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603595N / *(U)Ohio Replacement*	Project (Number/Name) 3237 / *Launch Test Facility*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3237: *Launch Test Facility*	-	-	-	36.470	-	36.470	-	-	-	-	-	36.470
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Project Unit 3237: Project constructs a new Launch Test Facility to support surface launch testing and evaluation of full-scale launch technologies. The project construction is authorized by 10 U.S.C. Section 2353, funded from Research, Development, Test, and Evaluation (RDT&E) appropriations, and will have no general utility and utilized solely to meet RDT&E contractual requirements. This project enables full-scale testing of a Trident II D5LE SWS missile launcher subsystem to collect launch event information for verification and validation of modeling and simulation software, to evaluate and demonstrate launcher subsystem performance, and to qualify the launcher subsystem hardware. This project provides a test facility to conduct qualification testing of full-scale launcher hardware. The project will provide performance and safety data to mitigate the risk of a tactical failure in the fleet.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: OR Launch Test Facility	-	-	36.470
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: Construct the Launch Test Facility at Naval Air Warfare Center, China Lake, CA to enable Full Scale Launch Testing and evaluation / qualification of the TRIDENT II D5LE missile launcher subsystem for the OHIO Replacement Submarine. Additional details are contained in the form DD1391 provided as a supplement to the budget materials.			
Accomplishments/Planned Programs Subtotals	-	-	36.470

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTE/PE0603561N/3220: *Advanced Submarine System Development*	431.861	784.823	-	-	-	-	-	-	-	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3237 / *Launch Test Facility*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• SCN/1045: *OHIO Replacement Submarine*	-	-	-	-	-	13.200	777.793	791.793	2,887.937	Continuing	Continuing
• RDTEN/3219: *SBSD Nuclear Technology Development*	73.714	296.050	369.964	-	369.964	422.661	411.598	401.698	291.302	Continuing	Continuing

Remarks

D. Acquisition Strategy

FFP Contract executed through NAVFAC Multiple Award Construction Contract.

NAVFAC has the contractual warrant to buy design services. NAVFAC/Southwest executes the technical administration, planning, and scheduling for the overall design of the Launch Test Facility (LTF) based on the Facility Design Criteria executed by NAVFAC/SW. NAVFAC/SW Construction effort is led by NAVFAC/SW and executed by NAVFAC/SW Facilities Engineering and Acquisition Division (FEAD) for construction, certification and validation of the facility.

The facility will provide the necessary foundations, buildings, cranes, infrastructure, ordnance storage, test vehicle arrestment and other services & amenities needed to conduct full-scale surface launch test, integration testing, arrestment, and recovery/reuse of D5LE SWS test vehicles. Operation of the LTF requires interactions with NAWS & NAWCWD at China Lake, CA and its existing infrastructure, the environment, and operators & maintenance personnel. The facility is being developed to support the Surface Launch Test system capabilities which will provide a full scale, reusable launch test capability to support Launcher Subsystem development, evaluation and qualification, and Trident II D5LE SWS Missile Subsystem risk reduction.

E. Performance Metrics

Authority to Construct (ATC)
Authority to Operate (ATO)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603595N / *(U)Ohio Replacement*	Project (Number/Name) 3237 / *Launch Test Facility*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	NAWC CL : China Lake, CA	0.000	-		-		36.470	Oct 2014	-		36.470	-	36.470	-
		Subtotal	0.000	-		-		36.470		-		36.470	-	36.470	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		36.470		-		36.470	-	36.470	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3237 / *Launch Test Facility*

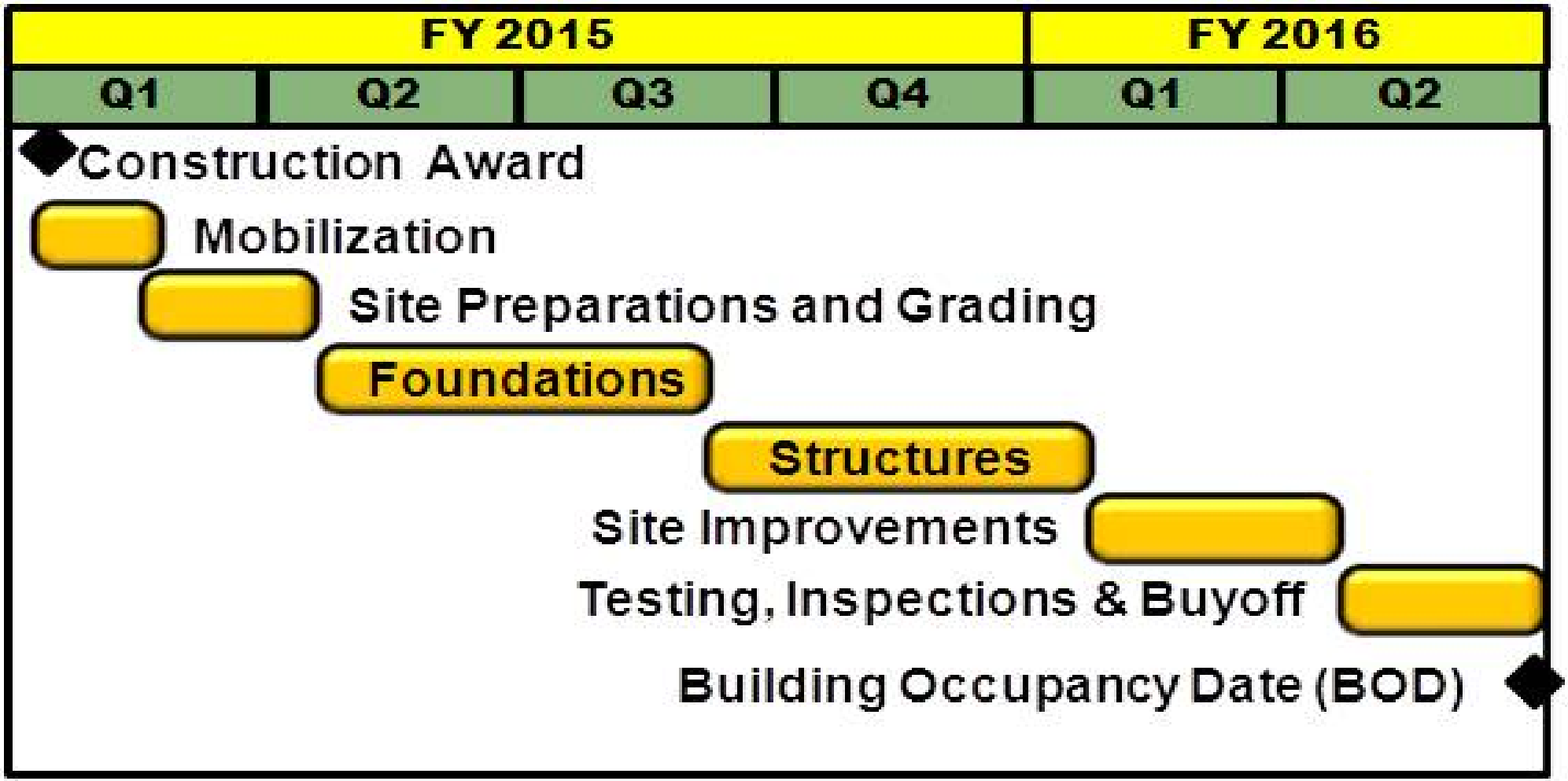


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603595N / *(U)Ohio Replacement*	**Project (Number/Name)** 3237 / *Launch Test Facility*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3237				
Construction Contract Request for Proposal Issued (Estimated)	4	2014	4	2014
Construction Contract Awarded	1	2015	1	2015
Launch Test Facility Construction	1	2015	2	2016
Mobilization	1	2015	1	2015
Site Preparations and Grading	1	2015	2	2015
Foundations	2	2015	3	2015
Structures	3	2015	1	2016
Site Improvements	1	2016	2	2016
Testings, Inspections and Buyoff	2	2016	2	2016
Beneficial Occupancy Date (estimated 18 months after contract award)	2	2016	2	2016

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603596N *I (U)LCS Mission Modules*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	0.000	-	161.771	196.948	-	196.948	139.227	83.975	56.143	45.714	Continuing	Continuing
3129: *LCS Mission Package Development*	0.000	-	161.771	196.948	-	196.948	139.227	83.975	56.143	45.714	Continuing	Continuing

The FY 2015 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, issue resolution, certification, integration and testing of the Littoral Combat Ship (LCS) Mission Modules (MM). 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.

The LCS MMs provide tailored warfighting capability for one at a time of the three focused mission areas:

MCM - provides capability to conduct minehunting (detection, localization, classification, identification, and neutralization) and mine sweeping operations for mine threats.
SUW - provides capability to conduct enhanced-range coordinated detection, tracking, classification, identification and neutralization of groups of attacking, multiple, small boat threats, and to conduct maritime security missions.
ASW - provides capability to detect, classify, localize, and prosecute enemy submarines; counter diesel submarine threats in the littoral shallow waters and their associated deep water approaches; and to provide an escort capability for forces transiting through submarine threat areas.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	161.771	196.948	-	196.948
Total Adjustments	-	161.771	196.948	-	196.948
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	203.771			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-42.000			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	196.948	-	196.948

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603596N *I (U)LCS Mission Modules*

Change Summary Explanation

N/A.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603596N / *(U)LCS Mission Modules*				Project (Number/Name) 3129 / *LCS Mission Package Development*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
3129: *LCS Mission Package Development*	-	-	161.771	196.948	-	196.948	139.227	83.975	56.143	45.714	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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), 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 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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 3129 / *LCS Mission Package Development*

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 Aviation Module.

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 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 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.

Per the FY14 Appriopriations Act, the LCS Mission Modules Program has been assigned its own PE of 0603596N. Prior year funding is located in PE 0603581N. FY14 funding was transferred to the greatest extent practicable.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: System Engineering	-	7.979	17.447
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 3129 / *LCS Mission Package Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: N/A ***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 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. ***FY 2015 Plans:*** Conduct six (6) System Engineering Technical Reviews (SETR) as follows: MCM Increment III System Requirements Review (SRR), Preliminary Design Review (PDR) and Critical Design Review (CDR), MCM Increment IV SRR, Surface-to-Surface Missile Module (SSMM) CDR, and Antisubmarine Warfare (ASW) Mission Package CDR to ensure that each system under review can proceed into development, module integration, and test. Assess each Configuration Item within each system under review to ensure each product has been captured in an appropriate detailed design documents. Establish the initial Production Baseline for each system/module under review.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Develop and accredit all modeling and simulation tools required to support ASW Escort, and Torpedo Defense mission modules and Surface-to-Surface Missile Module. The modeling and simulation tools for ASW and SSMM will support integration, certification, and training of the Mission Package Application Software (MPAS) for both ASW MP and SUW MP Increment IV. Develop and/or update SE documentation in support of Milestone C: Systems Engineering Plan; Information Assurance Strategy; Program Protection Plan; Programmatic Environmental, Safety, and Health Evaluation (PESHE); Clinger Cohen Act. Continue to align LCS MM requirements and development plans toward the Incremental KPP approach and in support of Net-Centric operations: Support CPD Development for the MPs; MP Department of Defense Architecture Framework (DoDAF)Architectures. Continue the implementation of LCS MM M&S strategic plan to support performance prediction; validation of T&E plans; and/or training and stim/sim efforts. Continue Safety/ESOH risk/hazard analysis and mitigation tracking: Align hazards and MARs to product baseline; ESOH risk/ hazard analysis and mitigation; Implement DoD/DoN ESOH related directives and initiatives affecting the program to SE Team. Continue to provide HSI subject matter expert into development and implementation of MP common systems, i.e. CSA, MPCC, feedback process; assess and address HSI issues associated with Mission Packages; evaluate manpower and workload policies affected by new technology implementation; align MP HSI tasks and activities to MP SETR events; track and mitigate MP HSI risks and issues; update and implement the PMS 420HSIP. Continue Implementation of the Corrosion Prevention and Control Plan (CPCP). Continue to provide Configuration Management for the PMS 420 LCS MM Program: identify and control Mission Package configurations via the PMS420 CCB; manage Test Observation Report (TOR); capture and track problems found during integration testing, Navy Core Testing (NCT), and ship visits. Continue to update the MP Reliability, Availability, Maintainability-Cost (RAM-C) Report (which comprises the RAM-C Analysis Report and the RAM-C Rationale Report) to assess LCS MP RAM metrics, influence design of MP hardware and support-system design, and help determine the optimal mix of hardware design, support-system design, and lifecycle cost. Coordinate with and assist the PMS 420 APMs and LSEs with the scheduling, planning, and execution of SETRs.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Verify that the LCS MPCE, the MMs, and MVCS are compliant with DoD and DON IA policies, and that such compliance is stated in their respective program Information Assurance Strategies, PRA artifacts, and other program documentation. Conduct analysis to determine the methodology and engineering design efforts required to create a federated architecture of Mission Package Application Software (MPAS) with the focus on integration into future LCS seaframes.			
Title: Program Management	-	0.740	4.545
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
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.			
FY 2015 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	-	28.710	34.144
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: 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			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** Conduct SUW MP IOT&E aboard LCS 2 variant. Begin planning for integration testing of VTUAV with the SUW MP. Continue SUW MP SSMM planning. Conduct SSMM live fire test program to include data analysis and reporting. Complete test planning and OTRR for MCM MP TECHEVAL and IOT&E. Complete MCM MP DT and conduct TECHEVAL and IOT&E on LCS 2 variant. Continue test planning for DT testing 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 in order to support fleet deployment upon completion of the IOT&E and FOTE events.			
Title: Integration, Assemble, Test and Checkout	-	1.578	14.638
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***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. ***FY 2015 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 interface validation and validation assessments for LCS			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
7 through 12 prior to delivery. Integration assessment reports to support MCM MP TECHEVAL and IOT&E on LCS 2. Integration assessment reports to support deployment of LCS 3 with SUW MP. Engineering studies and seaframe modifications to support SUW MP TECHEVAL and IOT&E on LCS 4. Engineerng studies and seaframe modifications to support ASW MP TECHEVAL and IOT&E on LCS 5 and 6. Aviation Integration provides services that support the successful integration of aviation assets of the MCM, SUW, and ASW Mission Packages into both variants of LCS seaframes. Hardware engineering for Aviation Support Containers, including roll-on/roll-off (RO/RO) Cabinets and Mezzanine. Hardware Engineering for VTUAV Global Command and Control System (GCCS) back-fits. Improve communications for TCDL within Combat to the Mission Packages. Software Engineering for the continued development of the Helo Support Function (HSF) and Mission Package Application Software (MPAS) with Aviation assets. Support and integration of VTUAV modifications including Advanced Precision Kill Weapon System and Radar RDC. Continue program level Integration, Assembly, Test & Checkout efforts of ECPs required to correct findings from Developmental and Operational test events.			
Title: Training Systems Development	-	6.966	16.839
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
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.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2015 Plans:*** Continue development of training and training systems for MCM, SUW and ASW Mission Module Detachments. Update formal curriculum to incorporate findings from program test events, operations and classroom experience. 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. Update formal curriculum to incorporate findings from program test events, operations and classroom experience. Achieve RFT of LCS SUW MM Fundamentals and CAPSTONE courses at LTF. Commence training sailors at LTF Mission Bay Trainer which is expected to RFT late FY15. Develop changes to provide update of training and training systems to support incremental capability fielding plan. Update Information Assurance posture as required to support integrated and Fleet Synthetic Training using Navy Cooperative Training Environment (NCTE). Commence update of Common Mission Package Trainer (CMPT) for ASW and development of LCS ASW MM Fundamentals and CAPSTONE courses with a plan to achieve RFT in FY16. Fund contract instructors for LTF prior to transition to N1 funding coincident with SUW RFT in FY15. Perform vendor and interim training for formal MCM, SUW, and ASW test events. Complete transition from training on MCM MP #1 and SUW MP #1 hardware to NETC training facilities. 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	-	0.373	1.845
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***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. ***FY 2015 Plans:*** Update Program Technical Data packages to incorporate findings from SUW TECHEVAL and IOT&E test events. Finalize initial Integrated Logistics Support products in support of MCM MP TECHEVAL and IOT&E. Continue Technical Manual Management Activity to review, produce, and distribute technical documentation for the program. Complete development and			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
begin implementation of MPSF automated inventory management system (IMS) based on pRFID solution. Prepare for inclusion of ASW into IMS. Start integrated logistics overarching support for the follow-on mission package increments. Provide overarching provisioning for Program. Develop the ASW MP and Surface-to-Surface Missile Module (SSMM) provisioning documentation to include: Allowance Parts Lists (APL) maintenance and development of Preliminary Allowance List (PALs) or Allowance Equipage Lists (AELs) as required for the ASW and SUW MPs. Updates existing provisioning packages as a result of Engineering Change Proposals (ECP) assessment or approvals.			
Title: Common Equipment	-	7.464	7.447
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
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.			
FY 2015 Plans: Conduct technology insertion for MPCE on LCS 1-4, Common Mission Packaget Trainer (CMPT) and Mission Package Portable Control Station (MPPCS). Continue development activities to evolve MPCE software architecture to a Service Oriented Architecture (SOA), MPCE v2.0, in support of the Common Software Architecture (CSA) Baseline. Update MUS Design Documentation to align with MPCE 2.0 System Subsystem Specification (SSS). Mission Package Communications: Perform post-RTT modifications to HFGW hardware and software. Develop required logistics documentation for the HFGW radio. Complete MVCS v2.0.0. Integrate MVCS into MPCE, and support CSA requirements. Support MVCS installation on UISS. Conduct and support testing of MVCS on SMCM UUV. Implement anti-jamming Requirements for MVCS.			
Title: Mine Countermeasures (MCM) Mission Package	-	25.669	29.443
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** Design, develop, and deliver UISS EDMs. Initiate integration of UISS into MCM MPs. Conduct grooming and preparations for MCM mission package TECHEVAL and OPEVAL for increment I. Resolve hardware PTRs identified during testing through development of ACSNs. Prepare for and conduct Systems Engineering Technical Reviews (SETR) (SRR/PDR/CDR) for MCM MP Increment III. Initiate LCS Freedom Class MCM MP increment II integration and test. In support of MCM mission package, incorporate the following items into MPAS: Correction of software PTRs identified during MCM MP testing, and initiate UISS software 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	-	36.715	25.835
Articles:	-	1.000	-
FY 2013 Accomplishments: N/A ***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			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 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. ***FY 2015 Plans:*** Build ASW Mission Package (MP) Mission Modules (MM) in accordance with approved Preliminary Design. Execute Mission Package weight reduction efforts using the PEO LCS Rapid Technology Insertion (RTI) process. Prepare detailed Technical Data Package (TDP) for the closeout of the ASW MP Critical Design Review (CDR) and execute the CDR event in Q1 FY15. Complete RDT&E funded Mission Module (MM) procurement, integration, and test of Engineering Development Model (EDM) systems for the ASW Escort MM, Aviation MM, Torpedo Defense MM, and Mission Management / C2 MM. Conduct system end-to-end (E2E) integration testing, including events at PAX River SAIL for Aviation integration, LM and GD CMS integration, and hardware acceptance testing for the Escort MM EDM and LWT EDM. Perform Find, Fix, Repair (FFR) of identified hardware and software issues prior to DT test event. Conduct Test Planning in accordance with the T-14 process and ASW MP Detachment training in preparation for initiation of Developmental Test (DT) phase in 4QFY15. Plan/prepare/perform Safety and Hazard analysis, Environmental Analysis, HSI Evaluations, and Reliability Assessment in support of DT Testing. Complete Mission Package ship installation SHIPALTs and any additional Mission Module installation ECPs as necessary to support Mission Package installation and deployment.			
Title: Surface Warfare (SUW) Mission Package	-	42.747	41.772
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: SSMM Inc 1 formal technical data package will be finalized.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. ***FY 2015 Plans:*** Conduct SSMM Inc 1 Critical Design Review (CDR). Continue developmental testing to categorize modifications to the current MPAS baseline. Continue modifications to MPAS to support continued SSMM Increment II development. Continue planning the SSMM Increment II environmental confidence level testing. Continue development of the detailed launcher design that supports the SSMM Increment II concept. 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 DT from LCS 2 variant, and OT from LCS 2 variant.			
Title: Reliability, Availability and Maintainability	-	2.830	2.993
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
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.			
FY 2015 Plans:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. Refine modeling of MCM, SUW and ASW MPs. Continue utilizing FRACAS to feed back product and process improvements to the Systems Engineering and ILS organizations. Draft RAM-C Analysis Report as necessary. Update RAM-C Rationale Report as necessary.			
Accomplishments/Planned Programs Subtotals	-	161.771	196.948

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 2127: *Littoral Combat Ship*	1,821.001	1,793.014	1,427.049	-	1,427.049	1,423.337	1,470.017	1,504.143	1,067.189	10,691.300	26,634.250
• 1600: *LCS Common Mission Modules Equipment*	25.087	35.966	37.413	-	37.413	24.518	20.139	25.015	19.281	Continuing	Continuing
• 5110: *Outfitting/Post Delivery*	50.065	68.165	118.282	-	118.282	164.545	204.046	205.954	209.777	1,647.600	2,701.853
• 1320: *LCS Training Equipment*	22.220	26.726	9.630	-	9.630	20.002	21.278	19.004	19.394	Continuing	Continuing
• 0944: *LCS Class Support Equipment*	8.566	47.078	36.206	-	36.206	67.109	73.526	78.854	88.111	Continuing	Continuing
• 1601: *LCS MCM Mission Modules*	31.829	34.885	15.270	-	15.270	211.821	158.536	146.157	151.464	Continuing	Continuing
• 1602: *LCS ASW Mission Modules.*	-	-	2.729	-	2.729	30.108	47.852	48.562	48.831	Continuing	Continuing
• 1603: *LCS SUW Mission Modules*	30.301	19.481	44.208	-	44.208	39.231	45.907	66.591	70.779	Continuing	Continuing
• 4221: *LCS Module Weapons*	-	-	-	-	-	-	-	25.584	19.159	Continuing	Continuing
• 1605: *Remote Minehunting System (RMS)*	-	-	42.276	-	42.276	70.976	67.471	67.708	68.343	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 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / *(U)LCS Mission Modules*	Project (Number/Name) 3129 / *LCS Mission Package Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.1 System Engineering	WR	NSWC PC : Panama City, FL	0.000	-		1.654	Oct 2013	3.517	Oct 2014	-		3.517	Continuing	Continuing	Continuing
1.1 System Engineering	WR	NSWC DD : Dahlgren, VA	0.000	-		0.620	Oct 2013	2.574	Oct 2014	-		2.574	Continuing	Continuing	Continuing
1.1 System Engineering	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	-		3.210	Oct 2013	4.461	Dec 2014	-		4.461	Continuing	Continuing	Continuing
1.1 System Engineering	WR	SPAWAR PAC : San Diego, CA	0.000	-		1.301	Oct 2013	3.581	Oct 2014	-		3.581	Continuing	Continuing	Continuing
1.1 System Engineering	WR	NUWC NPT : Newport, RI	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
1.1 System Engineering	C/CPFF	CACI : Fairfax, VA	0.000	-		0.488	Oct 2013	0.828	Dec 2014	-		0.828	Continuing	Continuing	Continuing
1.1 System Engineering	C/CPFF	AAC : Uniontown, PA	0.000	-		-		0.637	Dec 2014	-		0.637	-	0.637	-
1.1 System Engineering	WR	NSWC PHD : Port Hueneme, CA	0.000	-		-		0.765	Nov 2014	-		0.765	-	0.765	-
1.1 System Engineering	WR	NSWC Carderock : Bethesda, MD	0.000	-		0.267	Oct 2013	0.956	Oct 2014	-		0.956	-	1.223	-
1.1 System Engineering	C/CPFF	JHU/APL : Laurel, MD	0.000	-		0.439	Oct 2013	0.127	Dec 2014	-		0.127	-	0.566	-
1.4 Integration, Assembly, Test and Check	WR	NAWC AD : Patuxent River, MD	0.000	-		0.165	Oct 2013	1.175	Oct 2014	-		1.175	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Checkout	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	-		0.131	Oct 2013	0.587	Dec 2014	-		0.587	-	0.718	-
1.4 Integration, Assembly, Test and Check	WR	SPAWAR PAC : San Diego, CA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	NUWC NPT : Newport, RI	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	NSWC PC : Panama City, FL	0.000	-		0.162	Oct 2013	0.294	Oct 2014	-		0.294	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	SUPSHIP Gulfcoast : Pascagoula, MS	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	SUPSHIP Bath : Bath, ME	0.000	-		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / *(U)LCS Mission Modules*	Project (Number/Name) 3129 / *LCS Mission Package Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.4 Integration, Assembly, Test and Check	WR	NSWC DD : Dahlgren, VA	0.000	-		0.171	Oct 2013	2.937	Oct 2014	-		2.937	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Checkout	WR	NSWC PHD : Port Hueneme, CA	0.000	-		-		0.658	Oct 2014	-		0.658	-	0.658	-
1.4 Integration, Assembly, Test and Checkout	WR	NSWC Crane : Crane, Indiana	0.000	-		0.221	Oct 2013	1.469	Oct 2014	-		1.469	-	1.690	-
1.4 Integration, Assembly, Test and Checkout	WR	NSWC Carderock : Bethesda, MD	0.000	-		0.436	Oct 2013	6.392	Oct 2014	-		6.392	-	6.828	-
1.4 Integration, Assembly, Test and Checkout	C/CPFF	CACI : Fairfax, VA	0.000	-		0.181	Oct 2013	0.832	Dec 2014	-		0.832	-	1.013	-
1.4 Integration, Assembly, Test and Checkout	Sub Allot	CECOM Bldg 1207 : Various	0.000	-		0.112	Oct 2013	0.294	Oct 2014	-		0.294	-	0.406	-
1.12 Common Equipment Development	WR	NSWC PC : Panama City, FL	0.000	-		3.394	Oct 2013	2.105	Oct 2014	-		2.105	Continuing	Continuing	Continuing
1.12 Common Equipment Development	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	-		1.127	Oct 2013	0.392	Dec 2014	-		0.392	Continuing	Continuing	Continuing
1.12 Common Equipment Development	WR	NUWC NPT : Newport, RI	0.000	-		0.427	Oct 2013	0.343	Oct 2014	-		0.343	Continuing	Continuing	Continuing
1.12 Common Equipment Development	WR	NSWC DD : Dahlgren, VA	0.000	-		0.859	Oct 2013	0.343	Oct 2014	-		0.343	Continuing	Continuing	Continuing
1.12 Common Equipment Development	WR	NAVAIR PMA266 : Patuxent River, MD	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
1.12 Common Equipment Development	C/CPFF	AAC : Uniontown, PA	0.000	-		0.468	Oct 2013	2.747	Dec 2014	-		2.747	-	3.215	-
1.12 Common Equipment Development	WR	PMW 760 : Various	0.000	-		0.356	Oct 2013	0.245	Nov 2014	-		0.245	-	0.601	-
1.12 Common Equipment Development	WR	SPAWAR PACIFIC : San Diego, CA	0.000	-		0.570	Oct 2013	0.783	Nov 2014	-		0.783	-	1.353	-
1.12 Common Equipment Development	C/CPFF	ARL/UT : Austin, TX	0.000	-		0.262	Oct 2013	0.490	Dec 2014	-		0.490	-	0.752	-
1.13 MCM MP	WR	NSWC PC : Panama City, FL	0.000	-		12.794	Oct 2013	11.211	Oct 2014	-		11.211	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / *(U)LCS Mission Modules*	Project (Number/Name) 3129 / *LCS Mission Package Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.13 MCM MP	WR	NSWC CD : Little Creek, VA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
1.13 MCM MP	Sub Allot	PMS 406 : Various	0.000	-		5.555	Oct 2013	18.232	Dec 2014	-		18.232	-	23.787	-
1.13 MCM MP	C/CPFF	Lockheed Martin : Riviera Beach, FL	0.000	-		7.320	Oct 2013	-		-		-	-	7.320	-
1.14 ASW MP	Sub Allot	PEO IWS5 : Various	0.000	-		26.638	Oct 2013	7.918	Oct 2014	-		7.918	-	34.556	-
1.14 ASW MP	WR	NUWC NPT : Newport, RI	0.000	-		8.277	Oct 2013	3.672	Oct 2014	-		3.672	-	11.949	-
1.14 ASW MP	TBD	Various : Various	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
1.14 ASW MP	WR	NSWC Dam Neck : Virginia Beach, VA	0.000	-		1.228	Oct 2013	0.587	Oct 2014	-		0.587	-	1.815	-
1.14 ASW MP	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	-		0.572	Oct 2013	1.273	Dec 2014	-		1.273	-	1.845	-
1.14 ASW MP	C/CPFF	SPA : Washington, DC	0.000	-		-		0.587	Jun 2015	-		0.587	-	0.587	-
1.14 ASW MP	Sub Allot	TBD Activity Placeholder : TBD	0.000	-		-		7.568	Oct 2014	-		7.568	-	7.568	-
1.14 ASW MP	WR	NSWC PCD : Panama City, FL	0.000	-		-		0.117	Oct 2014	-		0.117	-	0.117	-
1.14 ASW MP	WR	NSWC DD : Dahlgren, VA	0.000	-		-		0.196	Oct 2014	-		0.196	-	0.196	-
1.14 ASW MP	C/CPFF	CACI : Arlingrton, VA	0.000	-		-		0.343	Dec 2014	-		0.343	-	0.343	-
1.14 ASW MP	WR	NUWC KPT : Keyport, WA	0.000	-		-		0.441	Oct 2014	-		0.441	-	0.441	-
1.14 ASW MP	WR	SSC PAC : San Diego, CA	0.000	-		-		3.133	Oct 2014	-		3.133	-	3.133	-
1.15 SUW MP	WR	NSWC DD : Dahlgren, VA	0.000	-		17.374	Oct 2013	9.361	Oct 2014	-		9.361	Continuing	Continuing	Continuing
1.15 SUW MP	WR	NSWC PHD : Port Hueneme, CA	0.000	-		6.136	Oct 2013	10.128	Oct 2014	-		10.128	Continuing	Continuing	Continuing
1.15 SUW MP	WR	SPAWAR PACIFIC : San Diego, CA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.15 SUW MP	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	-		13.317	Oct 2013	19.884	Dec 2014	-		19.884	-	33.201	-
1.15 SUW MP	WR	NAWC WD : Ridgecrest, CA	0.000	-		5.921	Oct 2013	1.958	Oct 2014	-		1.958	-	7.879	-
1.15 SUW MP	WR	NSWC CD : Crane, IN	0.000	-		-		0.196	Oct 2014	-		0.196	-	0.196	-
1.15 SUW MP	WR	NSWC Corona : Corona, CA	0.000	-		-		0.245	Oct 2014	-		0.245	-	0.245	-
1.16 MP-PCS Equipment	WR	Various : Various	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
1.19 Pre-Production Engineering	WR	Various : Various	0.000	-		-		-		-		-	-	-	-
1.20 Irregular Warfare Module	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	-		-		-		-		-	-	-	-
1.20 Irregular Warfare Module	WR	SPARWAR PAC : San Diego, CA	0.000	-		-		-		-		-	-	-	-
1.1.7 System Engineering RAM-C Project	WR	Various : Various	0.000	-		-		-		-		-	-	-	-
		Subtotal	0.000	-		122.153		136.582		-		136.582	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.5 Training Systems Development	WR	NAWC TSD : Orlando, FL	0.000	-		1.229	Oct 2013	2.007	Oct 2014	-		2.007	Continuing	Continuing	Continuing
1.5 Training Systems Development	WR	NSWC PC : Panama City, FL	0.000	-		0.744	Oct 2013	1.615	Oct 2014	-		1.615	Continuing	Continuing	Continuing
1.5 Training Systems Development	WR	NSWC PHD : Port Hueneme, CA	0.000	-		1.115	Oct 2013	1.266	Oct 2014	-		1.266	Continuing	Continuing	Continuing
1.5 Training Systems Development	C/CPFF	AAC : Uniontown, PA	0.000	-		1.129	Oct 2013	3.500	Dec 2014	-		3.500	Continuing	Continuing	Continuing
1.5 Training Systems Development	C/CPFF	CACI : Fairfax, VA	0.000	-		0.566	Oct 2013	0.734	Dec 2014	-		0.734	-	1.300	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.5 Training Systems Development	WR	CSCS : Dahlgren, VA	0.000	-		1.305	Oct 2013	1.713	Oct 2014	-		1.713	Continuing	Continuing	Continuing
1.5 Training Systems Development	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	-		0.312	Oct 2013	1.084	Dec 2014	-		1.084	-	1.396	-
1.5 Training Systems Development	WR	CNSF : San Diego, CA	0.000	-		0.566	Oct 2013	0.734	Oct 2014	-		0.734	Continuing	Continuing	Continuing
1.5 Training Systems Development	WR	NSWC, Dahlgren : Dahlgren, VA	0.000	-		-		0.269	Oct 2014	-		0.269	-	0.269	-
1.5 Training Systems Development	WR	NUWC, Newport : Newport, RI	0.000	-		-		1.224	Oct 2014	-		1.224	-	1.224	-
1.5 Training Systems Development	WR	JHU/APL : Laurel, MD	0.000	-		-		0.979	Nov 2014	-		0.979	-	0.979	-
1.5 Training Systems Development	C/BA	CDSA, Dam Neck : Dam Neck, VA	0.000	-		-		1.713	Oct 2014	-		1.713	-	1.713	-
1.6 Program Technical Data	WR	NSWC PC : Panama City, FL	0.000	-		-		0.629	Oct 2014	-		0.629	Continuing	Continuing	Continuing
1.6 Program Technical Data	C/CPFF	Northrop Grumman : Bethpage, NY	0.000	-		0.204	Oct 2013	0.942	Dec 2014	-		0.942	-	1.146	-
1.6 Program Technical Data	WR	CACI : Fairfax, VA	0.000	-		0.168	Oct 2013	0.274	Dec 2014	-		0.274	-	0.442	-
1.1.10 Reliability, Maintainability, and Availability	C/CPFF	CACI : Fairfax, VA	0.000	-		0.272	Oct 2013	0.734	Dec 2014	-		0.734	Continuing	Continuing	Continuing
1.1.10 Reliability, Maintainability, and Availability	WR	NSWC PC : Panama City, FL	0.000	-		1.084	Oct 2013	0.881	Oct 2014	-		0.881	Continuing	Continuing	Continuing
1.1.10 Reliability, Maintainability, and Availability	WR	NUWC, NPT : Newport, RI	0.000	-		0.113	Oct 2013	1.129	Oct 2014	-		1.129	Continuing	Continuing	Continuing
1.1.10 Reliability, Maintainability, and Availability	C/BA	NSWC, Dahlgren : Dahlgren, VA	0.000	-		1.362	Oct 2013	0.250	Oct 2014	-		0.250	-	1.612	-
		Subtotal	0.000	-		10.169		21.677		-		21.677	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.3 System Test and Evaluation	WR	NSWC PCD : Panama City, FL	0.000	-		9.408	Nov 2013	12.308	Oct 2014	-		12.308	-	21.716	-
1.3 System Test and Evaluation	WR	NSWC DD : Dahlgren, VA	0.000	-		4.975	Nov 2013	7.348	Oct 2014	-		7.348	-	12.323	-
1.3 System Test and Evaluation	WR	NUWC NPT : Newport, RI	0.000	-		0.743	Nov 2013	0.743	Oct 2014	-		0.743	-	1.486	-
1.3 System Test and Evaluation	WR	NSWC PHD : Port Hueneme, CA	0.000	-		7.899	Nov 2013	7.768	Oct 2014	-		7.768	-	15.667	-
1.3 System Test and Evaluation	WR	SPAWAR PAC : San Diego, CA	0.000	-		1.237	Nov 2013	1.150	Nov 2014	-		1.150	-	2.387	-
1.3 System Test and Evaluation	WR	COMOPTEVFOR : Norfolk, VA	0.000	-		0.836	Nov 2013	1.148	Nov 2014	-		1.148	-	1.984	-
1.3 System Test and Evaluation	WR	PMA 266 : Patuzent River, MD	0.000	-		0.346	Nov 2013	0.352	Dec 2014	-		0.352	-	0.698	-
1.3 System Test and Evaluation	C/BA	Silver Ships : Theodore, AL	0.000	-		0.544	Nov 2013	0.548	Dec 2014	-		0.548	-	1.092	-
1.3 System Test and Evaluation	C/BA	CNSF : Norfolk, VA	0.000	-		0.247	Nov 2013	0.250	Nov 2014	-		0.250	-	0.497	-
1.3 System Test and Evaluation	C/BA	NAWC WD : Point Mugu, CA	0.000	-		2.475	Nov 2013	2.333	Nov 2014	-		2.333	-	4.808	-
1.3 System Test and Evaluation	C/BA	NSWC Corona : Corona, CA	0.000	-		-		0.196	Nov 2014	-		0.196	-	0.196	-
		Subtotal	0.000	-		28.710		34.144		-		34.144	-	62.854	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	Various	Various : Various	0.000	-		-		-		-		-	-	-	-
1.2 Program Management	C/CPFF	CACI : Fairfax, VA	0.000	-		0.739	Nov 2013	4.545	Dec 2014	-		4.545	-	5.284	-
1.2 Program Management	WR	NSWC PCD : Panama City, FL	0.000	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603596N / *(U)LCS Mission Modules*	Project (Number/Name) 3129 / *LCS Mission Package Development*	

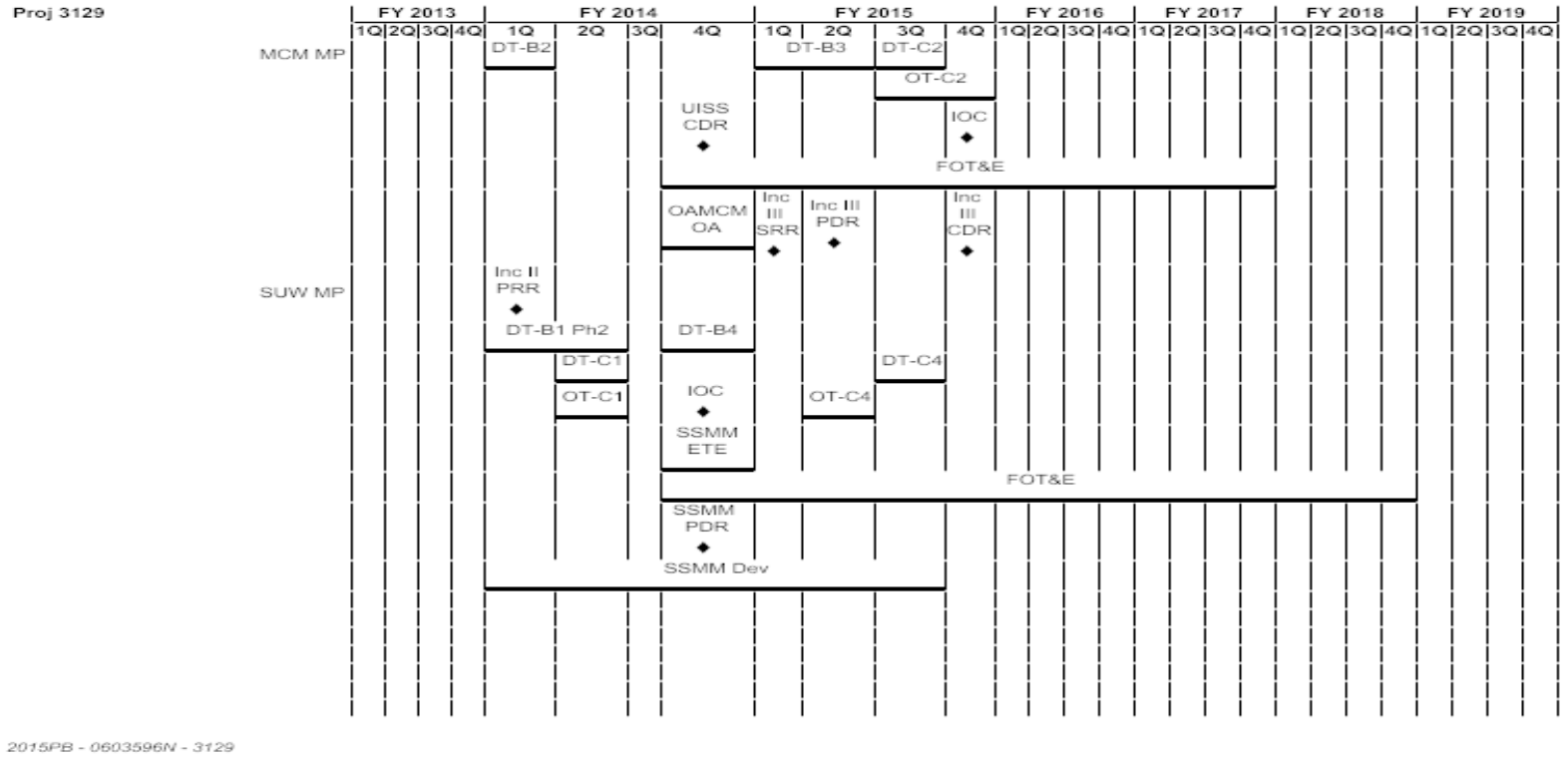
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.2 Program Management	WR	NSWC DD : Dahlgren, VA	0.000	-		-		-		-		-	-	-	-
		Subtotal	0.000	-		0.739		4.545		-		4.545	-	5.284	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		161.771		196.948		-		196.948	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 3129 / *LCS Mission Package Development*



PB15 R-4 is a consolidation between PE 0603581N (Project 3129) and PE 0603596N (Project 3129)

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 3129 / *LCS Mission Package Development*

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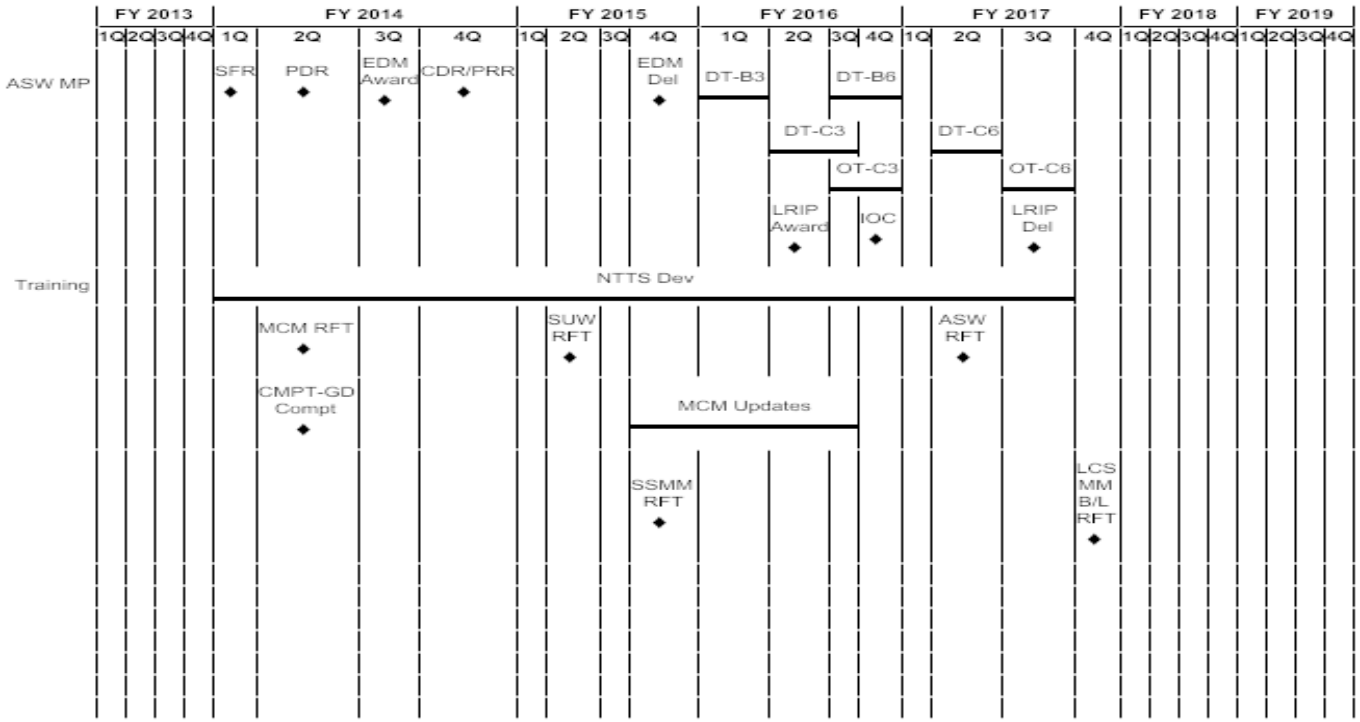

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PB15 R-4 is a consolidation between PE 0603581N (Project 3129) and PE 0603596N

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 3129 / *LCS Mission Package Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3129				
MCM MP: MCM MP Increment I DT-B3 (Freedom Variant)	1	2015	2	2015
MCM MP: MCM MP Increment I DT-B2 Phase 4 (Independence Variant)	1	2014	1	2014
MCM MP: MCM MP Increment I TECHEVAL DT-C2 (Independence Variant)	3	2015	3	2015
MCM MP: MCM MP Increment I IOT&E OT-C2 (Independence Variant)	3	2015	4	2015
MCM MP: MCM MP Increment I IOC	4	2015	4	2015
MCM MP: MCM - UISS CDR	4	2014	4	2014
MCM MP: MCM MP FOT&E	4	2014	4	2017
MCM MP: MCM MP OAMCM Operational Assessment (Independence Variant)	4	2014	4	2014
MCM MP: MCM MP Increment III Delta SRR	1	2015	1	2015
MCM MP: MCM MP Increment III Delta PDR	2	2015	2	2015
MCM MP: MCM MP Increment III Delta CDR	4	2015	4	2015
SUW MP: SUW MP Increment II PRR (MSM)	1	2014	1	2014
SUW MP: SUW MP Increment I & II DT-B1 Phase 2 (Freedom Variant)	1	2014	2	2014
SUW MP: SUW MP Increment I & II DT-B4 (Independence Variant)	4	2014	4	2014
SUW MP: SUW MP Increment I & II TECHEVAL DT-C1 (Freedom Variant)	2	2014	2	2014
SUW MP: SUW MP Increment I & II TECHEVAL DT-C4 (Independence Variant)	3	2015	3	2015
SUW MP: SUW MP Increment I & II IOT&E OT-C1 (Freedom Variant)	2	2014	2	2014
SUW MP: SUW MP Increment I & II IOT&E OT-C4 (Independence Variant)	2	2015	2	2015
SUW MP: SUW MP Increment I & II IOC	4	2014	4	2014
SUW MP: SUW MM (SSMM End-to-End Testing)	4	2014	4	2014
SUW MP: SUW MP FOT&E	4	2014	4	2018
SUW MP: SUW MM SSMM PDR	4	2014	4	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603596N / *(U)LCS Mission Modules*	**Project (Number/Name)** 3129 / *LCS Mission Package Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SUW MP: SUW MM SSMM Development	1	2014	3	2015
Page 2				
ASW MP: ASW MP Increment II SFR	1	2014	1	2014
ASW MP: ASW MP Increment II PDR	2	2014	2	2014
ASW MP: ASW MP Increment II CDR/PRR	4	2014	4	2014
ASW MP: ASW MP Increment II EDM/PRA Award	3	2014	3	2014
ASW MP: ASW MP Increment II EDM 1 Delivery	4	2015	4	2015
ASW MP: ASW MP Increment II DT-B3 (Freedom Variant)	1	2016	1	2016
ASW MP: ASW MP Increment II DT-B6 (Independence Variant)	3	2016	4	2016
ASW MP: ASW MP Increment II TECHEVAL DT-C3 (Freedom Variant)	2	2016	3	2016
ASW MP: ASW MP Increment II TECHEVAL DT-C6 (Independence Variant)	2	2017	2	2017
ASW MP: ASW MP Increment II IOT&E OT-C3 (Freedom Variant)	3	2016	4	2016
ASW MP: ASW MP Increment II IOT&E OT-C6 (Independence Variant)	3	2017	3	2017
ASW MP: ASW MP Increment II IOC	4	2016	4	2016
ASW MP: ASW MP Increment II LRIP 1 Award	2	2016	2	2016
ASW MP: ASW MP Increment LRIP 1 Delivery	3	2017	3	2017
Training: NTTS (MPTS) HW/SW Development	1	2014	3	2017
Training: MCM LTF Initial Ready For Training	2	2014	2	2014
Training: SUW LTF Initial Ready For Training	2	2015	2	2015
Training: ASW LTF Initial Ready For Training	2	2017	2	2017
Training: CMPT - GD Tactical Team Trainer Integration Complete	2	2014	2	2014
Training: MCM Courseware Update (MCM UUV, RMMV & UISS IOC)	4	2015	3	2016
Training: SUW Courseware Update (SSMM IOC)	4	2015	4	2015
Training: Initial LCS MM Baseline Final Ready for Training	4	2017	4	2017

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603597N *I (U)Automated Test and Re-Test (ATRT)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	0.000	-	10.005	8.115	-	8.115	8.236	-	-	-	-	26.356
9B88: *Automated Test and Re-Test*	0.000	-	10.005	8.115	-	8.115	8.236	-	-	-	-	26.356

The FY 2015 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 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.

The ATRT project was previously funded on Program Element 0603582N under Project Unit 9B88: "Automated Test and Retest (ATRT)". Per Congressional direction, starting in FY14 and through the outyears, the ATRT project moves to Program Element 0603597N under Project Unit 9B88C: "Automated Test and Re-Test - Congressional".

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	10.005	8.115	-	8.115
Total Adjustments	-	10.005	8.115	-	8.115
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.005			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	8.115	-	8.115

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603597N / *(U)Automated Test and Re-Test (ATRT)*	Project (Number/Name) 9B88 / *Automated Test and Re-Test*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
9B88: *Automated Test and Re-Test*	-	-	10.005	8.115	-	8.115	8.236	-	-	-	-	26.356
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The use of these funds by Navy, through Automated Test and Re-Test (ATRT), will further develop an automated test/analysis capability, which is applicable at phases within system development, integration, and certification 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 Integrated Combat System Test Facility (ICSTF), AEGIS Combat System Advanced Capability Build (ACB) 16, Submarine Federated Tactical System and Virginia Class Submarines, the Littoral Combat Ship (LCS) Mission Module/ Combat Management System 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.

Per Congressional direction, starting in FY14 and through the outyears, the ATRT project moves to Program Element 0603597N under Project Unit 9B88C: "Automated Test and Re-Test - Congressional".

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Automated Test and Re-Test	-	10.005	8.115
Articles:	-	-	-

FY 2013 Accomplishments:

N/A

FY 2014 Plans:

The ATRT program will disseminate (9) FY14 project implementation packages to Executive Directors, Chief of Staffs, and Subject Matter Experts throughout NAVSEA-affiliated PEOs/ domains for ATRT implementation proposals. Final submissions will be prioritized by Screening Panel Members, represented by each NAVSEA-affiliated PEO, who will make recommendations to the Executive Steering Committee for final selections. The program will sustain Automated Test & Analysis Working Group (ATAWG) efforts to continue development and improvement of ATRT requirement specifications and standards via thorough investigations of lessons learned from previous pilots. The program will develop training modules and best practice methods for ATRT users. Conduct outreach efforts to NAVSEA programs and industry for ATRT implementation across ship platforms. Develop procedure to quantify improved quality of the system under test, and

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603597N / *(U)Automated Test and Re-Test (ATRT)*	**Project (Number/Name)** 9B88 / *Automated Test and Re-Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
update the ATRT standard proposal/ business case analysis template for future ATRT startup applications. ***FY 2015 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 testing domains.			
Accomplishments/Planned Programs Subtotals	-	10.005	8.115

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN/0603582N: *Combat System Integration*	7.971	-	-	-	-	-	-	-	-	-	7.971

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:
- Progress Briefs at Quarterly ATRT Stakeholders Meetings
- Bi- Monthly ATRT Program Reviews
- Return on Investment Metrics based on work hours for test process execution - before and after automation
- Return on Investment Metrics based on work hours for test process execution - before and after automation

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603609N *I Conventional Munitions*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	200.037	6.717	8.404	7.603	-	7.603	9.210	8.446	8.530	8.704	Continuing	Continuing
0363: *Insensitive Munitions Adv. Development*	200.037	6.717	8.404	7.603	-	7.603	9.210	8.446	8.530	8.704	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	7.342	8.404	8.548	-	8.548
Current President's Budget	6.717	8.404	7.603	-	7.603
Total Adjustments	-0.625	-	-0.945	-	-0.945
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.014	-			
• Rate/Misc Adjustments	-	-	-0.945	-	-0.945
• Congressional General Reductions Adjustments	-0.611	-	-	-	-

Change Summary Explanation

Technical: FY15 $0.945 in other rate adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603609N / *Conventional Munitions*	Project (Number/Name) 0363 / *Insensitive Munitions Adv. Development*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0363: *Insensitive Munitions Adv. Development*	200.037	6.717	8.404	7.603	-	7.603	9.210	8.446	8.530	8.704	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 Program Executive Offices (PEO) are implementing IM in their priority munitions. IM are identified as a Department of Defense (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 program managers (PM) 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 2013	FY 2014	FY 2015
Title: Insensitive Munitions Adv. Development	6.717	8.404	7.603
Articles:	-	-	-

Description: Validate and assess weapon systems plan of action and milestones 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 2013 Accomplishments:
Evaluated and demonstrated IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combined candidate IM propellants and case concepts to demonstrate compliance

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015

with IM and performance requirements. Demonstrated an insensitive multi-mission, high performance rocket motor. Evaluated options for minimum smoke propellants for shoulder launched applications. Evaluated and demonstrated IM boost propellant formulation for future Tomahawk systems providing improved and comparable performance to in-service systems and better IM characteristics. Assessed combined candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Designed a composite booster case for Tomahawk which will improve IM performance for cook-off and impact scenarios. Demonstrated new formulations that will self extinguish while maintaining performance for Advanced Medium Range Air-to-Air Missile (AMRAAM), Sidewinder and other air launched systems. Looked at new ways to develop rocket propellant formulations that meet performance requirements and solve IM deficiencies. Resolved IM problems using top down approach. Evaluated ordnance and container concepts. Modeled applications that could reduce and enhance IM warhead container design. Assessed the operations utility of current and projected IM improvements to determine current state of IM and prioritize future funding for IM technology. Assessed shielding evaluation of Tomahawk Vertical Launch System (VLS) storage canister. Reviewed modeling to solve impact and cook-off with All Up Round (AUR) pallet in support of a cooperative effort with Advanced Gun System Long Range Land Attack Projectile (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 IMSPs provide a comprehensive IM technology requirements list that helps to focus IM technology thrusts throughout DoD.

Additionally, in FY 2013 the program evaluated and demonstrated MK54 Vertical Launched Anti-Submarine Rocket (ASROC) (VLA) solid propellant rocket IM capabilities that meet performance. Demonstrated and qualified Tomahawk weapon systems to include improved booster explosives and insensitive metalized propellants that are IM compliant. Conducted an evaluation of all issues and concerns related to heated RDX discoloration. Performed a demonstration and qualification test of AMRAAM and Sidewinder for joint insensitive munitions to improve response to combat and hazards. Evaluated and provided a modular ballistic shield for protection of navy munitions. Assessed characterization of Micro-Electro-Mechanical System (MEMS) in support of IM Navy qualifications. Demonstrated and qualified 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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 additional efforts such as: the demonstration and qualification of IM improved booster explosive for General Purpose (GP) Bombs; the demonstration and qualification of insensitive metalized propellants in 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 Explosives (TPE) a potential replacement for all explosives. ***FY 2015 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603609N / *Conventional Munitions*	**Project (Number/Name)** 0363 / *Insensitive Munitions Adv. Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. FY 2015 will also support 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 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 Explosives (TPE) a potential replacement for all explosives.			
Accomplishments/Planned Programs Subtotals	6.717	8.404	7.603

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603611M *I Marine Corps Assault Vehicles*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	12.000	83.182	122.967	105.749	-	105.749	199.239	200.908	243.517	328.191	Continuing	Continuing
0025: *New Amphibious Vehicle*	12.000	83.182	122.967	105.749	-	105.749	199.239	200.908	243.517	328.191	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The new amphibious vehicle is an armored personnel carrier, balanced in performance, protection, and payload for employment within the Ground Combat Element (GCE) and throughout the range of military operations, to include a swim capability. FY15 funding will support ACV Increment 1.1 activities including the manufacture of prototype vehicles, testing, associated program support, and studies/technology development to advance high water speed.

Note: ACV Increment 1.1 leverages and continues the work that was previously accomplished under the Marine Personnel Carrier (MPC)program, funded in PE 0206623M; Project 9C85.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	95.182	136.967	275.760	-	275.760
Current President's Budget	83.182	122.967	105.749	-	105.749
Total Adjustments	-12.000	-14.000	-170.011	-	-170.011
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-14.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	7.046	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	-35.927	-	-35.927
• Rate/Misc Adjustments	-	-	-134.084	-	-134.084
• Congressional General Reductions Adjustments	-7.046	-	-	-	-
• Congressional Directed Reductions Adjustments	-12.000	-	-	-	-

Change Summary Explanation

The funding decrease from FY14 to FY15 is a result of a revised program strategy.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603611M / *Marine Corps Assault Vehicles*	Project (Number/Name) 0025 / *New Amphibious Vehicle*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0025: *New Amphibious Vehicle*	12.000	83.182	122.967	105.749	-	105.749	199.239	200.908	243.517	328.191	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The new amphibious vehicle is an armored personnel carrier, balanced in performance, protection, and payload for employment within the Ground Combat Element (GCE) and throughout the range of military operations, to include a swim capability. FY15 funding will support ACV Increment 1.1 activities including the manufacture of prototype vehicles, testing, associated program support, and studies/technology development to advance high water speed.

Note: ACV Increment 1.1 leverages and continues the work that was previously accomplished under the Marine Personnel Carrier (MPC)program, funded in PE 0206623M; Project 9C85.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Product Development	53.478	117.715	67.708
Articles:	-	-	-

Description: System Design and Development

FY 2013 Accomplishments:
Continued Hull Survivability Demonstrator (HSD) activities to include prototype fabrication and testing. Awarded Requirements Refinement contracts 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. Performed technology maturation, integration, and demonstration efforts.

FY 2014 Plans:
Initiate new amphibious vehicle innovation efforts to reduce cost and risk, provide associated program support and studies/ technology development to advance high water speed. Award Technology Exploration contracts to assess the technical and cost impacts of requirements that require modularity and also conduct experiments of the proposed designs submitted during the Requirements Refinement phase.

FY 2015 Plans:
Continue Technology Exploration contracts to assess the results of the experiments conducted in FY14 to revise the ACV Concept Design. Continue new amphibious vehicle innovation efforts to reduce cost and technical risk, provide associated program support

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603611M / *Marine Corps Assault Vehicles*	**Project (Number/Name)** 0025 / *New Amphibious Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
and study/technology development to advance high water speed. Procure prototype vehicles for Drive-Off Competition and Tactics, Techniques, and Procedures development.			
Title: Engineering Technical Support	24.454	5.177	37.016
Articles:	-	-	-
Description: Engineering Technical Support ***FY 2013 Accomplishments:*** Initiated innovation efforts to reduce vehicle weight, technical risk, and cost. Continued support of HSD activities. Provided engineering and technical services in support of technology integration and demonstration activities, and support of requirements definition efforts. Continued providing contractor engineering and management support for program planning, analysis, and execution. Provided technical assessment and engineering for digital integration architecture and facilitization. ***FY 2014 Plans:*** Initiate new amphibious vehicle innovation efforts to reduce vehicle weight, technical risk and cost. Pursue technology development and other studies to advance high water speed. Continue engineering and technical services in support of technology integration and demonstration activities, and concept development efforts. Continue engineering and management support for program planning, analysis, and execution. ***FY 2015 Plans:*** Continue evaluation of technology development efforts and other studies. Continue engineering and technical services in support of technology integration and demonstration activities, and concept development efforts. Continue engineering and management support for program planning, analysis, and execution. Continue technical assessment and engineering for digital integration architecture and facilitization. Pursue technology development and other studies to support new amphibious vehicle capability.			
Title: Program Management Support	5.250	0.075	1.025
Articles:	-	-	-
Description: Program Management Support ***FY 2013 Accomplishments:*** Provided program management support for acquisition documentation preparation and statement of work development. Provided transportation/shipment of government equipment in support of HSD test activities. Performed travel in support of program requirements. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603611M / *Marine Corps Assault Vehicles*	**Project (Number/Name)** 0025 / *New Amphibious Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Provide transportation/shipment of government equipment in support of HSD test activities. ***FY 2015 Plans:*** Provide program management support for acquisition documentation preparation and statement of work development in support of Request for Proposal (RFP) release. Provide acquisition documentation support in preparation for Milestone B decision. Provide transportation/shipment of government equipment. Perform travel in support of program requirements.			
Accomplishments/Planned Programs Subtotals	83.182	122.967	105.749

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Acquisition strategy is to award competitive prototype contracts to up to three vendors to build 11 vehicles each (8 for Drive-Off Competition and 3 for Tactics, Techniques, and Procedures Development).

The ACV Increment 1.1 will enter the acquisition cycle at Milestone B in FY16 and award Prototype Contracts which will lead to a down select to one in FY18 entering into Low Rate Initial Production (LRIP).

E. Performance Metrics

Milestone Reviews

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603611M / *Marine Corps Assault Vehicles*	**Project (Number/Name)** 0025 / *New Amphibious Vehicle*

ACV 1.1 Schedule

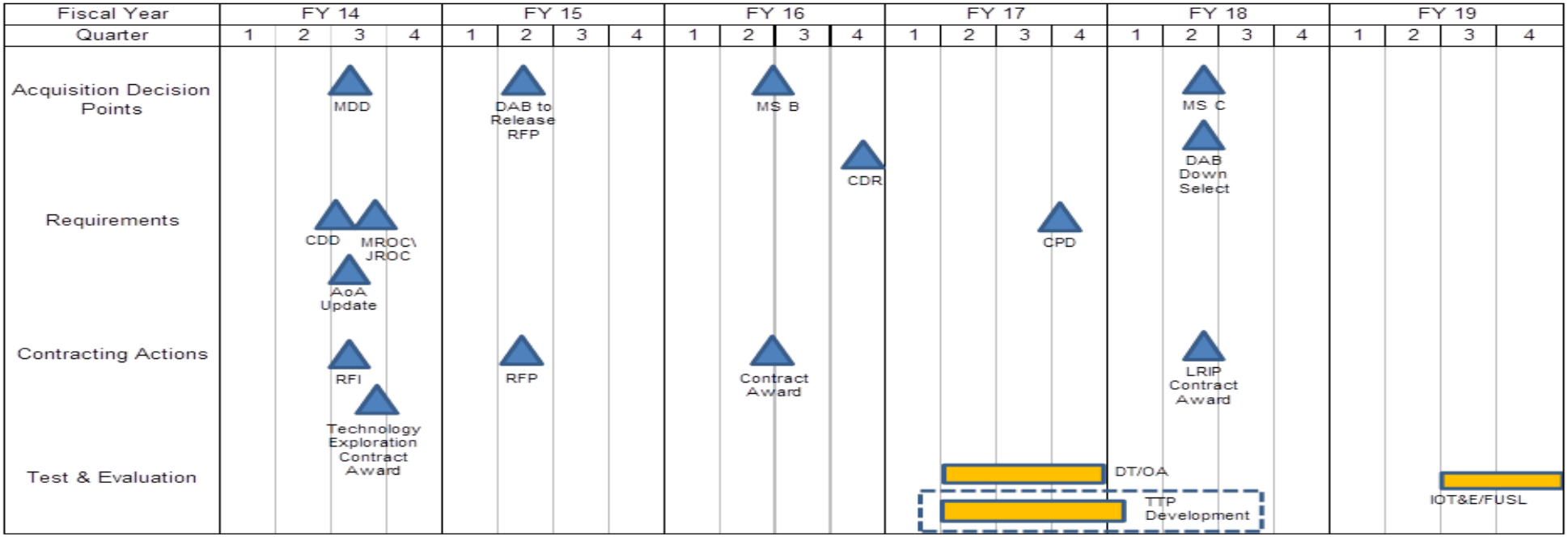

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603635M *I Marine Corps Grnd Cmbt/Supt Sys*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	22.702	8.400	1.489	1.342	-	1.342	1.271	1.300	1.321	1.368	Continuing	Continuing
1964: *Anti-Armor Weapon System*	0.868	1.057	1.143	1.005	-	1.005	0.924	0.939	0.954	0.994	Continuing	Continuing
2614: *SMAW Follow-On*	21.834	7.343	0.346	0.337	-	0.337	0.347	0.361	0.367	0.374	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

Note

The Joint Light Tactical Vehicle (JLTV) program, Project number 3209 transitioned 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	10.496	1.489	1.386	-	1.386
Current President's Budget	8.400	1.489	1.342	-	1.342
Total Adjustments	-2.096	-	-0.044	-	-0.044
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.704	-			
• SBIR/STTR Transfer	-0.378	-			
• Program Adjustments	-	-	-0.037	-	-0.037
• Rate/Misc Adjustments	-0.001	-	-0.007	-	-0.007
• Congressional General Reductions Adjustments	-0.013	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603635M *I Marine Corps Grnd Cmbt/Supt Sys*

Change Summary Explanation

The decrease from FY13 to FY14 is due to Follow-on to SMAW (FOTS) transitioning from Initial Operational Test and Evaluation (IOT&E) to Full Rate Production (FRP).

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / *Marine Corps Grnd Cmbt/ Supt Sys*	Project (Number/Name) 1964 / *Anti-Armor Weapon System*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
1964: *Anti-Armor Weapon System*	0.868	1.057	1.143	1.005	-	1.005	0.924	0.939	0.954	0.994	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The M41A4 Saber system is the primary heavy, anti-armor launch system for the TOW Missile within the Ground Combat Element of the Marine Corps. 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 centered on integration of sight image enhancements were concluded in FY13. Other efforts have focused on providing engineering and technical support which include the study of densified propellant, Saber battery replacement, Saber battery storage container and the test launch stand for the Saber system (far-target location accuracy improvements). The traversing unit upgrades/ improvements, battlefield networking communications capability and a laser designation capability have been postponed due to prioritization of Saber battery upgrade/ replacement efforts.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Densified Propellant	1.057	0.539	0.200
Articles:	-	-	-
FY 2013 Accomplishments: Funds supported the investigation of using densified propellant (DP) to reduce back blast, to reduce acoustic emissions and to increase impulse.			
FY 2014 Plans: Funds will support the continued investigation and qualification to use densified propellant.			
FY 2015 Plans: Funds will support the qualification of densified propellant.			
Title: Saber Battery Replacement	-	0.382	0.805
Articles:	-	-	-
FY 2013 Accomplishments: NA			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603635M / *Marine Corps Grnd Cmbt/ Supt Sys*	**Project (Number/Name)** 1964 / *Anti-Armor Weapon System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Funds will support the research of a replacement battery for Saber that will have reduced safety concerns, with the same or increased power and longevity capability. ***FY 2015 Plans:*** Funds will support the continuation of research and the qualification of any replacement battery developed.			
Title: Test Launch Stand	-	0.174	-
Articles:	-	-	-
FY 2013 Accomplishments: NA ***FY 2014 Plans:*** Funds will support the investigation and qualification of a missile launch testing capability to qualify missiles without user or system error being introduced into the test. ***FY 2015 Plans:*** NA			
Title: Saber Battery Storage Container	-	0.048	-
Articles:	-	-	-
FY 2013 Accomplishments: NA ***FY 2014 Plans:*** Funds will support the investigation and qualification of a battery storage container which will have the capablity of containing a large format lithium battery fire. ***FY 2015 Plans:*** NA			
Accomplishments/Planned Programs Subtotals	1.057	1.143	1.005

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603635M / *Marine Corps Grnd Cmbt/ Supt Sys*	**Project (Number/Name)** 1964 / *Anti-Armor Weapon System*

D. Acquisition Strategy

The Saber system is a joint program with the U.S. Army. In FY13-15 funding supports 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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603635M / *Marine Corps Grnd Cmbt/ Supt Sys*	**Project (Number/Name)** 1964 / *Anti-Armor Weapon System*

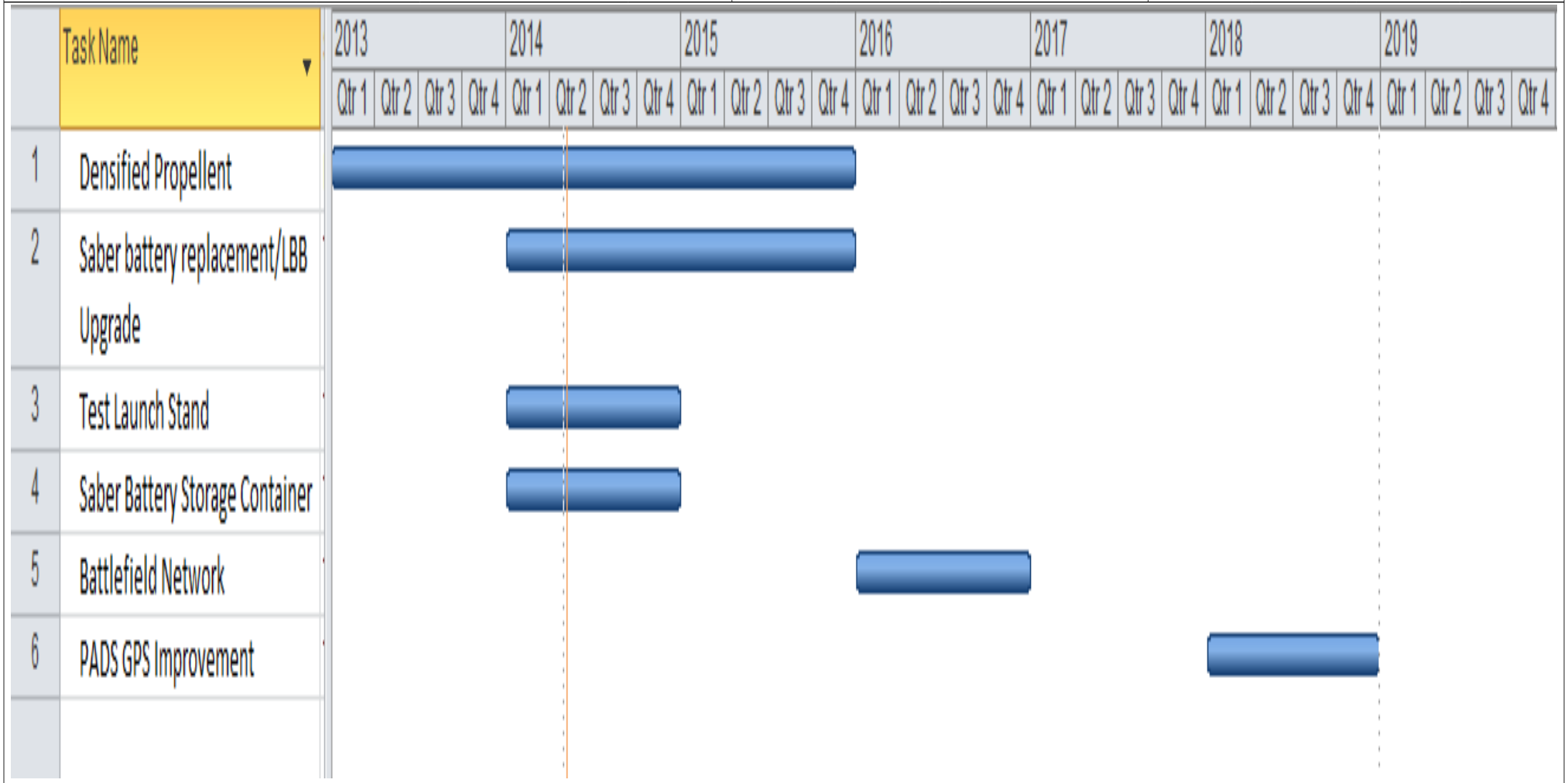

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603635M / *Marine Corps Grnd Cmbt/ Supt Sys*	Project (Number/Name) 2614 / *SMAW Follow-On*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2614: *SMAW Follow-On*	21.834	7.343	0.346	0.337	-	0.337	0.347	0.361	0.367	0.374	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

During FY10-12, the development of the Shoulder-Launched-Multipurpose Assault Weapon (SMAW) II system, which is the original solution to the Follow-On-To SMAW (FOTS) requirement, experienced numerous technical and programmatic challenges. The program rebaselined multiple times, each one adding considerable cost and schedule growth to the original baseline. The Program Office, with concurrence from the MDA, elected to allow the SMAW II effort to expire and explore alternate methods for satisfying the FOTS requirement. A new effort has begun and is described below.

The solution to the FOTS requirement is the SMAW Mod 2 system. The mission of the SMAW Mod 2 is to provide short-range assault fires in support of infantry forces attacking fortified position and urban structures under all field and environmental conditions. This includes employment under Mission Oriented Protective Posture (MOPP) IV Level Chemical, Biological, Radiological and Nuclear (CBRN) conditions. The SMAW Mod 2 consists of a new SMAW launcher that will be physically and functionally compatible with all current SMAW ammunition variants. Additionally, work is being performed to develop new propellant technologies for an enhanced rocket motor.

During FY13, the development and integration of the SMAW Mod 2 system was completed and ready for Initial Operational Test and Evaluation (IOT&E). During FY14, IOT&E is planned to be performed on the launcher prior to the development and release of the Full Rate Production Request For Proposal. Additionally, development of the Densified Propellant will begin. In FY15, Full Rate Production of the SMAW Mod 2 launcher will begin and work will continue on the Densified Propellant.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Systems integration and qualification.	0.278	-	-
Articles:	-	-	-
FY 2013 Accomplishments: Purchased rockets from Ammo for use with Initial Operational Test & Evaulation (IOT&E).			
FY 2014 Plans: N/A			
FY 2015 Plans: N/A			
Title: Engineer and technical support.	3.214	0.246	0.337
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603635M / *Marine Corps Grnd Cmbt/ Supt Sys*	**Project (Number/Name)** 2614 / *SMAW Follow-On*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Provided engineering support for SMAW Mod 2 development and testing. Provided review of all contract technical deliverables. ***FY 2014 Plans:*** Provide engineering support for the development and testing of the Densified Propellant. ***FY 2015 Plans:*** Will provide engineering support for the development and testing of the Densified Propellant.			
Title: Government program management/in-house support. ***Articles:*** ***FY 2013 Accomplishments:*** Provided administrative and technical support to all programmatic and technical reviews; maintained programmatic documentation change management system; maintained Contract Data Requirements List (CDRL) deliverables review and management system; participated in all program Integrated Product Teams (IPTs); updated the SMAW Mod 2 Supportability Planned and prepared all Acquisition Logistics documentation; maintained the SMAW Mod 2 Life Cycle Cost Estimate (LCCE); provided Earned Value Management System (EVMS) analytical support; managed Action Item database. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A	2.715 -	- -	- -
Title: Operational test support planning and document preparation ***Articles:*** ***FY 2013 Accomplishments:*** Conducted and reported the results of the SMAW Mod 2 IOT&E; provide operational test expertise to all programmatic and technical reviews. ***FY 2014 Plans:*** Conduct and report the results of the SMAW Mod 2 launcher IOT&E; provide operational test expertise to all programmatic and technical reviews. ***FY 2015 Plans:*** N/A	1.136 -	0.100 -	- -
Accomplishments/Planned Programs Subtotals	7.343	0.346	0.337

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603635M / *Marine Corps Grnd Cmbt/ Supt Sys*	**Project (Number/Name)** 2614 / *SMAW Follow-On*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• PMC/301600: *Follow on to SMAW*	5.449	0.105	4.995	-	4.995	29.729	24.919	0.564	0.022	-	124.541

Remarks

D. Acquisition Strategy

FY13-15 strategy is to complete development and qualification of the SMAW MOD 2 system (i.e. new SMAW Launcher).

E. Performance Metrics

Milestone Reviews; Technical Reviews.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603635M / *Marine Corps Grnd Cmbt/ Supt Sys*	**Project (Number/Name)** 2614 / *SMAW Follow-On*

SMAW MK-153 MOD 2 SCHEDULE

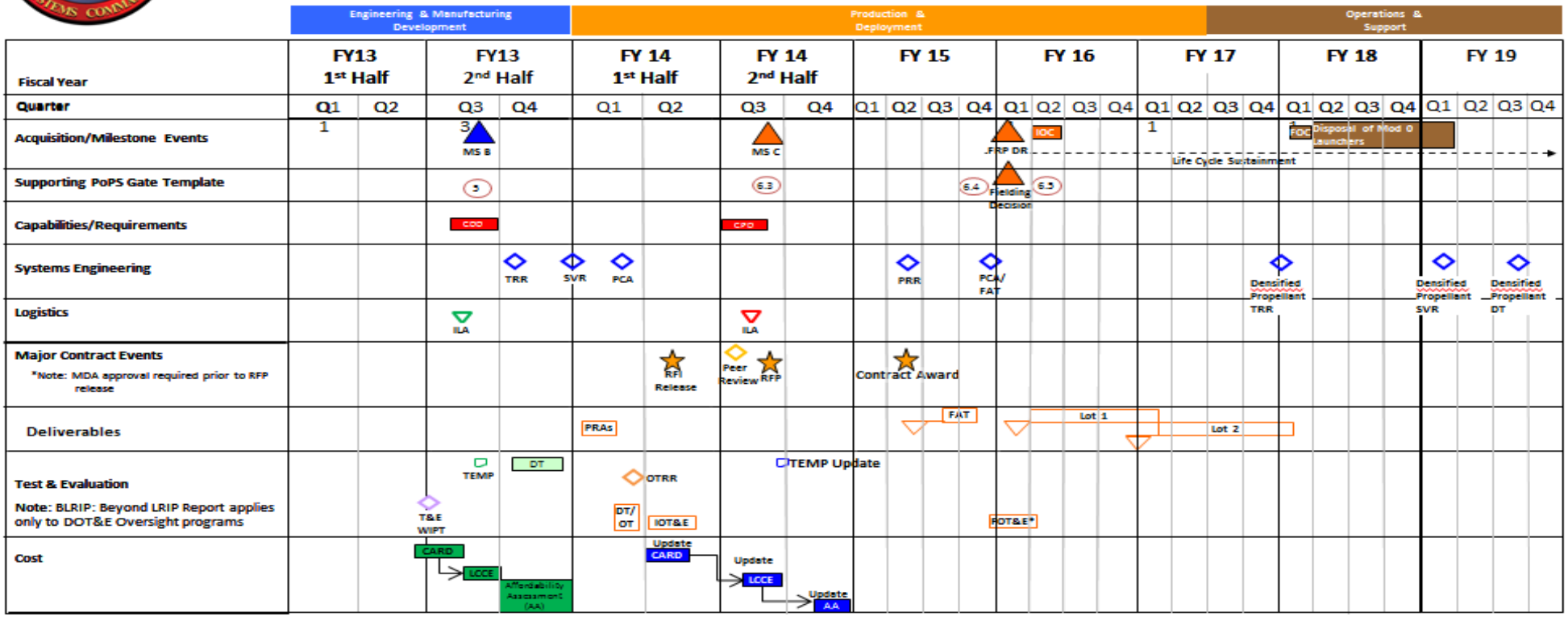

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603654N *I JT Service Explosive Ordn Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	470.233	41.468	34.958	21.399	-	21.399	29.982	33.087	32.377	33.034	Continuing	Continuing
0377: *JT Service Expl Ord Disp System*	318.181	12.270	15.583	10.212	-	10.212	11.859	11.848	11.461	11.722	Continuing	Continuing
1317: *EOD Diving System*	98.028	2.839	2.607	2.050	-	2.050	4.429	4.476	4.436	4.530	Continuing	Continuing
3177: *Joint Counter Radio-Controlled IED Elec Warfare*	0.000	4.440	-	-	-	-	-	-	-	-	-	4.440
4023: *VSW MCM/Force Protection UUV*	54.024	21.919	16.768	9.137	-	9.137	13.694	16.763	16.480	16.782	Continuing	Continuing

The FY 2015 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 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603654N *I JT Service Explosive Ordn Dev*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	56.931	38.422	28.229	-	28.229
Current President's Budget	41.468	34.958	21.399	-	21.399
Total Adjustments	-15.463	-3.464	-6.830	-	-6.830
• Congressional General Reductions	-	-0.065			
• Congressional Directed Reductions	-	-3.399			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	3.100	-			
• SBIR/STTR Transfer	-0.964	-			
• Program Adjustments	-	-	-0.315	-	-0.315
• Rate/Misc Adjustments	-	-	-6.515	-	-6.515
• Congressional General Reductions Adjustments	-3.599	-	-	-	-
• Congressional Directed Reductions Adjustments	-14.000	-	-	-	-

Change Summary Explanation

Program Adjustments: FY15 0.315K in Other Rate Adjustments and $6.515M Rate/Misc Adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603654N / *JT Service Explosive Ordn Dev*	Project (Number/Name) 0377 / *JT Service Expl Ord Disp System*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0377: *JT Service Expl Ord Disp System*	318.181	12.270	15.583	10.212	-	10.212	11.859	11.848	11.461	11.722	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: EOD FUTURE RADIOGRAPHIC SYSTEMS (FRS) AND EOD DECISION SUPPORT SYSTEMS (DSS)	2.661	5.227	1.777
Articles:	-	-	-
FY 2013 Accomplishments: Continued 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.			
FY 2015 Plans: Continue improvements to the JEOD Decision Support System (DSS) based upon user input, development of the Increment 1 System and improvements to the Future Radiographic Systems (FRS) and provide Analysis of Alternatives for warfighter initiated improvements.			
Title: HIGH FIDELITY WEAPONS MASS DESTRUCTION (WMD) IDENTIFICATION AND DETECTION	-	0.723	-
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 0377 / *JT Service Expl Ord Disp System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A ***FY 2014 Plans:*** Continue to develop Weapons Mass Destruction (WMD) family of systems focused on development of the Explosives Identification Kit (ID). ***FY 2015 Plans:*** Continue development of Weapons Mass Destruction (WMD) identification and detection family of systems with focus on consolidation of Explosive ID & detect technologies capable of integration into a single handheld unit.			
Title: EOD ROBOTICS ***Articles:*** ***FY 2013 Accomplishments:*** Continued 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. ***FY 2015 Plans:*** Expand Advanced EOD Robotics Increment 1 architecture for use in Increments 2 & 3 resulting in prototype development and testing.	9.242 -	8.633 -	7.435 -
Title: TCM AN/PLT-XXX SYSTEMS ***Articles:*** ***FY 2013 Accomplishments:*** Continued 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. ***FY 2015 Plans:*** Development of Non-theater loadsets based upon current threats. Upgrade current theater loadsets to remain current with continually changing threats.	0.367 -	1.000 -	1.000 -
Accomplishments/Planned Programs Subtotals	12.270	15.583	10.212

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 0377 / *JT Service Expl Ord Disp System*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/5509: *EOD Equipment (VN075)*	-	8.080	6.080	-	6.080	12.712	19.759	7.305	9.110	-	72.849

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 86 Joint Service EOD Decision Support System (DSS) change requests resulting in the release of 4195 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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 0377 / *JT Service Expl Ord Disp System*

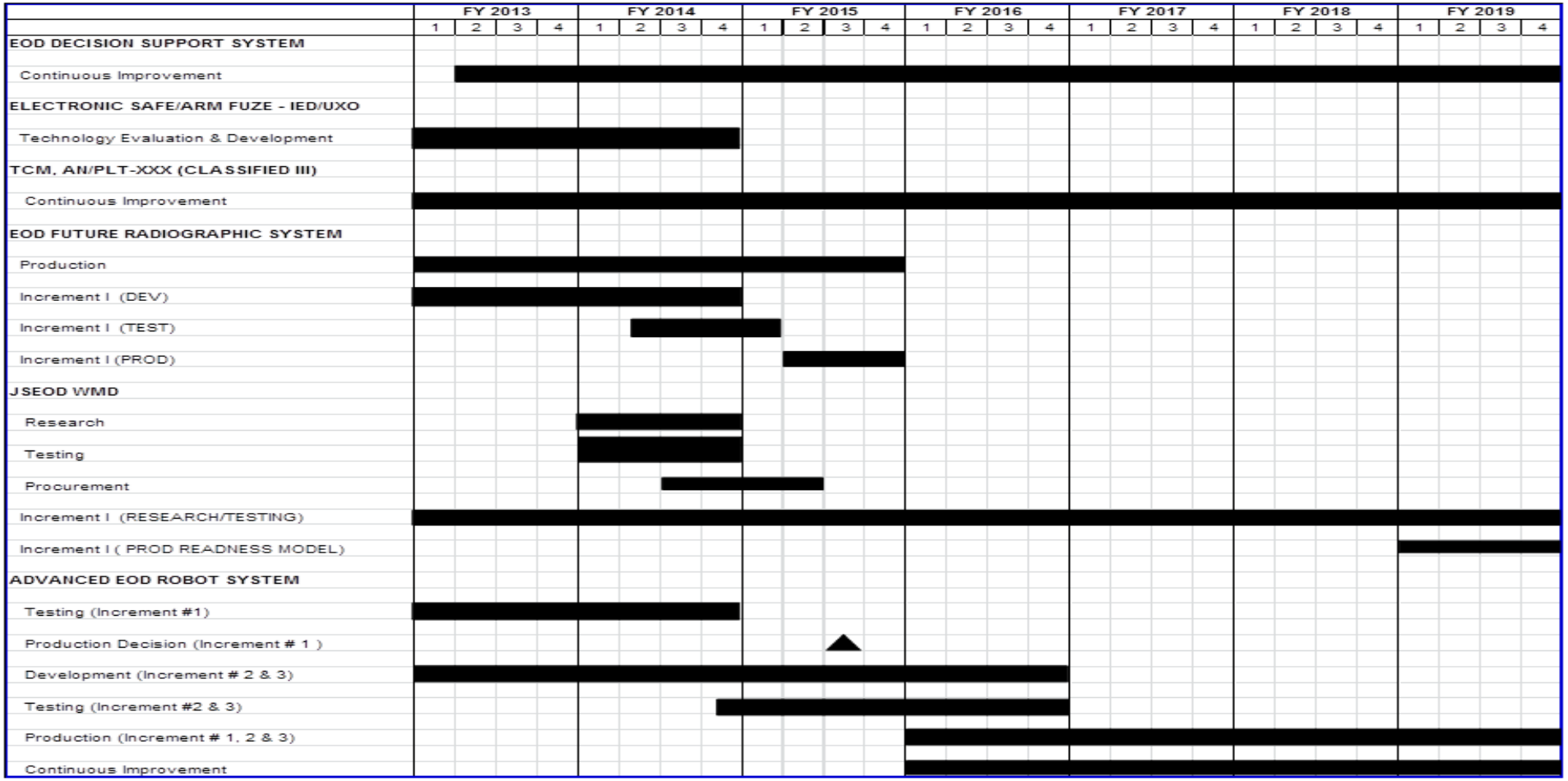

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603654N / *JT Service Explosive Ordn Dev*	Project (Number/Name) 1317 / *EOD Diving System*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
1317: *EOD Diving System*	98.028	2.839	2.607	2.050	-	2.050	4.429	4.476	4.436	4.530	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: DIVER SAFETY & LIFE SUPPORT SYSTEMS	1.395	1.056	1.600
Articles:	-	-	-
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, emergency life support systems and the ability to train divers and to evaluate Mine Countermeasures (MCM)/Explosive Ordnance Disposal (EOD) tools, tactics and procedures with regard to influence cleanliness against sea mines both at home and in controlled threat areas prior to commencing EOD operations.			
FY 2013 Accomplishments: Initiated Analysis of Alternatives (AoA) to investigate the feasibility for replacement or technological upgrade of current forty year old EOD UBA MK 16 MOD 1 and the fourteen year old VIPER VSW UBA.			
FY 2014 Plans: Continue the EOD UBA AoA acquisition efforts to develop, test, and field future Underwater Mine Countermeasures (UMCM) systems in accordance with approved OPNAV requirements.			
FY 2015 Plans: Continue EOD UBA acquisition initiative.			
Title: ADVANCED DIVER INTEGRATED SENSORS	0.949	0.901	0.399
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 1317 / *EOD Diving System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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). ***FY 2013 Accomplishments:*** Conducted ECP development for increased capabilities in the DHINS systems as recommended by operator input and technology refresh requirements due to parts obsolescence. Conducted market study for next generation advanced underwater sensor requirements. ***FY 2014 Plans:*** Initiate acquisition program to replace UIS based on Analysis of Alternatives (AOA) conducted in FY13. Continue CIP integration with DHINS. ***FY 2015 Plans:*** Begin development of the next generation Advanced Integrated Sensor System for EOD divers as a replacement of the UIS.			
Title: ADVANCED FIRING SYSTEM ***Articles:*** ***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 2013 Accomplishments:*** Continued implementing upgrades in accordance with OPNAV approved requirements and validate system performance. ***FY 2014 Plans:*** Continue towards completing miniaturized AFCT. ***FY 2015 Plans:*** Begin fielding miniaturized AFCT to meet approved inventory objectives.	0.495 -	0.650 -	0.051 -
Accomplishments/Planned Programs Subtotals	2.839	2.607	2.050

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/0977a: *Underwater EOD Program (Cost Code UQ034)*	4.257	4.588	1.000	-	1.000	1.000	2.652	1.540	2.000	-	32.937

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 1317 / *EOD Diving System*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 0340: *PANMC*	0.336	-	-	-	-	-	-	-	-	-	1.057
• OPN/0977b: *UW EOD (UQ036)*	-	2.000	-	-	-	-	1.802	0.761	0.987	-	6.750

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 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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 1317 / *EOD Diving System*

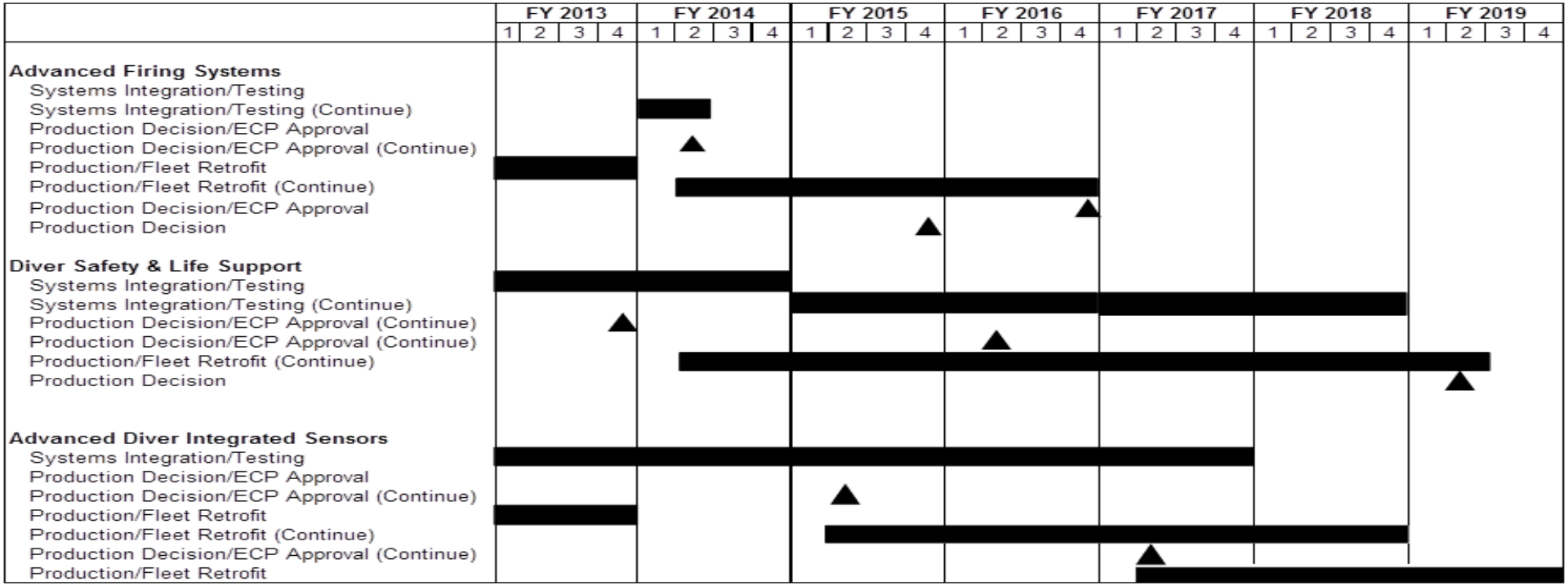

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603654N / *JT Service Explosive Ordn Dev*	Project (Number/Name) 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3177: *Joint Counter Radio-Controlled IED Elec Warfare*	-	4.440	-	-	-	-	-	-	-	-	-	4.440
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: JOINT CREW OCO	4.440	-	-
Articles:	-	-	-
FY 2013 Accomplishments: 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.			
FY 2014 Plans: N/A			
FY 2015 Plans: N/A			
Accomplishments/Planned Programs Subtotals	4.440	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*

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.

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-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603654N / *JT Service Explosive Ordn Dev*	Project (Number/Name) 4023 / *VSW MCM/Force Protection UUV*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
4023: *VSW MCM/Force Protection UUV*	54.024	21.919	16.768	9.137	-	9.137	13.694	16.763	16.480	16.782	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: VSW MCM/Force Protection UUV	21.919	16.768	9.137
Articles:	-	-	-

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 2013 Accomplishments:

Continued 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:

Due to Sequestration delays in FY2013, FY14 plans will leverage 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. Develop Joint Capability Integration Development System (JCIDS) documentation as required to support future MK 18 MOD 2 improvements. Continue

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 4023 / *VSW MCM/Force Protection UUV*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
to enhance both the HULS and UMCM UUV's with pre-planned product improvements to meet approved OPNAV operational requirements. UOES and RCT&E will be used to validate operational capabilities. ***FY 2015 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.			
Accomplishments/Planned Programs Subtotals	21.919	16.768	9.137

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/0977: *Underwater EOD Program (Cost Code UQ034)*	15.599	14.400	40.569	-	40.569	34.570	14.557	34.404	33.378	-	202.098

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 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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603654N / *JT Service Explosive Ordn Dev*	**Project (Number/Name)** 4023 / *VSW MCM/Force Protection UUV*

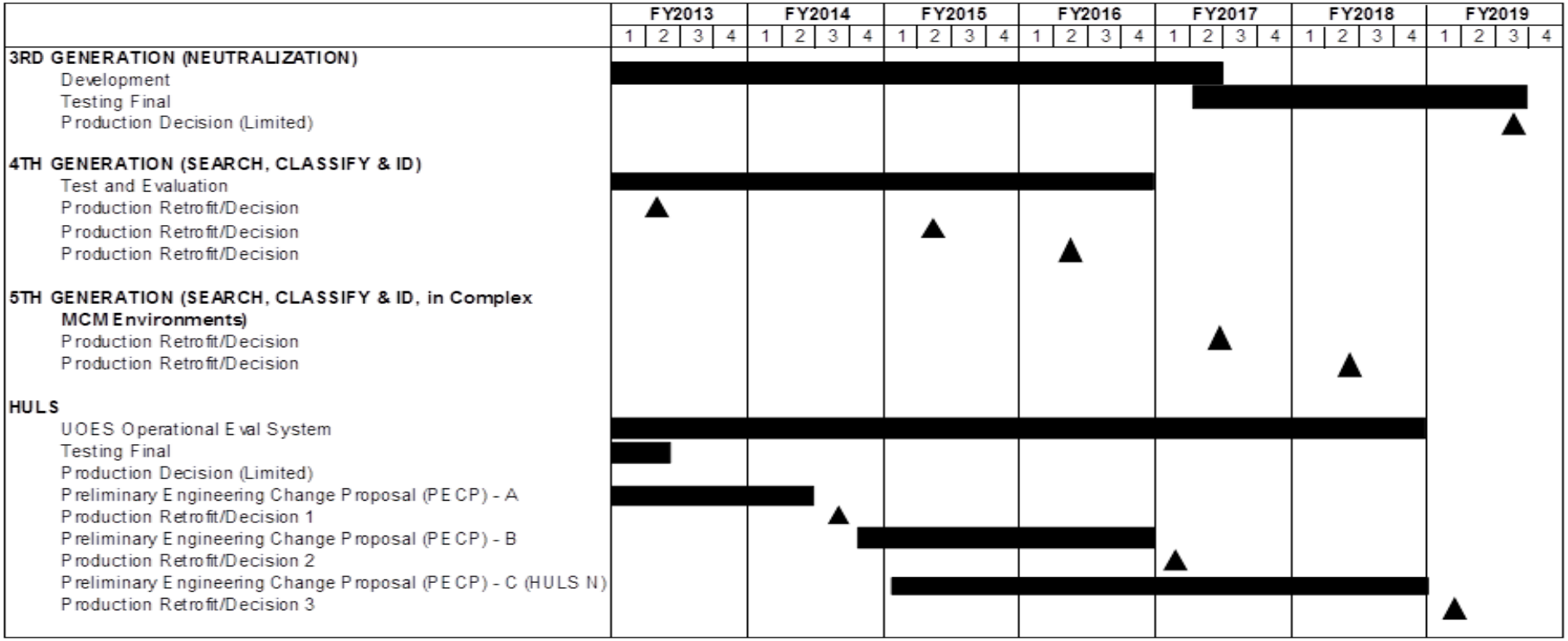

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603658N *I Cooperative Engagement*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	383.709	50.058	53.572	43.578	-	43.578	73.429	63.082	75.334	76.764	Continuing	Continuing
2039: *COOP Engagement*	383.709	50.058	53.572	43.578	-	43.578	73.429	63.082	75.334	76.764	Continuing	Continuing
MDAP/MAIS Code: 582												

The FY 2015 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 to support integrated fire control. CEC distributes sensor data from each USMC Command Control Unit, USA Aerostat, US Navy Ship, and US Navy 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.

Each military Service funds CEC development for their combat systems. The CEC Program Office oversees CEC development for all services.

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.

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 hardware complies with Category 3 Open Architecture Computing Environment (OACE) standards. The SDP-S is being fielded fleet-wide to all US Navy, USMC, US Army, and FMS CEC units.

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 development and production of Common Array Block (CAB) antennas was competitively awarded in late FY2013.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603658N *I Cooperative Engagement*

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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	56.512	69.312	66.001	-	66.001
Current President's Budget	50.058	53.572	43.578	-	43.578
Total Adjustments	-6.454	-15.740	-22.423	-	-22.423
• Congressional General Reductions	-	-0.071			
• Congressional Directed Reductions	-	-15.669			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.010	-			
• Program Adjustments	-	-	-21.039	-	-21.039
• Rate/Misc Adjustments	-	-	-1.384	-	-1.384
• Congressional General Reductions Adjustments	-5.444	-	-	-	-

Change Summary Explanation

Reduced FY13 funding for sequestration, SBIR assessment and congressional rescissions. Reduced FY15 funding due to Department decision to reduce contracted services and in order to properly phase program requirements with expenditures.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603658N / *Cooperative Engagement*				Project (Number/Name) 2039 / *COOP Engagement*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2039: *COOP Engagement*	383.709	50.058	53.572	43.578	-	43.578	73.429	63.082	75.334	76.764	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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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.

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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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603658N / *Cooperative Engagement*	**Project (Number/Name)** 2039 / *COOP Engagement*

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 2013	FY 2014	FY 2015
Title: E-2D	1.000	3.000	-
Articles:	-	-	-
FY 2013 Accomplishments: Developed new software load to fix problems identified in operational test.			
FY 2014 Plans: Debug and develop corrections to software issues found during OT-IIIF. Corrections will address Track File concurrence and Dual Tracks.			
FY 2015 Plans: N/A			
Title: B/L 2.1 INTEGRATION AND FOT&E TESTING	5.195	4.700	7.300
Articles:	-	-	-
FY 2013 Accomplishments: Supported demonstration of NIFC-CA, including live fire event at White Sands Missile Range. Completed Operational Testing (OT-IIIF) of AN/USG-3B with E-2D. Commenced Developmental Testing (DT-IIIE) of AN/USG-2B with Aegis ACB12. Supported testing of Mid-Term Interoperability enterprise upgrade.			
FY 2014 Plans: Continue Developmental Testing (DT-IIIE) of AN/USG-2B with Aegis ACB12. Support testing and certification of mid-term interoperability enterprise upgrade.			
FY 2015 Plans: Support development testing of NIFC-CA. Complete Developmental Testing (DT-IIIE) of AN/USG-2B with Aegis ACB12. Complete Phase 2 of Operational Testing (OT-IIIG2) of AN/USG-2B with Aegis ACB12. Continue Developmental Testing (DT-IIIF) of AN/USG-2B with CVN78. Commence Developmental Testing of AN/USG-2B with DDG 1000.			
Title: NIFC-CA	2.313	-	-
Articles:	-	-	-
FY 2013 Accomplishments: Supported NIFC-CA FTS SoS SE leading to FY2013 live fire testing at WSMR and At Sea. Provided CEC test support, model updates, post test analysis, debug and fix leading to deployable CEC baseline with NIFC-CA capability.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603658N / *Cooperative Engagement*	**Project (Number/Name)** 2039 / *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A ***FY 2015 Plans:*** N/A			
Title: SYSTEM IMPROVEMENTS	15.078	13.679	9.448
Articles:	-	-	-
FY 2013 Accomplishments: Continued CEC system improvements with large network development, and established Information Assurance (IA), program protection and developed fixes for the Fire Control Loop Improvement Project (FCLIP). ***FY 2014 Plans:*** Continue system improvements at Land Based Test Sites (LBTS) to accurately reflect CEC equipment in the fleet, monitor and improve IA posture and program protection. Support Joint Track Management Capability (JTMC) development planning. ***FY 2015 Plans:*** Continue system improvements at LBTS to accurately reflect CEC equipment in the fleet, ACB16 adaptive layer, program protection, and IA.			
Title: NETWORK ENABLED ELECTRONIC DEFENSE SYSTEM (NEEDS)	6.160	11.137	7.331
Articles:	-	-	-
FY 2013 Accomplishments: Commenced 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. Commenced development of NEEDS requirements, algorithms, Modeling & Simulation (M&S) capability to model both threats and NEEDS, and supported 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 TIMs, Interface Control Working Groups (ICWG) and In-Process Reviews (IPR). ***FY 2015 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. Continue analysis, definition and development of NEEDS capability, system architecture and design, external interface requirements, development of prototype implementations,			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603658N / *Cooperative Engagement*	**Project (Number/Name)** 2039 / *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
evaluation of real time processing load, development of WASP capabilities, development of recorded data playback capability, and support for TIMs, Interface Control Working Groups (ICWG) and In-Process Reviews (IPR). Conduct field events to assess utility of prototypical software.			
Title: FIELD ACTIVITIES	8.300	8.229	6.324
Articles:	-	-	-
FY 2013 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 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.			
FY 2015 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.			
Title: COMMON ARRAY BLOCK (CAB) ANTENNA	6.500	7.277	9.275
Articles:	-	-	-
FY 2013 Accomplishments: Continued development of the CAB-S antenna. Awarded competitive contract to design and develop the CAB-S antenna.			
FY 2014 Plans: Continue development of the CAB-S antenna.			
FY 2015 Plans: Continue development of the CAB-S antenna.			
Title: LINK 16/INTEROPERABILITY	5.012	2.800	0.800
Articles:	-	-	-
FY 2013 Accomplishments: Test, debug, certify and field the Accelerated Mid-term Interoperability Improvement Project (AMIIP) enterprise upgrade for Aegis ships.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603658N / *Cooperative Engagement*	**Project (Number/Name)** 2039 / *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue to field AMIIP upgrade on Aegis ships. Test, debug, certify and field the AMIIP enterprise upgrade for SSDS ships and E-2C aircraft. Commence development of far term interoperability enterprise upgrade. ***FY 2015 Plans:*** Continue development and commence testing of far term interoperability enterprise upgrade.			
Title: AIR AND MISSILE DEFENSE RADAR (AMDR)	0.500	2.750	3.100
Articles:	-	-	-
FY 2013 Accomplishments: Commenced development of CEC/AMDR Interface Requirements Specification (IRS), AMDR/CEP Interface Design Description (IDD) outline; identified and resolved AMDR/CEC integration engineering issues, supported Technical Interchange Meetings (TIM), Interface Control Working Groups (ICWG), and CEC/AMDR In-Process Reviews (IPR) #2 Combat System Integration Working Group (CSIWG), Combat System Interface Support Equipment Working Group (CSISEWG). ***FY 2014 Plans:*** Continue development of updated IRS and commence development of full CEC/AMDR IDD, design of CEC adaptive layer code, initial development of CEC Wrap Around Simulator Processor (WASP) capability, support TIMs, ICWGs, CEC/AMDR IPR #3 CSIWG, CSISEWG, and AMDR Software Preliminary Design Review. ***FY 2015 Plans:*** Continue development of updated IRS and continue development of full CEC/AMDR IDD, design of CEC adaptive layer code, continued development of CEC Wrap Around Simulator Processor (WASP) capability, support TIMs, ICWGs, CEC/AMDR IPR #4 CSIWG, CSISEWG, and AMDR Software Critical Design Review.			
Accomplishments/Planned Programs Subtotals	50.058	53.572	43.578

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• SCN: *Navy, SCN*	30.272	5.600	11.400	-	11.400	18.900	18.500	18.200	12.250	44.457	425.738
• APN/0204152N: *Navy, APN*	14.892	15.175	15.463	-	15.463	18.909	25.690	26.179	20.007	-	326.344
• OPN/2606: *CEC*	20.335	29.592	33.939	-	33.939	25.898	30.886	31.448	32.126	-	912.707
• OPN/0900: *DDG Mod*	11.107	-	-	-	-	-	-	-	-	-	62.918
• RDT&E/0206313M: *USMC*	2.390	4.680	1.570	-	1.570	1.180	0.571	0.299	0.678	-	24.798
• RDT&E,A/0102419A: *JLENS*	2.370	0.475	-	-	-	-	-	-	-	-	42.317
• O&M,N/0206626M: *USMC*	0.989	3.629	1.051	-	1.051	0.994	1.263	1.230	1.272	-	11.391
• OPN/0206313M: *USMC*	-	1.843	-	-	-	-	-	-	-	-	1.843

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603658N / *Cooperative Engagement*	**Project (Number/Name)** 2039 / *COOP Engagement*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

CEC Acquisition Strategy (AS) was approved by OSD (AT&L) on 19 January 2010. CEC Acquistion Plan (AP) was approved September 2013.

Contracts:
Common Array Block (CAB) antenna - New Contract was awarded 4Qtr FY2013.
CEC Design Agent/Engineering Services (DA/ES) follow-on sole source contract awarded 1stQtr FY2014.
CEC Production - New Contract will be competitively awarded in FY2014.
CEC DA/ES competitive contract will be awarded 2Qtr FY2016.

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.
- Awarded contract to develop Common Array Block (CAB) in late FY2013.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603658N / *Cooperative Engagement*	Project (Number/Name) 2039 / *COOP Engagement*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 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	85.029	13.556	Nov 2012	8.853	Nov 2013	6.105	Nov 2014	-		6.105	Continuing	Continuing	Continuing
TDA	C/CPFF	JHU/APL : Laurel, MD	48.548	9.637	Nov 2012	9.114	Nov 2013	6.016	Nov 2014	-		6.016	Continuing	Continuing	Continuing
SI/DA	C/CPAF	General Dynamics : Fairfax, VA	23.979	-		-		-		-		-	-	23.979	-
SI/DA	C/CPAF	Award Fees : Not Specified	2.903	-		-		-		-		-	-	2.903	-
DDG 1000	C/CPAF	Raytheon : Massachusetts	10.983	-		-		-		-		-	-	10.983	-
DDG 1000	C/CPAF	Award Fees : Not Specified	0.447	-		-		-		-		-	-	0.447	-
NIFC-CA Integration	TBD	Various : Not Specified	37.029	2.313	Dec 2012	-		-		-		-	-	39.342	-
In-Service Engineering Activity	WR	NSWC : Port Hueneme, CA	1.107	1.399	Nov 2012	1.584	Nov 2013	0.890	Nov 2014	-		0.890	Continuing	Continuing	Continuing
Software Support Activity/ SEIA	WR	NSWC : Dahlgren, VA	11.787	2.498	Nov 2012	2.857	Nov 2013	1.161	Nov 2014	-		1.161	Continuing	Continuing	Continuing
Production Engineering Activity	WR	NSWC : Crane, IN	5.694	-		-		-		-		-	Continuing	Continuing	Continuing
JTRS	TBD	Various : Not Specified	8.500	-		-		-		-		-	-	8.500	-
Various	TBD	Miscellaneous : Not Specified	29.133	-		-		1.200	Nov 2014	-		1.200	-	30.333	-
NAVSSI	WR	SPAWAR : San Diego, CA	0.368	-		-		-		-		-	-	0.368	-
Certification	MIPR	NSA : Fort Meade, MD	1.100	0.100	Nov 2012	0.100	Nov 2013	-		-		-	Continuing	Continuing	Continuing
Certification	WR	SPAWAR : Charleston, SC	0.930	-		-		-		-		-	-	0.930	-
Joint Exercises	WR	Various : Not Specified	3.744	-		-		-		-		-	-	3.744	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603658N / *Cooperative Engagement*	**Project (Number/Name)** 2039 / *COOP Engagement*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LBTS Testing	WR	CDSA Damneck : Virginia Beach, VA	5.570	0.500	Nov 2012	0.500	Nov 2013	0.500	Nov 2014	-		0.500	Continuing	Continuing	Continuing
LBTS Testing	WR	SCSC : Wallops Island, VA	4.630	0.700	Nov 2012	0.700	Nov 2013	0.700	Nov 2014	-		0.700	Continuing	Continuing	Continuing
E-2D Integration	TBD	Various : Not Specified	40.258	1.000	Nov 2012	3.000	Nov 2013	-		-		-	Continuing	Continuing	Continuing
MSI/NCCT	MIPR	Wright Patterson AFB : Dayton, OH	1.228	-		-		-		-		-	-	1.228	-
Common Array Block Development	C/CPFF	Various : Not Specified	5.400	6.500	Sep 2013	7.277	Jan 2014	9.275	Jan 2015	-		9.275	Continuing	Continuing	Continuing
NEEDS	C/CPFF	Various : Not Specified	0.000	6.160	Dec 2012	11.137	Dec 2013	7.331	Dec 2014	-		7.331	Continuing	Continuing	Continuing
AMDR	C/CPFF	Various : Not Specified	0.000	0.500	Dec 2012	2.750	Dec 2013	3.100	Dec 2014	-		3.100	Continuing	Continuing	Continuing
JTMC	C/CPFF	Raytheon : St. Petersburg	0.000	-		1.000	Dec 2013	-		-		-	-	1.000	-
		Subtotal	328.367	44.863		48.872		36.278		-		36.278	-	-	-

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.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test/ACB Support	C/CPFF	Raytheon : St. Petersburg, FL	2.897	0.300	Nov 2012	0.271	Nov 2013	0.630	Nov 2014	-		0.630	Continuing	Continuing	Continuing
Test/ACB Support	C/CPFF	JHU/APL : Laurel, MD	0.459	0.300	Nov 2012	0.271	Nov 2013	0.630	Nov 2014	-		0.630	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603658N / *Cooperative Engagement*	Project (Number/Name) 2039 / *COOP Engagement*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	WR	NRL : Washington, DC	0.313	-		-		-		-		-	-	0.313	-
Test/ACB Support	WR	NSWC : Port Hueneme, CA	17.044	1.836	Nov 2012	1.661	Nov 2013	2.050	Nov 2014	-		2.050	Continuing	Continuing	Continuing
Air Operations Test Support	WR	NAVAIR (PMA207) : Patuxent River, MD	8.161	0.250	Nov 2012	0.226	Nov 2013	0.525	Nov 2014	-		0.525	Continuing	Continuing	Continuing
Test Data Reduction Analysis	WR	NWAS : Corona, CA	11.121	1.684	Nov 2012	1.524	Nov 2013	1.732	Nov 2014	-		1.732	Continuing	Continuing	Continuing
Test Support	WR	COMOPTEVFOR : Norfolk, VA	8.777	0.669	Nov 2012	0.605	Nov 2013	1.405	Nov 2014	-		1.405	Continuing	Continuing	Continuing
Test/ACB Support	WR	NSWC : Dahlgren, VA	1.140	0.156	Nov 2012	0.142	Nov 2013	0.328	Nov 2014	-		0.328	Continuing	Continuing	Continuing
Test/ACB Support	C/CPFF	TBD : Not Specified	0.000	-		-		-		-		-	-	-	-
		Subtotal	49.912	5.195		4.700		7.300		-		7.300	-	-	-

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 the following funding for ACB integration support:
FY12 - $1.0M
FY13 - $3.0M
FY14 - $3.0M

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/FFP	Booz Allen & Hamilton : Washington, DC	5.070	-		-		-		-		-	-	5.070	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603658N / *Cooperative Engagement*	Project (Number/Name) 2039 / *COOP Engagement*	

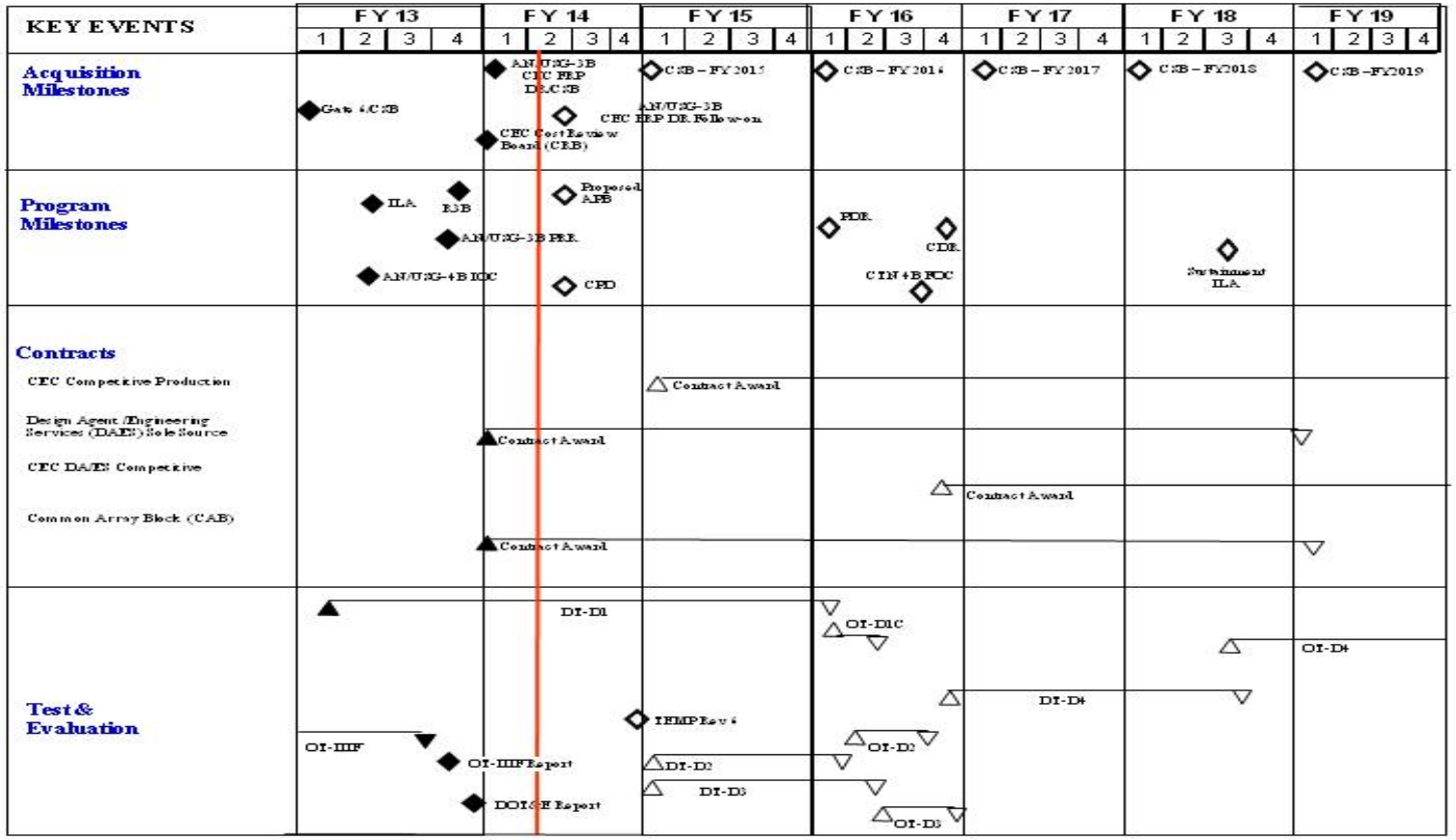
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/FFP	Tech Marine Business : Washington, DC	0.360	-		-		-		-		-	-	0.360	-
		Subtotal	5.430	-		-		-		-		-	-	5.430	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	383.709	50.058		53.572		43.578		-		43.578	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603658N / *Cooperative Engagement*	**Project (Number/Name)** 2039 / *COOP Engagement*



Acronym List

APB: Acquisition Program Baseline
AN/USG-2: CEC shipboard designation
AN/USG-3: CEC airborne designation
CAB: Common Array Block
CDR: Critical Design Review
CEC: Cooperative Engagement Capability
CPD: Capabilities Production Document
CRB: Cost Review Board
CXB: Configuration Steering Board
DOT&E: Director of Operational Test and Evaluation
DR: Decision Review
DT/OT: Development Test/Operational Test
FOC: Full Operational Capability
FRP: Full Rate Production
ILA: Independent Logistics Assessment
ICC: Initial Operational Capability
NIFC: Naval Integrated Fire Control - Counter Air
PDR: Preliminary Design Review
PRR: Production Readiness Review
EJB: Resources Requirement Review Board
TEMP: Test & Evaluation Master Plan

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603658N / *Cooperative Engagement*	**Project (Number/Name)** 2039 / *COOP Engagement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2039				
Gate 6/CSB	1	2013	1	2013
AN/USG-3B CEC FRP DR/CSB	1	2014	1	2014
AN/USG-3B CEC FRP DR Follow-on	2	2014	2	2014
CEC Cost Review Board (CRB)	1	2014	1	2014
CSB - FY2015	1	2015	1	2015
CSB - FY2016	1	2016	1	2016
CSB - FY2017	1	2017	1	2017
CSB - FY2018	1	2018	1	2018
CSB - FY2019	1	2019	1	2019
ILA	2	2013	2	2013
R3B	4	2013	4	2013
AN/USG-3B PRR	4	2013	4	2013
AN/USG-4B IOC	2	2013	2	2013
Proposed APB	2	2014	2	2014
CPD	2	2014	2	2014
PDR	1	2016	1	2016
CDR	4	2016	4	2016
CTN 4B FOC	3	2016	3	2016
Sustainment ILA	3	2018	3	2018
CEC Competitive Production Contract	1	2015	4	2019
Design Agent/Engineering Services (DA/ES) Sole Source Contract	1	2014	1	2018
CEC DA/ES Competitive Contract	4	2016	4	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603658N / *Cooperative Engagement*	**Project (Number/Name)** 2039 / *COOP Engagement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Common Array Block (CAB) Contract	1	2014	1	2019
DT-D1	1	2013	1	2016
OT-IIIF	1	2013	3	2013
OT-IIIF Report	3	2013	3	2013
DOT&E Report	4	2013	4	2013
TEMP Rev 6	4	2014	4	2014
DT-D2	1	2015	1	2016
DT-D3	1	2015	2	2016
OT-D1C	1	2016	2	2016
OT-D2	2	2016	3	2016
OT-D3	2	2016	4	2016
DT-D4	4	2016	3	2018
OT-D4	3	2018	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603713N *I Ocean Engineering Tech Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	101.642	6.370	7.696	7.764	-	7.764	5.372	5.493	5.611	5.737	Continuing	Continuing
0099: *Deep Submergence Bio Med Dev*	22.382	3.189	3.106	2.173	-	2.173	4.210	4.310	4.394	4.483	Continuing	Continuing
0394: *Shallow Depth Diving EQ*	79.260	3.181	4.590	5.591	-	5.591	1.162	1.183	1.217	1.254	Continuing	Continuing

The FY 2015 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, underwater ship husbandry, 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	7.029	9.196	9.887	-	9.887
Current President's Budget	6.370	7.696	7.764	-	7.764
Total Adjustments	-0.659	-1.500	-2.123	-	-2.123
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.048	-			
• Rate/Misc Adjustments	-	-	-2.123	-	-2.123
• Congressional General Reductions Adjustments	-0.611	-	-	-	-

Change Summary Explanation

Reduced FY13 funding for Sequestration reductions.

All Projects: Reduced FY 15 funding due to the Department's decision to reduce contracted services.

Project 0099: The FY 2015 funding was reduced to properly phase program requirements in accordance with expenditures.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603713N / *Ocean Engineering Tech Dev*				Project (Number/Name) 0099 / *Deep Submergence Bio Med Dev*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0099: *Deep Submergence Bio Med Dev*	22.382	3.189	3.106	2.173	-	2.173	4.210	4.310	4.394	4.483	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Deep Submergence Bio Med Dev - Diver Health and Safety	1.594	1.553	1.087
Articles:	-	-	-
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.			
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Executed manned testing to evaluate the effects of CO2 retention on diver cognition. Evaluated drugs to mitigate Central Nervous System Oxygen toxicity. Continued evaluation of susceptibility to immersion pulmonary edema. Executed manned testing of human performance and pulmonary oxygen toxicity investigation and guidance for repeated long duration dives. Continued enhanced thermal protection efforts for divers. Developed matrix of probabilistic and deterministic decompression modeling. Continued real-time decompression guidance and planning efforts. ***FY 2014 Plans:*** Initiate development of a Flexible Portable Double Lock Recompression Chamber. Determine condensation requirements in very high pressure air supplies. Initiate development of recompression treatments for blow up from 300 feet. Evaluate Underwater Breathing Apparatus (UBA) breathing resistance under various conditions. Evaluate human performance during long dives. Continue to evaluate probabilistic and deterministic decompression modeling. ***FY 2015 Plans:*** Complete efforts initiated in FY14. No new projects initiated in FY15.			
Title: Deep Submergence Bio Med Dev - Submarine Rescue	1.595	1.553	1.086
Articles:	-	-	-
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 2013 Accomplishments:*** 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. ***FY 2014 Plans:*** Develop Oxygen prebreathe schedules for saturation dropout for DISSUB decompression sickness prediction. Complete prescribed drug efforts from FY13. ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Evaluate human performance during long acute exposure of submariners to mild elevation of carbon dioxide levels (DISSUB).			
Accomplishments/Planned Programs Subtotals	3.189	3.106	2.173

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0099 / *Deep Submergence Bio Med Dev*

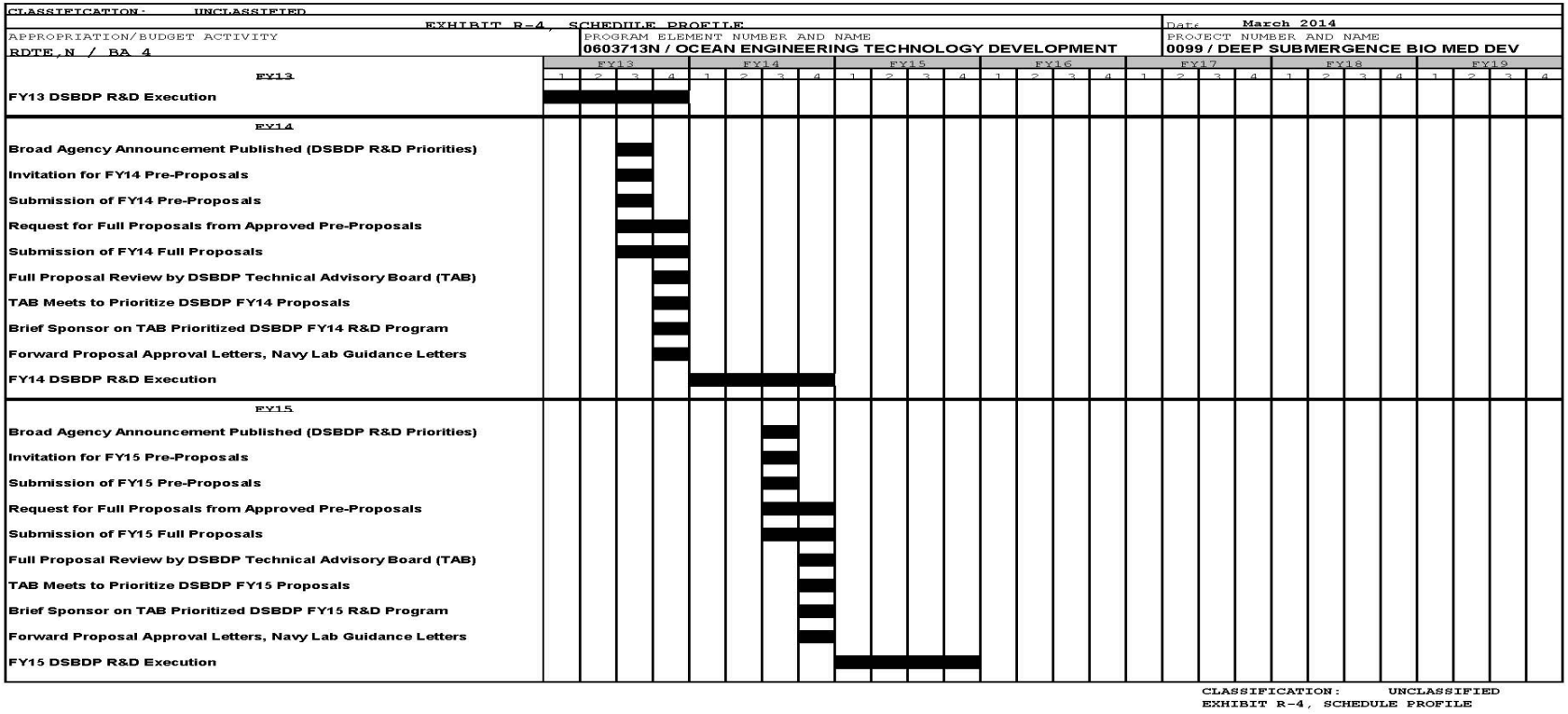

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603713N / *Ocean Engineering Tech Dev*	Project (Number/Name) 0394 / *Shallow Depth Diving EQ*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0394: *Shallow Depth Diving EQ*	79.260	3.181	4.590	5.591	-	5.591	1.162	1.183	1.217	1.254	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Submarine Rescue manned under PMS 391. 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 Initial Operational Capability (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 2013	FY 2014	FY 2015
Title: Shallow Depth Diving EQ - SRDRS	2.067	3.536	4.233
Articles:	-	-	-
Description: Continue design, fabrication, and acceptance testing of the prototype Submarine Decompression System and support equipment. Continue integration of all SRDRS components.			
FY 2013 Accomplishments: 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; and Modified Transfer Lock 1 and 2 Mods and Base Ship Interface Templates. Plan to complete material audits for: Submarine			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Decompression Chambers 1 and 2; Morgan Breathing System 2000; Pressurized Flexible Manways 1, 2, and 3; and Deck Transfer Lock. 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. ***FY 2014 Plans:*** Plan to complete design/development/fabrication of Pressurized Rescue Module System 6 atmospheres absolute (ata) efforts. Plan to complete material audits for: Vital System Monitoring Network and Pressurized Rescue Module System to 6ata. Plan to complete integration audit with the Submarine Rescue System. Plan to complete Submarine Decompression System Element Integration Testing at Oceaneering and Deliver Submarine Decompression System to Undersea Rescue Command to begin integration with the Submarine Rescue System. Plan to complete Submarine Rescue System Integration for Unmanned Testing. Begin Operational Testing and Post Delivery Shakedown efforts. ***FY 2015 Plans:*** Plan to complete Submarine Rescue System Integration for Manned Testing and Sea Trials. Achieve Submarine Rescue System, Transfer Under Pressure Certification and continue Operational Testing and Post Delivery Shakedown efforts. Plan to reach Submarine Rescue Diving and Recompression System (SRDRS) Full Operational Capability (FOC).			
Title: Shallow Depth Diving EQ - Diving	1.114	1.054	1.358
Articles:	-	-	-
Description: Continued research on contaminated water diving and research on diver thermal protection, CO2 monitors, and diver sound protection. ***FY 2013 Accomplishments:*** Continued research on Underwater Breathing Apparatus (UBA)/CO2 monitors, completed prototype development of free diver heating system (FDHS) and began development of a double-lock flexible recompression chamber. ***FY 2014 Plans:*** Continue development of a double-lock flexible recompression chamber and improvements to a free diver heating system (FDHS). Complete development of a prototype Underwater Breathing Apparatus (UBA)/CO2 monitor and qualification testing of quick disconnects for use in high pressure oxygen environments. ***FY 2015 Plans:*** Continue development of a double-lock flexible recompression chamber. Complete testing of production models of the free diver heating system (FDHS).			
Accomplishments/Planned Programs Subtotals	3.181	4.590	5.591

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603713N / *Ocean Engineering Tech Dev*	**Project (Number/Name)** 0394 / *Shallow Depth Diving EQ*

SRDRS Acquisition
Transfer Under Pressure

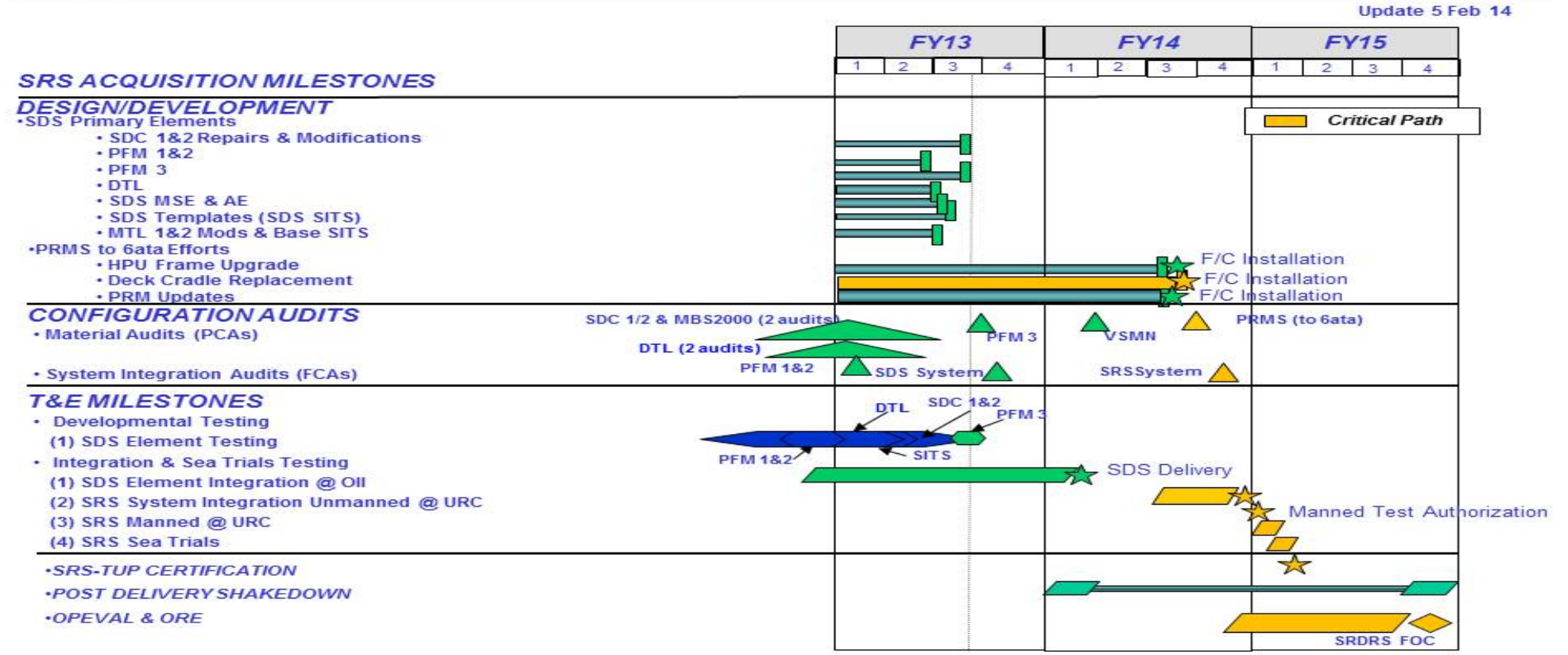

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603721N *I Environmental Protection*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	381.663	19.194	18.850	13.200	-	13.200	22.231	21.636	21.121	21.562	Continuing	Continuing
0401: *Shipboard Waste Mgmt*	322.481	6.984	7.736	5.612	-	5.612	6.464	6.624	6.716	6.867	Continuing	Continuing
0817: *Environmental Sustainability Development (NESDI)*	24.850	5.670	4.516	3.712	-	3.712	7.178	6.498	6.177	6.303	Continuing	Continuing
9204: *Marine Mammal Research*	34.332	6.540	6.598	3.876	-	3.876	8.589	8.514	8.228	8.392	Continuing	Continuing

The FY 2015 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 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603721N *I Environmental Protection*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	21.080	18.850	22.710	-	22.710
Current President's Budget	19.194	18.850	13.200	-	13.200
Total Adjustments	-1.886	-	-9.510	-	-9.510
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.153	-			
• Rate/Misc Adjustments	0.001	-	-9.510	-	-9.510
• Congressional General Reductions Adjustments	-1.734	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*	Project (Number/Name) 0401 / *Shipboard Waste Mgmt*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0401: *Shipboard Waste Mgmt*	322.481	6.984	7.736	5.612	-	5.612	6.464	6.624	6.716	6.867	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 and 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 2013	FY 2014	FY 2015
Title: Technical Authority	1.682	2.261	1.439
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Created draft Uniform National Discharge Standards (UNDS) for 25 vessel discharges based on EPA's proposed FY13 Vessel General Permit and Small Vessel General Permit discharges. Coordinated a DoD-wide review of the proposed UNDS discharges. Developed plan to assess the quantity and characterization of solid waste generated on LCS class ships to determine the risk of illegal discharge of solid waste while at sea. ***FY 2014 Plans:*** Develop environmental equipment/system requirements documentation, design criteria and guidance, specifications, standards and certification protocols. Perform test and evaluation to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities. ***FY 2015 Plans:*** Continue development of environmental equipment/system requirements documentation, design criteria/guidance, specifications, standards, and certification protocols. Perform test and evaluation to facilitate execution of technical authority for ship and submarine environmental capabilities.			
Title: Integrated Liquid Wastes	3.087	3.135	2.700
Articles:	-	-	-
FY 2013 Accomplishments: Developed an isolation window that prevents Radar TLI fouling in CHT/VCHT tanks to increase both CHT and Radar TLI reliability while reducing maintenance and personnel exposure to wastewater and increasing shipboard quality of life. Provided support projects related to elimination or reduction of VCHT foaming to address ejector pump cavitation and in-line sensors for treatment Marine Sanitation Devices. Assessed the commercial market for available H2S sensors to address current H2S sensor shortfalls due to shelf life and sensitivity to air contaminants. Assessed NFV Oil/Water Separator on LCS 3 to determine applicability for install to other ship platforms and identify any potential in-service issues. Tracked membrane secondary treatment fouling rate to determine in-service membrane life, including membranes that have been regenerated once fouled. Developed recommendations selection and use of bilge cleaners onboard ships to avoid degradation in the performance of Oil/Water Separators. ***FY 2014 Plans:*** Support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems. ***FY 2015 Plans:*** Provide support to UNDS "batch two" rulemaking process. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems.			
Title: Hazardous and Other Major Ship Wastes	1.216	1.307	1.200
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Revised the hazardous material stowage compatibility chart with input from NAVSUP Safety Center, TYCOMs and USFF. Conducted hazardous material substitution, minimization, and pollution prevention afloat to reduce system safety risk and shipboard waste streams. ***FY 2014 Plans:*** Conduct shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. ***FY 2015 Plans:*** Continue shipboard hazardous materials substitution and elimination process. Continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines.			
Title: Ballast Water Exchange	0.999	1.033	0.273
Articles:	-	-	-
FY 2013 Accomplishments: Reviewed draft DoD Manual Volume #3, Regulations on Vessels Owned and Operated by the Department of Defense: Ballast Water, Well Deck Sediments, and Anchor Sediment Management. Updated and validated ballast water exchange deckplate level documentation on LHD 4 and LSD 47 for shipboard ballast operations. Provided technical feedback to on over 103 technical documents and related U.S. position papers in support of U.S. participation in IMO meetings MEPC 65 and BLG 17. Reviewed draft DoD regulation for Ballast Water for N45. ***FY 2014 Plans:*** Perform ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships. ***FY 2015 Plans:*** Building on FY14 efforts, continue ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships.			
Accomplishments/Planned Programs Subtotals	6.984	7.736	5.612

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

D. Acquisition Strategy

RDT&E Contracts are Competitive Procurements.

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*	Project (Number/Name) 0817 / *Environmental Sustainability Development (NESDI)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0817: *Environmental Sustainability Development (NESDI)*	24.850	5.670	4.516	3.712	-	3.712	7.178	6.498	6.177	6.303	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Maximize Training & Testing Requirements Within Environmental Constraints	0.900	0.764	0.590
Articles:	-	-	-

FY 2013 Accomplishments:
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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 ranges to maximize the availability and utilization of the ranges. Complete the risk assessment associated with military expendable material used in underwater ranges. Tech integration of process to determine background perchlorate sources at Navy ranges. Conduct two-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. 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. Continue Transportable Field Melter for Recycling of Bombing Range MPPEH, and Innovative Cutting Process to Vent Full Scale Non-Explosive Practice Munitions. ***FY 2015 Plans:*** Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs of Navy training and test range to maximize the availability and utilization of the ranges. Multi-Spectral Weapon Impact Detection System and Underwater Low Environmental Impact, Munitions Breaching Technology were scheduled to be initiated in FY15.			
Title: Maintenance	1.500	0.860	0.725
Articles:	-	-	-
FY 2013 Accomplishments: 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. Continue Mobile Pier and Facility Waste Water Treatment System. Initiate Replacement of Film 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, leadfree electric primers for medium caliber ammunition, and mobile pier and facility waste water treatment			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
system. Initiate Demonstration Of Non-Chromated Adhesive Bond Primer For Metal Repair Bonding, Low-VOC and HAP Wipe Solvent and Paint Thinner DEM/VAL. ***FY 2015 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 and mobile pier facility waste water treatment system. Low VOC and HAP Wipe Solvent and Paint Thinner DEM/VAL, DEM/VAL of Non-Chromated Adhesives Bond Primer for Metal Repair Bonding will not be completed. Leaking Thermosetting Elastomer Bomb Sealant in General Purpose Bombs, and Trivalent Chromium Conversion Coating-Enhanced Coloration of Aluminum Substrates will not be initiated.			
Title: Support Shore Readiness within Environmental Constraints	1.219	1.169	0.995
Articles:	-	-	-
FY 2013 Accomplishments: 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. ***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. Emissions Capture Technology For Oxy-Fuel Hull Cutting Operations. ***FY 2015 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	2.051	1.723	1.402
Articles:	-	-	-
FY 2013 Accomplishments: 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 polyaromatic 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. Initiate Biological-Fouling (Bio-Fouling) Reduction To Ships Cooling Water Systems, Sustainable Remediation Of Low Ph Aquifers And Aquifers With A Continuing Contaminant Source Using Proton Reduction Technology, Aerobic Bioaugmentation For Remediation Of RDX-Contaminated Groundwater and Evaluation Of Low Impact Development Implementation. ***FY 2015 Plans:*** Continue providing validated 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. Continue with LID DEM/VAL and Emissions Capture Technology for Oxy-Fuel Hull Cutting Operations.			
Accomplishments/Planned Programs Subtotals	5.670	4.516	3.712

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*	Project (Number/Name) 9204 / *Marine Mammal Research*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
9204: *Marine Mammal Research*	34.332	6.540	6.598	3.876	-	3.876	8.589	8.514	8.228	8.392	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 protected species 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) Mitigation Methodologies - Determine the observation, detection and classification measures required to develop effective monitoring and mitigation procedures for Fleet and SYSCOM use. Focus on improving marine animal monitoring capabilities over current methods by developing new technologies or improving existing technologies that improve monitoring and mitigation effectiveness, reduce cost, and minimize impacts on readiness activities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Marine Ecology and Population Dynamics	1.085	1.467	0.735
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue research on ecosystems; sensor and tag development; with a priority emphasis on the population structure of beaked whales in the vicinity of Navy training ranges.First data on marine mammal response to Navy sonar source using controlled exposure methods. Initiated transition of NUWC M3R range self-monitoring to the range operator. ***FY 2014 Plans:*** Continue research on ecosystems status and habitat use by marine species of Navy interest; sensor and tag development; with a priority emphasis on the population structure of beaked whales in the vicinity of Navy training ranges. Work with the Navy Marine Species Density data program to develop data standards and data management standards consistent with the best standards of the expert community. ***FY 2015 Plans:*** Continue research on ecosystems status and habitat use by marine species of Navy interest; sensor and tag development; with a priority emphasis on the population structure of beaked whales in the vicinity of Navy training ranges. Work with the Navy Marine Species Density data program to develop data standards and data management standards consistent with the best standards of the expert community.			
Title: Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	2.948	3.654	1.113
Articles:	-	-	-
FY 2013 Accomplishments: 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 - first data from actual Navy sonars in realistic training scenarios. Continue research on selected topics related to hearing-based criteria, such as hearing weighting functions an danatomically derived hearing properties for species that cannot be tested directly. ***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. Continue research on selected topics related to hearing-based criteria, such as hearing weighting functions an danatomically derived hearing properties for species that cannot be tested directly. ***FY 2015 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; reduced effort with fewer Navy ship playbacks.			
Title: Mitigation Methodologies: Monitoring, New Technology, and Risk Assess	2.507	1.477	2.028
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Began transition of NUWC M3R capabilities to allow instrumented ranges to self-monitor at greatly reduced cost, also adapted to MINEX training areas, reducing explosives risk to transiting marine mammals. ***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 for improved performance, reduced cost and reduced impacts on the realism and effectiveness of readiness training. In FY 14 and beyond an increased effort in assessing the potential of unmanned air and underwater platforms is anticipated, to reduce the cost of monitoring, expand coverage and reduce impacts on readiness training. ***FY 2015 Plans:*** Continue effective monitoring and mitigation procedures for Fleet and SYSCOM use in support of the Marine Mammal Research program (MMR) and in compliance with Environmental regulations. Continue monitoring capabilities of marine animals to include; development of new technologies. Improving on existing technologies such as, High-Frequency Recording Package (HAPR) for required Navy rage acoustic monitoring, and improves monitoring and mitigation effectiveness, reduce cost, and minimize impacts on readiness activities.			
Accomplishments/Planned Programs Subtotals	6.540	6.598	3.876

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

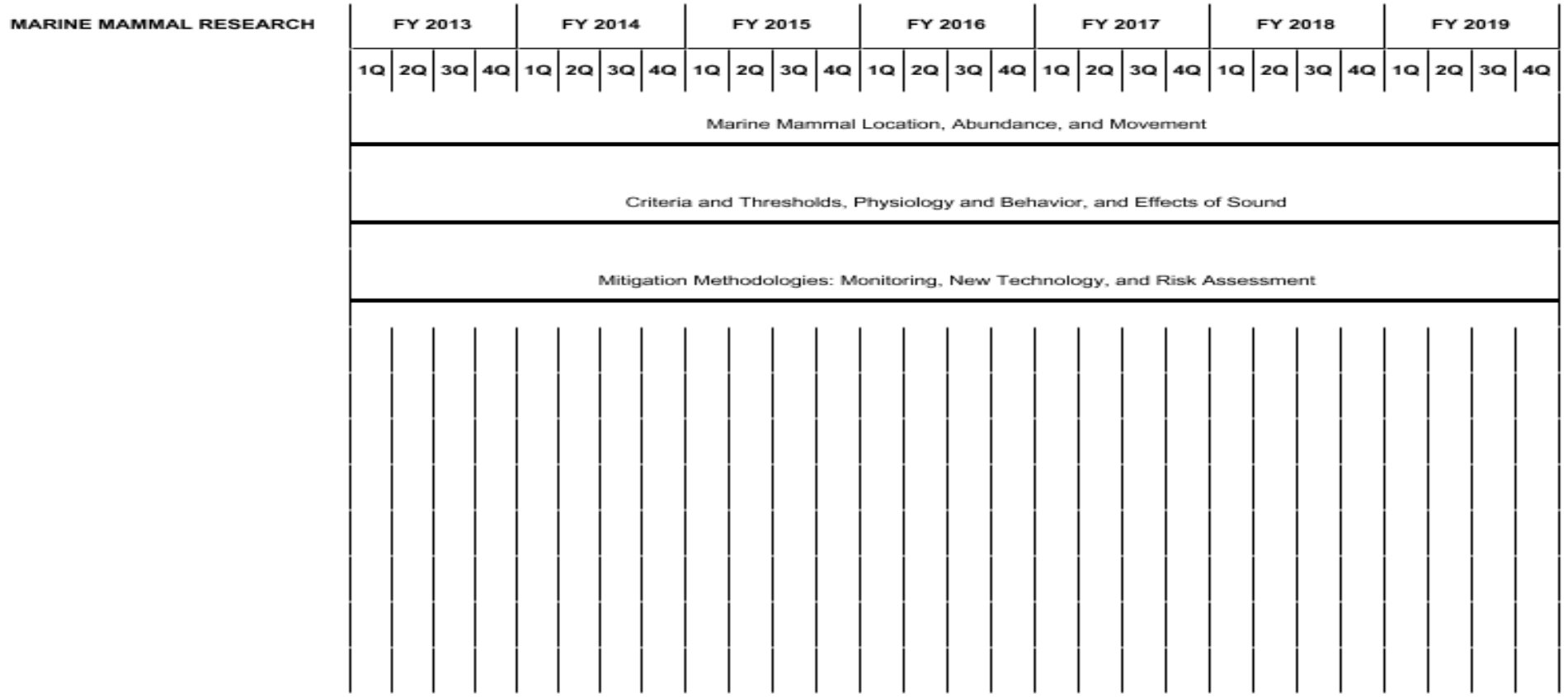
D. Acquisition Strategy

(U) RDTEN Contracts are Competitive Procurements.

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*



2015OSD - 0603721N - 9204

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

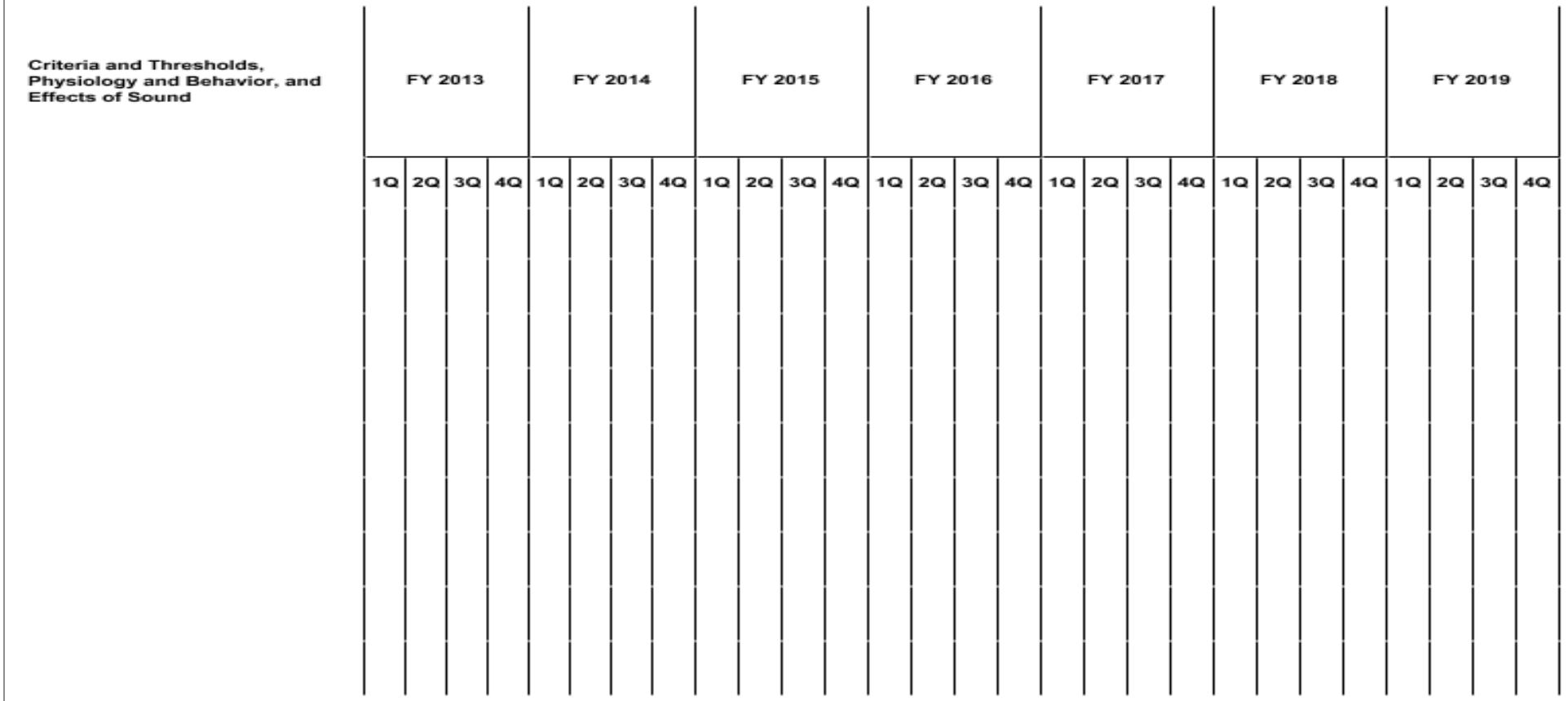


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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603724N *I Navy Energy Program*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	115.722	85.577	45.618	69.415	-	69.415	57.021	54.387	50.024	51.066	Continuing	Continuing
0829.: *ENERGY CONSERVATION (ADV)*	27.867	8.001	7.695	17.755	-	17.755	12.597	14.656	11.883	12.176	Continuing	Continuing
0838: *Mobility Fuels (ADV)*	37.425	9.922	7.649	11.690	-	11.690	14.616	11.873	12.015	12.251	Continuing	Continuing
0928: *Directed Energy Research*	26.808	13.822	1.870	7.292	-	7.292	2.414	1.656	1.680	1.738	Continuing	Continuing
0996: *Aircraft Energy Conservation*	23.622	17.167	28.404	32.678	-	32.678	27.394	26.202	24.446	24.901	Continuing	Continuing
9999: *Congressional Adds*	0.000	36.665	-	-	-	-	-	-	-	-	-	36.665

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

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) examine 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; 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.

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 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603724N *I Navy Energy Program*

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	55.324	45.618	93.836	-	93.836
Current President's Budget	85.577	45.618	69.415	-	69.415
Total Adjustments	30.253	-	-24.421	-	-24.421
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.286	-			
• Program Adjustments	-	-	-5.169	-	-5.169
• Rate/Misc Adjustments	-	-	-19.252	-	-19.252
• Congressional General Reductions Adjustments	-7.461	-	-	-	-
• Congressional Add Adjustments	40.000	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2013	FY 2014
Project: 9999: *Congressional Adds*		
Congressional Add: *Alternative Energy Initiatives*	36.665	-
Congressional Add Subtotals for Project: 9999	36.665	-
Congressional Add Totals for all Projects	36.665	-

Change Summary Explanation

Technical: Not applicable.

Schedule:

0838 -Generation 4 Protocol Development added to ensure that test protocols maximize lessons learned as efficiently as possible, they are planned to be updated periodically as testing is completed. Advanced BioFuel Lab/Rig Testing extended to 4Qtr 2016. Additional promising production processes have been identified since the last exhibit revision, and fuel for these processes will not be available until 2016. The Generation 3 Protocol Development and the Advanced Biofuel Hardware Testing are delayed until 1QTR FY16. The Generation 4 Protocol Development will be delayed until 1QTR FY18.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603724N *I Navy Energy Program*

0996 - Mission Planning Upgrades schedule was extended to 4Qtr 2019. The program office has identified, through an industry white paper, a potential advanced mission planning technology that was incorporated into the program plan after subject matter expert review. The extension will allow the development and validation of the advanced mission planning technology within the current program.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*				Project (Number/Name) 0829. / *ENERGY CONSERVATION (ADV)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0829.: *ENERGY CONSERVATION (ADV)*	27.867	8.001	7.695	17.755	-	17.755	12.597	14.656	11.883	12.176	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 energy conservation project, managed through NAVSEA 05T, will identify mature potential energy saving areas, by involvement with Fleet representatives, Life-Cycle Managers (LCMs), NAVSEA Technical Warrant Holders, In-Service Engineering Agents (ISEAs), PEOs, TMA/TMI, Industry, and Academia. The project directly supports SECNAV and CNO goals to reduce energy consumption. Potential technology target areas will include: Power Generation and Storage systems, Hull Hydrodynamics, Underwater Hull Husbandry, Heating, Ventilation & Air Conditioning (HVAC) Systems, Thermal Management, Man Propulsion Systems, Electrical Systems, Auxiliary Systems, and Energy Monitoring & Assessment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Power Generation and Storage Project	0.724	0.925	1.664
Articles:	-	-	-
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 energy conservation technologies these improvements.			
FY 2013 Accomplishments: Completed Land based testing of Energy Storage Module (ESM). Identified new fuel saving technology for LPD 17 Diesel engines and prepared proposal and Business Case Analyses aimed at reducing fossil fuel consumption.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829. / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Prepare final report of Land Based Testing for ESM. 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 2015 Plans:*** Based on evaluation of potential energy conservation initiatives initiate tasking to test and evaluate improvements to LPD 17 Ship Service Diesel Generators. 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	1.808	1.725	1.357
Articles:	-	-	-
Description: (U) Hull Hydrodynamic Sub Project - This project area will accomplish prototype development, modeling, laboratory and Fleet testing of ship modifications to propellers such as fouling release coatings and/or hull appendages to determine overall mission and cost effectiveness of these improvements. ***FY 2013 Accomplishments:*** Completed model testing on bow bulb design; prepared risk analysis, identified ship, initiated preparation of ship installation drawings and Ship Change documents as required for installation of Proof of Concept on a DDG Hull. Continued support for installation of improved steering modifications to LHD 2 for evaluation and test. 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-installation sea trials to capture baseline performance data. Conduct post installation sea trial of improved steering modifications to LHD 2 and prepare preliminary and final report of performance. 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 2015 Plans:*** Conduct post-installation sea trial, analyze data and prepare preliminary and final report of Bow Bulb installation on DDG 51 Class ship. 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	0.481	0.994	0.300
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829. / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 to reduce hydrodynamic drag on the hull and thereby increase fuel efficiency. ***FY 2013 Accomplishments:*** Developed 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. Conducted visits to ship homeports to assess propeller fouling conditions pre and post deployment, captured data for analysis and reporting, developed modeling of fouling conditions, developing quick look report of preliminary results. 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:*** 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. ***FY 2015 Plans:*** 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	1.283	0.791	2.675
Articles:	-	-	-
Description: (U) HVAC Sub Project - Project funds will be utilized to accomplish prototype development, land and shipboard testing to determine cost effectiveness of improvements aimed at more efficient climate control of shipboard spaces. ***FY 2013 Accomplishments:*** Completed prototype installation of Thermal Management Control System (TMCS) on USS KIDD, completed test and evaluation of installed system, and delivered preliminary report of performance. Prepared TMCS proposals for other classes of ships and continued to identify additional fuel saving technologies in HVAC Systems. ***FY 2014 Plans:*** Based on merits of TMCS improvement proposal evaluations on DDG 51 Class ships initiate tasking for test and evaluation of TMCS for LHD class ships. 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 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829. / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue FY14 tasking to install, test and evaluate a TMCS on LHD Class ship and report results. Initiate tasking for test and evaluation of Air Conditioning (AC) Plant improvements on DDG 51 Class ships. Conduct engineering design, material procurement and laboratory testing of prototype system for ship installations in FY17. 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 ***Articles:*** ***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 shipboard electrical demand on HVAC systems. ***FY 2013 Accomplishments:*** Continued to identify additional fuel saving technologies in Thermal Management that may be applicable to navy ships. Examined potential improvements to thermal properties of topside and non-skid coatings with aim of increasing heat reflective properties and reducing ships internal space temperatures. Prepared proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2014 Plans:*** 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. ***FY 2015 Plans:*** Pursue lab and shipboard testing of identified thermal management/heat recovery 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.	0.100 -	0.100 -	0.100 -
Title: Propulsion Systems Sub Project ***Articles:*** ***Description:*** (U) Propulsion Systems Sub Project - Project funds will be utilized to identify requirements and perform land based and shipboard testing of ship propulsion system improvements on Gas Turbine, Steam, and Diesel Engine systems to reduce overall fuel consumption and lower maintenance costs. ***FY 2013 Accomplishments:*** Installed and activated Shipboard Energy Dashboards (SED) Proof of Concept (PoC) on six DDG 51 Flight IIA hulls for evaluation. Energy performance data on the test ships was being captured for main propulsion fuel usage and a draft report was issued in April 13. Final report was issued 17 Jan 2013. Conducted gap analysis for SED applications for other classes of ships and	1.750 -	1.400 -	0.885 -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829. / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
identified DDG 51 Flight I and LPD 17 Classes as next to pursue. Continue 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 consumption. ***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. 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. ***FY 2015 Plans:*** Based on review of Business Case Analyses initiate test and evaluation of Variable Speed Drive (VSD) improvements to propulsion system components. Continue 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 consumption.			
Title: Electrical Systems SubProject ***Articles:*** ***Description:*** Electrical Systems Sub Project - Project funds will be utilized to identify and perform land based and shipboard testing of ship electrical system improvements to reduce energy consumption. ***FY 2013 Accomplishments:*** Prepared necessary documentation for land based and shipboard testing and evaluation of: Variable Speed Drives (VSD) for DDG 51 Class Collective Protective System (CPS), VSD for the Port Use Fan (PUF) on LHD 1, and Shipboard Energy Dashboard (SED) on DDG 51 Flight IIA class ships. Planning to install VSD/CPS on a DDG 51 class hull by the end of FY13, pending ship availability. Installed VSDs for PUF on LHD 1 for evaluation and activated Shipboard Energy Dashboard (SED) Proof of Concept (PoC) on six DDG Flight IIA hulls for evaluation. Energy performance data on the test ships is being captured for electric plant energy usage and a draft report was issued in April 13. Conducted gap analysis for SED applications for other classes of ships and identified DDG 51 Flight I and LPD 17 Classes as next to pursue. 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 consumption. ***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 ships' force personnel for fossil fuel ships, identify additional fuel saving technologies in	1.855 -	1.760 -	3.201 -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829. / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Electrical Systems and prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2015 Plans:*** Based on review of Business Case Analysis Proposals initiate tasking to design test and evaluate fuel saving initiatives for electrical systems such as Main Space Ventilation Fans for LHD 1 class ships and Fan Coil Assembly improvements to DDG 51 class ships. 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 consumption.			
Title: Auxiliary Systems Sub Project	-	-	1.134
Articles:	-	-	-
Description: Auxiliary Systems Sub Project -- Project funds will be utilized to identify, test and evaluate new technologies for shipboard auxiliary systems aimed at reducing fuel consumption. ***FY 2013 Accomplishments:*** N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** Project funds will be utilized to identify, test and evaluate new technologies for shipboard auxiliary systems aimed at reducing fuel consumption. Based on Business Case Analyses, auxiliary improvements to systems such as Advanced Reverse Osmosis (RO), High Pressure Compressed Air and Low Pressure Compressed Air will be initiated. 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 consumption.			
Title: Energy Monitoring & Assessment	-	-	6.439
Articles:	-	-	-
Description: This project area will focus on methods of capturing and displaying energy related data to shipboard personnel as actionable information for ships force to employ energy conservation measures underway and in port as mission requirements permit. ***FY 2013 Accomplishments:*** N/A ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829. / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A ***FY 2015 Plans:*** Expand SED efforts to additional ship systems identified by Fleet and other ship classes, LSD, LCS, etc. as applicable based on gap analysis data. Install monitoring capability for evaluation. Investigate methods to capture and display hull fuel penalty conditions relating to hull and propeller fouling, and feed information to SED and other reporting systems to measure ship energy performance. Continue to identify additional fuel saving technologies and monitoring methodologies and prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption.			
Accomplishments/Planned Programs Subtotals	8.001	7.695	17.755

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-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0838 / *Mobility Fuels (ADV)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0838: *Mobility Fuels (ADV)*	37.425	9.922	7.649	11.690	-	11.690	14.616	11.873	12.015	12.251	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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. The program addresses readiness, additional maintenance costs, and the cost of lost equipment. The potential risk of fuel-related problems over the next decade, given the unknown supply, feedstocks, 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 2013	FY 2014	FY 2015
Title: Naval Tactical Fuels	9.922	7.649	11.690
Articles:	-	-	-
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 problems while accommodating evolutionary changes in the fuel supply industry and d) improve fleet methods to ensure fuel quality.			
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0838 / *Mobility Fuels (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continued rig and propulsion system testing on aircraft and ship biofuels blends containing greater than 50% bio-derived components. Initiated ship and aircraft trials on biofuel blends containing greater than 50% bio-derived components. Initiated laboratory and rig testing on promising advanced biofuel production pathway fuels. The JP-5 jet fuel specification was updated to include allowance for hydro-processed fatty acid esters and fatty acids (HEFA) and Fischer Tropsch (FT) fuels, and all testing to qualify hydro-treated renewable diesel fuel was completed. ***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. ***FY 2015 Plans:*** Continue to expand list of qualified renewable sources/production pathways for inclusion into JP-5 and F-76 specifications. Conduct hardware testing on hydroprocessed depolymerized cellulosic. Continue testing on advanced production pathways.			
Accomplishments/Planned Programs Subtotals	9.922	7.649	11.690

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0838 / *Mobility Fuels (ADV)*

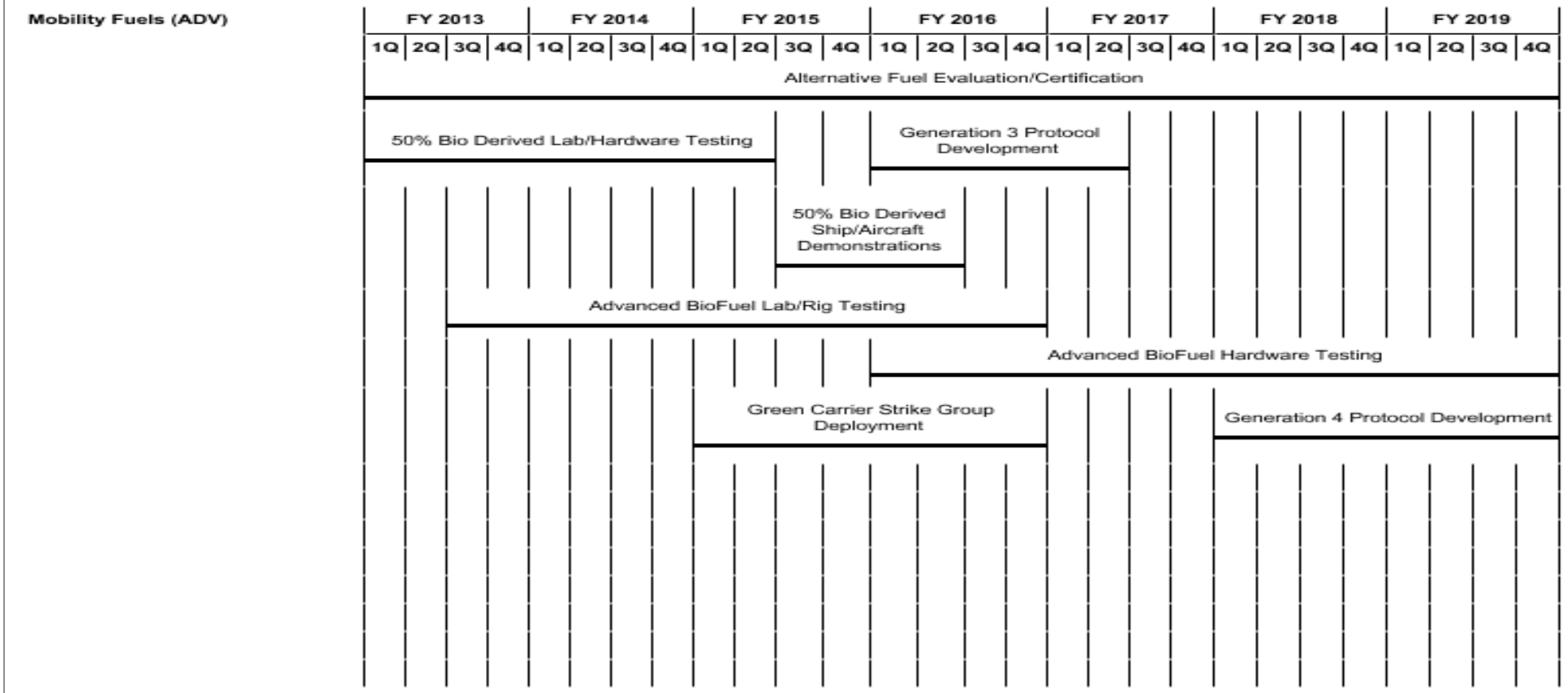

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*				Project (Number/Name) 0928 / *Directed Energy Research*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0928: *Directed Energy Research*	26.808	13.822	1.870	7.292	-	7.292	2.414	1.656	1.680	1.738	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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.

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, energy storage and Alternative Fuel Vehicle 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" and "Micro 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 2013	FY 2014	FY 2015
Title: Directed Energy Research	13.822	1.870	7.292
Articles:	-	-	-
FY 2013 Accomplishments: Performing 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- 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 - 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 In FY14 we will continue component testing and prototype development and deployment for alternative energy and advanced lighting grid management technology at Naval installations that were started in FY12 and FY13. The plan is to complete and begin transitioning some of the technologies initiated in FY12 and FY13.			
FY 2015 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 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- 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 The FY15 plan includes: - Initiate evaluation, and planning for outer continental shelf wind, and ocean compressed air storage and other promising technologies - Continue and expand demonstration, testing, deployment, and evaluation of smart energy and micro-grid management technology; and begin development of technical specifications - Continue and expand demonstration and validation of mature technologies to be transitioned such as sustainable building technologies, alternative fuel vehicles, and improved energy storage systems and integration at Naval installations			
Accomplishments/Planned Programs Subtotals	13.822	1.870	7.292

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-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0996 / *Aircraft Energy Conservation*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0996: *Aircraft Energy Conservation*	23.622	17.167	28.404	32.678	-	32.678	27.394	26.202	24.446	24.901	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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 2013	FY 2014	FY 2015
Title: Aircraft Energy Conservation	17.167	28.404	32.678
Articles:	-	-	-
FY 2013 Accomplishments: Initiated Fleet Air ENCON program beta launch. Completed F-35 "Smart Start" material solution analysis. Completed F135 fuel burn reduction high-pressure compressor rig preliminary design and performance and operability analysis.			
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.			
FY 2015 Plans: Complete F135 compressor rig test and conduct Critical Design Review in support of F135 engine fuel burn reduction demonstration. Continue to identify, validate, and institutionalize energy conservation/efficiency concepts into the fleet. Continue validation of aircraft subsystem technologies and advance mission planning and navigation technologies for incorporation into legacy and emerging platforms.			
Accomplishments/Planned Programs Subtotals	17.167	28.404	32.678

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0996 / *Aircraft Energy Conservation*

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0996 / *Aircraft Energy Conservation*

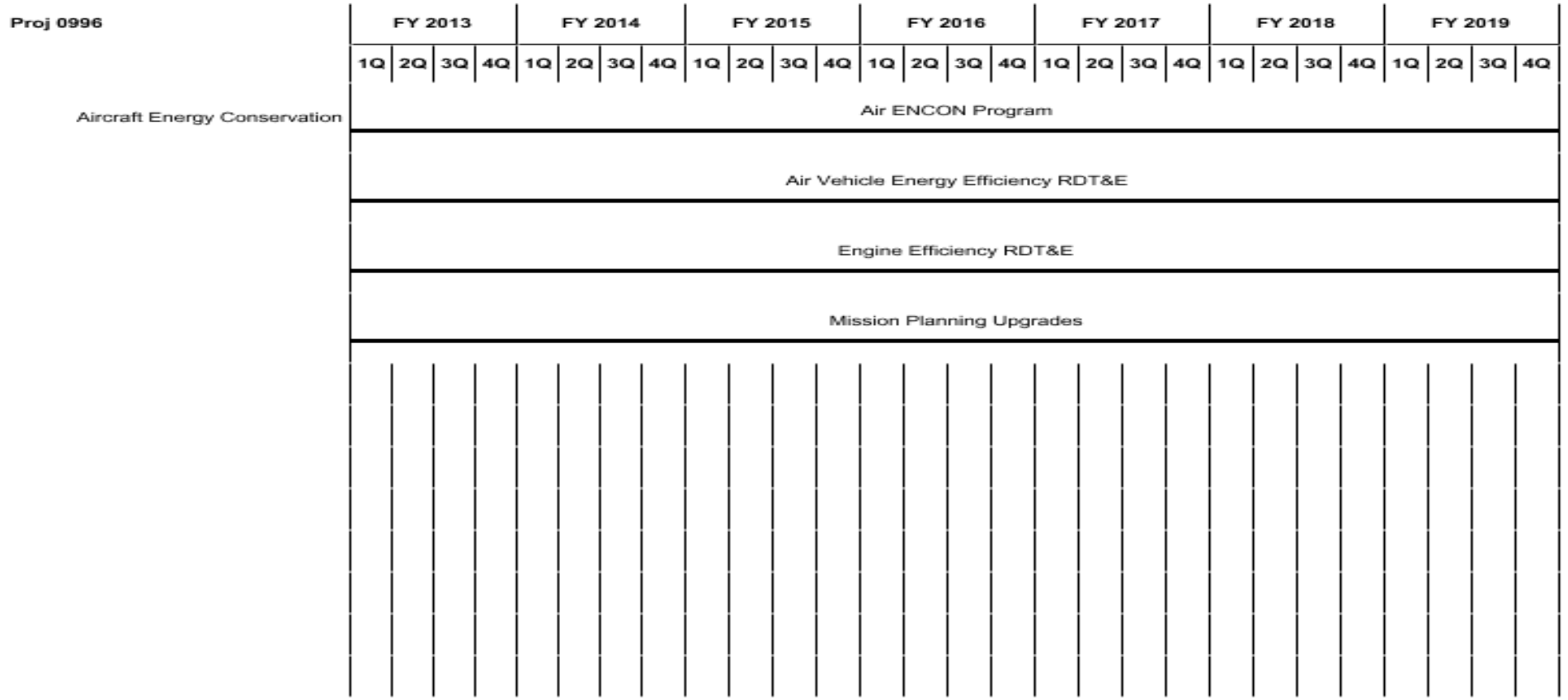

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
9999: *Congressional Adds*	-	36.665	-	-	-	-	-	-	-	-	-	36.665
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The Congressional Add funding will be used to support the Alternative Energy Initiatives project, which includes research to reduce the use fossil fuels and increase the use of renewable energy in accordance with Legislation, Executive Orders (EO), and SECNAV guidance. The anticipated deliverables will promote the development of alternative energy systems by demonstrating the technical and financial viability of innovative renewable energy technologies. These efforts are in accordance with, and in response to, 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014
Congressional Add: Alternative Energy Initiatives	36.665	-
FY 2013 Accomplishments: N/A		
FY 2014 Plans: N/A		
Congressional Adds Subtotals	36.665	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not required for Congressional Add.

E. Performance Metrics

Not required for Congressional Add.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603725N *I Facilities Improvement*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	10.930	3.116	3.019	2.588	-	2.588	5.754	4.883	3.217	3.286	Continuing	Continuing
0995: *Naval Facilities System*	8.636	1.313	1.387	0.816	-	0.816	1.405	1.862	1.884	1.921	Continuing	Continuing
3155: *Force Protection Ashore*	2.294	1.803	1.632	1.286	-	1.286	0.852	1.025	1.333	1.365	Continuing	Continuing
3347: *Navy Expeditionary Energy Development*	0.000	-	-	0.486	-	0.486	3.497	1.996	-	-	-	5.979

The FY 2015 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 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603725N *I Facilities Improvement*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	3.401	3.019	3.446	-	3.446
Current President's Budget	3.116	3.019	2.588	-	2.588
Total Adjustments	-0.285	-	-0.858	-	-0.858
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.006	-			
• Program Adjustments	-	-	0.500	-	0.500
• Rate/Misc Adjustments	-0.001	-	-1.358	-	-1.358
• Congressional General Reductions Adjustments	-0.278	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603725N / *Facilities Improvement*				Project (Number/Name) 0995 / *Naval Facilities System*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0995: *Naval Facilities System*	8.636	1.313	1.387	0.816	-	0.816	1.405	1.862	1.884	1.921	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 tested 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 critical facilities (such as dry docks, piers, runways, magazines, etc.), 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. Besides 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 previously 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.

Technologies to reduce the cost of Sustainment, Restoration and Modernization (SRM):

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603725N / *Facilities Improvement*	**Project (Number/Name)** 0995 / *Naval Facilities System*

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 enhanced facility designs and coatings for facilities and equipment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Waterfront facilities, repair, upgrade and service life extension:	0.464	0.553	0.270
Articles:	-	-	-
FY 2013 Accomplishments: 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 second 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.			
FY 2014 Plans: Waterfront facilities, repair, upgrade and service life extension: Complete analysis and solution of CVN capable dry-dock and waterfront seismic analysis and standard seismic risk mitigation procedures and apply methodology to other dry docks and critical waterfront structures. 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. Initiate investigation of natural and catastrophic events on critical waterfront facilities.			
FY 2015 Plans: Complete waterfront seismic analysis and standard seismic risk mitigation procedures for other dry docks and critical waterfront structures. 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 Ohio Class Replacement Submarine. Continue to investigate natural and catastrophic events on critical waterfront facilities and begin to develop risk identification and mitigation methodologies. Initiate sea level rise effects on critical infrastructure. Initiate investigation of special design and maintenance requirements for Naval Facilities in the arctic environment.			
Title: Sustainment, Restoration & Modernization:	0.849	0.834	0.546

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603725N / *Facilities Improvement*	**Project (Number/Name)** 0995 / *Naval Facilities System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Articles:	-	-	-
FY 2013 Accomplishments: Sustainment, Restoration & Modernization: Continue validation testing/performance monitoring of enhanced facility designs and coatings for facilities and equipment. 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, emphasizing 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: Sustainment, Restoration & Modernization: Continue Corrosion Prevention & Control projects, emphasizing sustainable design and improved lifecycle cost reductions. Continue improved concrete construction and crack repair technologies utilizing affordable and green aggregate constituents. Continue evaluation of solutions to develop associated design and construction criteria to support the transition of new technologies associated the shore facilities infrastructure. Initiate new Corrosion Prevention & Control projects, emphasing sustainable design and improved lifecycle cost reductions. Initiate investigations for retrofitting existing facilities to conform to high performance building standards.			
FY 2015 Plans: Sustainment, Restoration & Modernization: Continue Corrosion Prevention & Control projects, emphasizing sustainable design and improved lifecycle cost reductions. Continue improved concrete construction and crack repair technologies utilizing affordable and green aggregate constituents. Continue investigations for retrofitting existing facilities to conform to high performance building standards. Continue evaluation of solutions to develop associated design and construction criteria to support the transition of new technologies associated the shore facilities infrastructure. Initiate new Corrosion Prevention & Control projects, emphasizing sustainable design and improved lifecycle cost reductions. Initiate development of design criteria for closed piers and wharves.			
Accomplishments/Planned Programs Subtotals	1.313	1.387	0.816

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

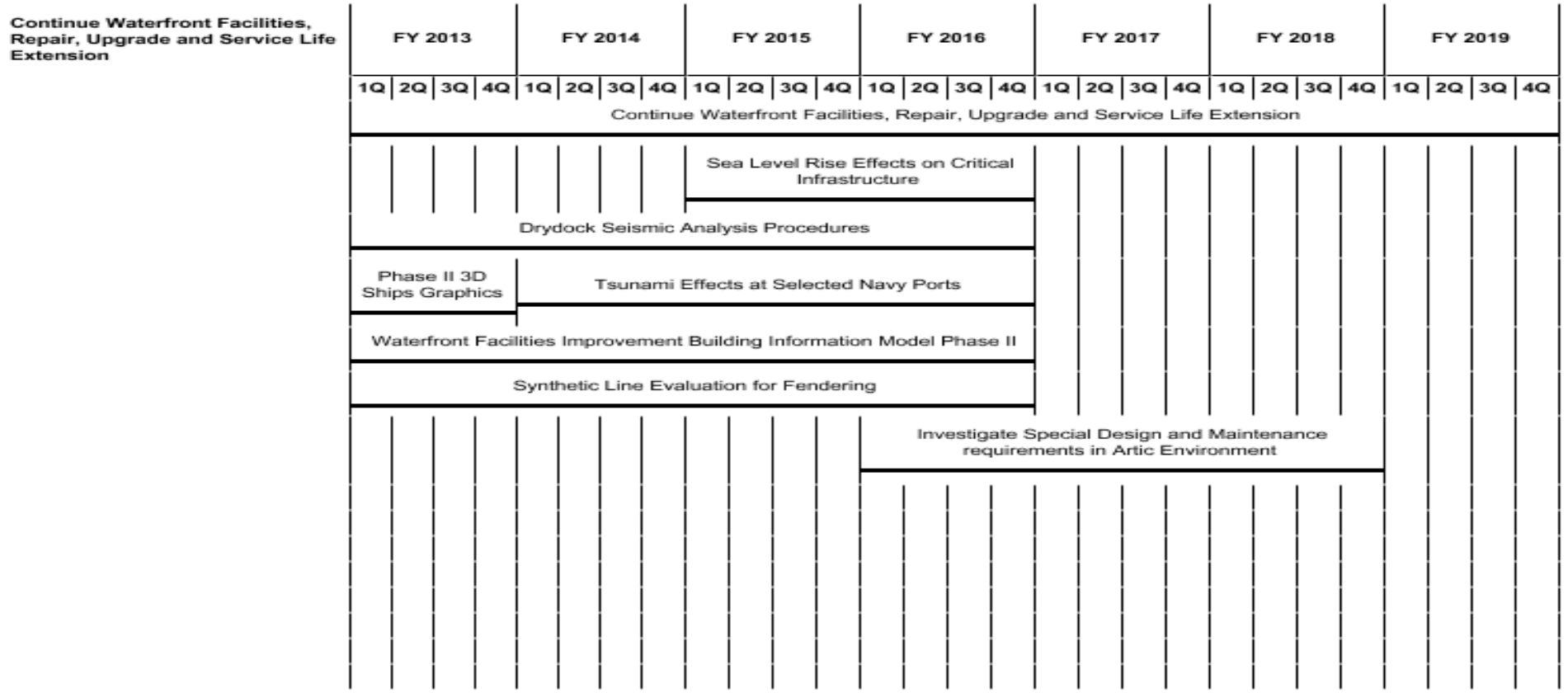
The Projects identified in this budget have been carefully selected to respond to both the facilities support for new Acquisition Category Programs, to address TOC considerations of an evolving and aging infrastructure, and to facilitate rational risk based decisions and solutions to protect and decrease 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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603725N / *Facilities Improvement*	**Project (Number/Name)** 0995 / *Naval Facilities System*

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.

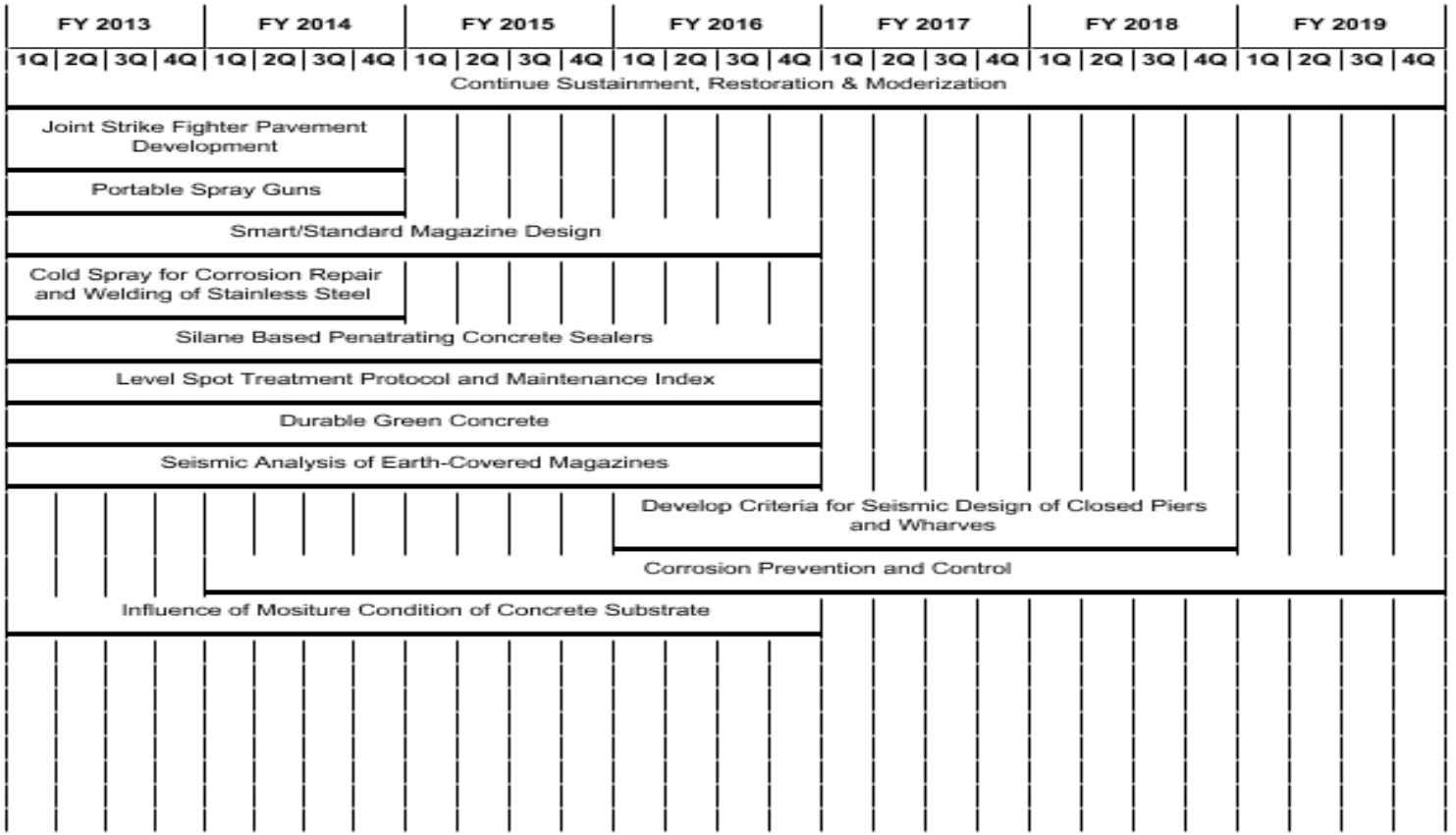
Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603725N / *Facilities Improvement*	**Project (Number/Name)** 0995 / *Naval Facilities System*



2015OSD - 0603725N - 0995

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603725N / *Facilities Improvement*	**Project (Number/Name)** 0995 / *Naval Facilities System*

Continue Sustainment, Restoration & Moderization



2015OSD - 0603725N - 0995

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603725N / *Facilities Improvement*	Project (Number/Name) 3155 / *Force Protection Ashore*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3155: *Force Protection Ashore*	2.294	1.803	1.632	1.286	-	1.286	0.852	1.025	1.333	1.365	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Force Protection Ashore	1.803	1.632	1.286
Articles:	-	-	-
FY 2013 Accomplishments: -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) Automation 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:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603725N / *Facilities Improvement*	**Project (Number/Name)** 3155 / *Force Protection Ashore*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- 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 and diver detection, tracking, and interdiction capabilities into EHSS. - Complete Net-centric Mass Notification System specification development for transition. -Initiate Waterside Protection - Boat Barrier Electronic Infrastructure project to assess impact of next generation boat barriers on existing Electronic Harbor Security System (EHSS) sensors and research, identify, integrate, implement and evaluate mitigation sensors and sensor infrastructure to augment performance in the presence of shadow zones caused by the new barriers. ***FY 2015 Plans:*** - Complete integration and demonstration of Automated Sensor Assessment and Course of Action Plan (COAP) with EHSS and document baseline specifications. -Continue Boat Barrier Electronic Infrastructure project with a particular focus on environmental resilience and sustainability in an operational setting and integrated with existing Port Security Barriers and remote gate operations devices. - Initiate Waterside Protection - Boat Barrier Electronic Infrastructure project to assess impact of next generation boat barriers on existing Electronic Harbor Security System (EHSS) sensors and research, identify, integrate, implement and evaluate mitigation sensors and sensor infrastructure to augment performance in the presence of shadow zones caused by the new barriers. - Initiate ship-to-shore common information exchange project to rapidly share information and communications between shore security forces and docked ships. - Initiate versatile access control project to develop, integrate and test an access control system that is open architecture, enables biometrics and handles multiple credentials (driver's license, passport, etc.). - Complete PS/AC automation project with an operational evaluation in NSW (OT).			
Accomplishments/Planned Programs Subtotals	1.803	1.632	1.286

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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603725N / *Facilities Improvement*	**Project (Number/Name)** 3155 / *Force Protection Ashore*

E. Performance Metrics

Quarterly Program Reviews to include funds status, schedule review and assessment of plan to actual.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603725N / *Facilities Improvement*	Project (Number/Name) 3347 / *Navy Expeditionary Energy Development*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3347: *Navy Expeditionary Energy Development*	-	-	-	0.486	-	0.486	3.497	1.996	-	-	-	5.979
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Development of advanced Environmental Control Unit (ECU) for expeditionary force camp shelters will reduce the heating and air-conditioning (HVAC) fuel consumption by 50% and also will reduce fuel transport convoys, and attendant manpower casualties and handling labor.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Expeditionary Environmental Control Unit (EECU)	-	-	0.486
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: Initiate/transition full scale development of S&T innovative concepts developed by ARPA-E to TRL 6 with funding from the Assistant Secretary of Defense Office of Operational Energy Plans and Programs.			
Accomplishments/Planned Programs Subtotals	-	-	0.486

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Development of this technology to TRL8 will be shared and coordinated with U.S. Army CERDEC for potential acquisition through the DOD Program Manager for Mobile Electric Power(Army managed PM). The new Expeditionary Environmental Control Unit available for procurement by all Services will save fuel and associated logistics support.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603725N / *Facilities Improvement*	**Project (Number/Name)** 3347 / *Navy Expeditionary Energy Development*

E. Performance Metrics

October 2014 Initiate Planning for Development Contracts

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603734N *I (U)CHALK CORAL*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	41.498	124.451	176.301	-	176.301	214.394	168.126	166.541	156.914	Continuing	Continuing
1804: *Chalk Coral*	0.000	41.498	124.451	176.301	-	176.301	214.394	168.126	166.541	156.914	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	45.966	144.951	173.404	-	173.404
Current President's Budget	41.498	124.451	176.301	-	176.301
Total Adjustments	-4.468	-20.500	2.897	-	2.897
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-20.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.389	-			
• Program Adjustments	-	-	13.190	-	13.190
• Rate/Misc Adjustments	0.001	-	-10.293	-	-10.293
• Congressional General Reductions Adjustments	-4.080	-	-	-	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603739N *I Navy Logistic Productivity*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	33.577	3.452	3.847	3.873	-	3.873	3.899	3.313	3.305	3.115	Continuing	Continuing
2955: *JEDMICS*	32.682	2.561	2.899	2.961	-	2.961	2.971	2.369	2.344	2.136	Continuing	Continuing
3223: *Logistics R&D*	0.895	0.891	0.948	0.912	-	0.912	0.928	0.944	0.961	0.979	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	3.811	5.797	3.874	-	3.874
Current President's Budget	3.452	3.847	3.873	-	3.873
Total Adjustments	-0.359	-1.950	-0.001	-	-0.001
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.950			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.120	-			
• Rate/Misc Adjustments	-	-	-0.001	-	-0.001
• Congressional General Reductions Adjustments	-0.239	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603739N *I Navy Logistic Productivity*

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603739N / *Navy Logistic Productivity*				Project (Number/Name) 2955 / *JEDMICS*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2955: *JEDMICS*	32.682	2.561	2.899	2.961	-	2.961	2.971	2.369	2.344	2.136	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 1.5 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 2013	FY 2014	FY 2015
Title: JEDMICS Development	2.501	2.847	2.909
Articles:	-	-	-

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 2013 Accomplishments:
Develop and integrate JEDMICS Software Release 3.0.14.

FY 2014 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603739N / *Navy Logistic Productivity*	**Project (Number/Name)** 2955 / *JEDMICS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Develop and integrate JEDMICS Software Release 3.0.15. ***FY 2015 Plans:*** Develop and integrate JEDMICS Software Release 3.0.16.			
Title: JEDMICS Test ***Articles:*** ***Description:*** Conduct test and readiness reviews and functional performance tests on JEDMICS system. ***FY 2013 Accomplishments:*** 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. ***FY 2015 Plans:*** Complete DT of JEDMICS Software Release 3.0.15. Initiate DT of JEDMICS Software Release 3.0.16.	0.025 -	0.025 -	0.026 -
Title: JEDMICS Evaluation & Review ***Articles:*** ***Description:*** Conduct technical evaluations and configuration control reviews of JEDMICS system. ***FY 2013 Accomplishments:*** 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. ***FY 2015 Plans:*** Conduct technical evaluations and reviews for JEDMICS Software Release 3.0.17.	0.035 -	0.027 -	0.026 -
Accomplishments/Planned Programs Subtotals	2.561	2.899	2.961

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603739N / *Navy Logistic Productivity*	**Project (Number/Name)** 2955 / *JEDMICS*

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603739N / *Navy Logistic Productivity*	**Project (Number/Name)** 2955 / *JEDMICS*

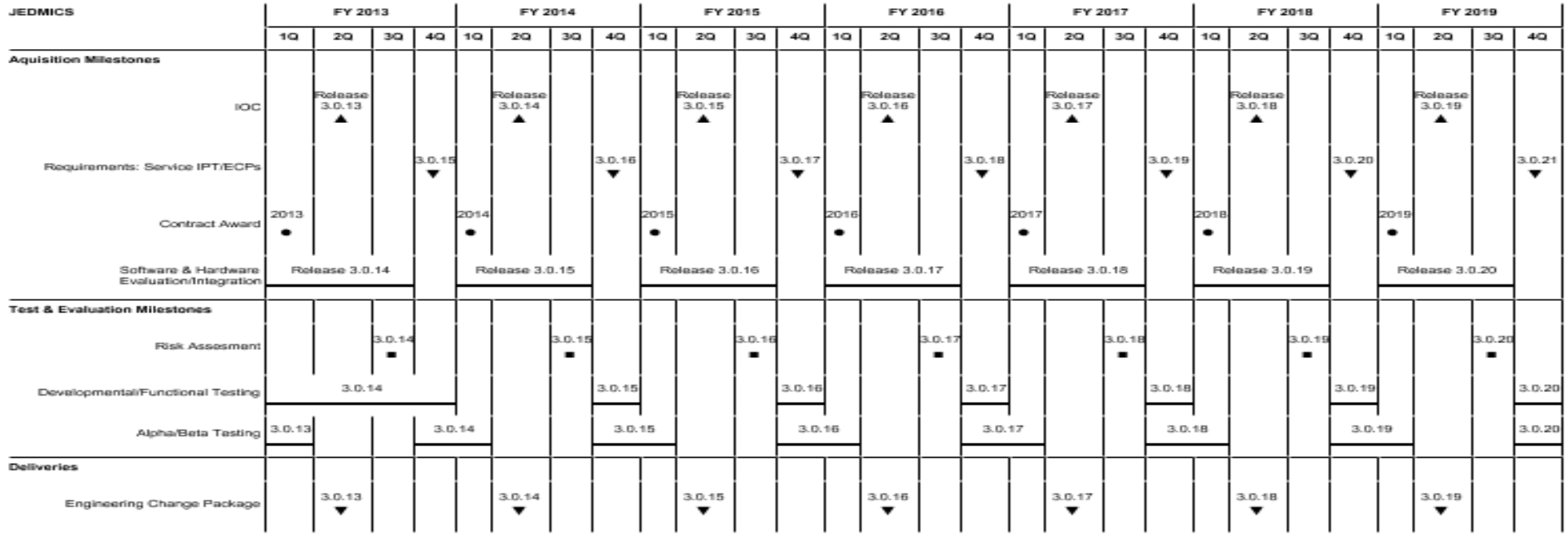

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603739N / *Navy Logistic Productivity*				Project (Number/Name) 3223 / *Logistics R&D*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
3223: *Logistics R&D*	0.895	0.891	0.948	0.912	-	0.912	0.928	0.944	0.961	0.979	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2013**	**FY 2014**	**FY 2015**
Title: Ammo Perfect Order Creation Module (APOCM)	0.175	-	-
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603739N / *Navy Logistic Productivity*	**Project (Number/Name)** 3223 / *Logistics R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Enhanced the Ordinance Information Systems (OIS) ability to automatically process requisitions based on demand signals. Created a process of perfect order fulfillment to ordannce supply chain that did not previously exist. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A			
Title: Enhanced TET CDF	0.300	0.300	-
Articles:	-	-	-
FY 2013 Accomplishments: Worked with the Department of Energy and DISA to identify, prototype and test tools that will enable tranfer of FACTS (Financial and Air Clearance Transportation System) transportation schedules and financial data to the SIPR TET (Transportation Exploration Tool). ***FY 2014 Plans:*** The CDS (DISA Cross Domain Management) will bridge between the unclassified FACTS TET module and the SIPR TET (Transportation Exploration Tool) to allow unclassified schedule data from IGC, the Coast Guard, Navy (JALIS), Marine Corps, and commercial providers as well as financial data from FACTS to be consumed for use in development of transportation solutions in STET (SIPR TET). ***FY 2015 Plans:*** N/A			
Title: Philadelphia STEM Educational Training	0.060	-	-
Articles:	-	-	-
FY 2013 Accomplishments: Supported STEM Educational Training efforts ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A			
Title: Abrasive Blasting Personal Ensemble (PPE)	0.100	-	-
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603739N / *Navy Logistic Productivity*	**Project (Number/Name)** 3223 / *Logistics R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Analyzed the deficiencies of the current abrasive blasting personal protective ensembles (AB-PPE) and identified commercial-off-the-shelf (COTS) materials/designs to provide a reusable blasting ensemble with improved protection and reduced thermal burden. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A			
Title: LEED - Warehouse Study	0.256	-	-
Articles:	-	-	-
FY 2013 Accomplishments: Comprehensive study was developed to determine the most efficient means to a new Automated Mega Warehouse with rail operations. ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A			
Title: eTIMS Application	-	0.060	-
Articles:	-	-	-
Description: Projects for increasing Navy Logistics Productivity ***FY 2013 Accomplishments:*** N/A ***FY 2014 Plans:*** Share the development cost of upgrading the Enhanced Technical Information Mamangement Systems (eTims) front-end Web-based GUI with the USAF. The specific upgrade will provide new efficiencies in the way the application processes data and presents it to the user. Specific deliverables will be "single-window" presentation graphical user interface (GUI), background processing improvements, and compatibility with new operating systems and browsers used by a variety of customers, both governmental and commercial. ***FY 2015 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603739N / *Navy Logistic Productivity*	**Project (Number/Name)** 3223 / *Logistics R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A			
Title: Readiness through Logistics Solutions	-	0.200	0.200
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** Any technological capability improving naval logistics in part or in its entirety... Through its Life-cycle, from concept to completion: "Cradle to grave" of a DoD/DON acquistion program of record (from manufacture, storage, delivery, use, maintenance and disposal). ***FY 2015 Plans:*** Any technological capability improving naval logistics in part or in its entirety... Through its Life-cycle, from concept to completion: "Cradle to grave" of a DoD/DON acquistion program of record (from manufacture, storage, delivery, use, maintenance and disposal).			
Title: Logistics Data Access and Information Sharing	-	-	0.212
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** Capability to facilitate improved access and use of logistics data by both individual users and between IT systems. Capability includes, but is not limited to, enhanced Graphical User Interfaces (GUI) and web-based data services and other community-based software tools and technologies that can enable broader exposure and sharing of logistics data based on customer requirements for data representation, metadata, format and delivery.			
Title: LifeCycle-ONE	-	0.165	-
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603739N / *Navy Logistic Productivity*	**Project (Number/Name)** 3223 / *Logistics R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue development of a capability that will provide Program Managers with indicators that quantify the impact of Reliability, Availability, and Maintainability (RAM) cost drivers on their program's O&-S costs. ***FY 2015 Plans:*** N/A			
Title: Clothing Protection for the War Fighter	-	0.223	0.500
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: A capability to assess commerical off-the-shelf (COTS) items, identify/develop laboratory test methods to determine applicability of COTS items and address quality assurance measures to allow upgrades to uniform/protective clothing capabilities in a cost effective manner. Enhanced capabilities are required in the areas of thermal/flame threats, protective footwear as well as environmental and physical protection. A capability to correlate current material technologies and manufacturing processes with potential advanced technologies is required to mitigate costly/antiquated uniforms and manufacturing costs, work uniform catergory specifically. A capability to accurately identify the US Navy fit and define the proper "concept of fit" is required to streamline the uniform issue process, allow the sailor to purchase an off the rack uniform without costly alterations and enhance uniform size forecasting; resulting in having the "needed" sizes in stock. Utilitization of "virtual fit" processes will greatly improve the entire uniform management process. ***FY 2015 Plans:*** A capability to assess commerical off-the-shelf (COTS) items, identify/develop laboratory test methods to determine applicability of COTS items and address quality assurance measures to allow upgrades to uniform/protective clothing capabilities in a cost effective manner. Enhanced capabilities are required in the areas of thermal/flame threats, protective footwear as well as environmental and physical protection. A capability to correlate current material technologies and manufacturing processes with potential advanced technologies is required to mitigate costly/antiquated uniforms and manufacturing costs, work uniform catergory specifically. A capability to accurately identify the US Navy fit and define the proper "concept of fit" is required to streamline the uniform issue process, allow the sailor to purchase an off the rack uniform without costly alterations and enhance uniform size forecasting; resulting in having the "needed" sizes in stock. Utilitization of "virtual fit" processes will greatly improve the entire uniform management process.			
Accomplishments/Planned Programs Subtotals	0.891	0.948	0.912

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603739N / *Navy Logistic Productivity*	**Project (Number/Name)** 3223 / *Logistics R&D*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

Ammo Perfect Order Creation Module (APOCM): This initiative will enhance the Ordnance Information Systems (OIS) ability to automatically process requsitions based on valid demand signals. APOCM will provide the integration of validated Fleet requirements, asset availability data and geographic location data relative to the load out point to automatically generate referral actions to ammunition stock points. APOCM will exploit the capabilities of the Global Ammunition Strategic Positioning Model (GASPM) and bring a level of perfect order fulfillment to the ordnance supply chain not realized to date.

Enhanced TET CDF: Continue work with DOE and the DISA Cross Domain Management Office to identify, prototype & test tools that will enable transfer of FACTS unclassified transportation schedules and financial data to the SIPR TET for development of multimodal transportation solutions.

Philadelphia STEM Educational Training: Funding provides new STEM initiatives to include: Logistics, Acquisition and Supply Systems Operations (LASSO) Summer Camps. Mobile Applications Programming Class: Students learn to program mobile applications for cell phones.

Abrasive Blasting Personal Ensemble (PPE): Analyze the deficiencies of the current abrasive blasting personal protective ensembles (AB-PPE) and identify commerical-off-the-shelf (COTS) materials/design to provide reusable blasting ensemble with improved protection and reduced thermal burden.

LEED - Warehouse Study: A comprehensive AE study will be developed to determine the most efficient means to a new automated Mega Warehouse with rail operations. The study will include alternatives, concepts, energy/green technology and equipment integration plan, detailed design scope of work cost estimates for each alternative and recommendation for most effective execution plan.

E. Performance Metrics

TBD

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603739N / *Navy Logistic Productivity*	**Project (Number/Name)** 3223 / *Logistics R&D*

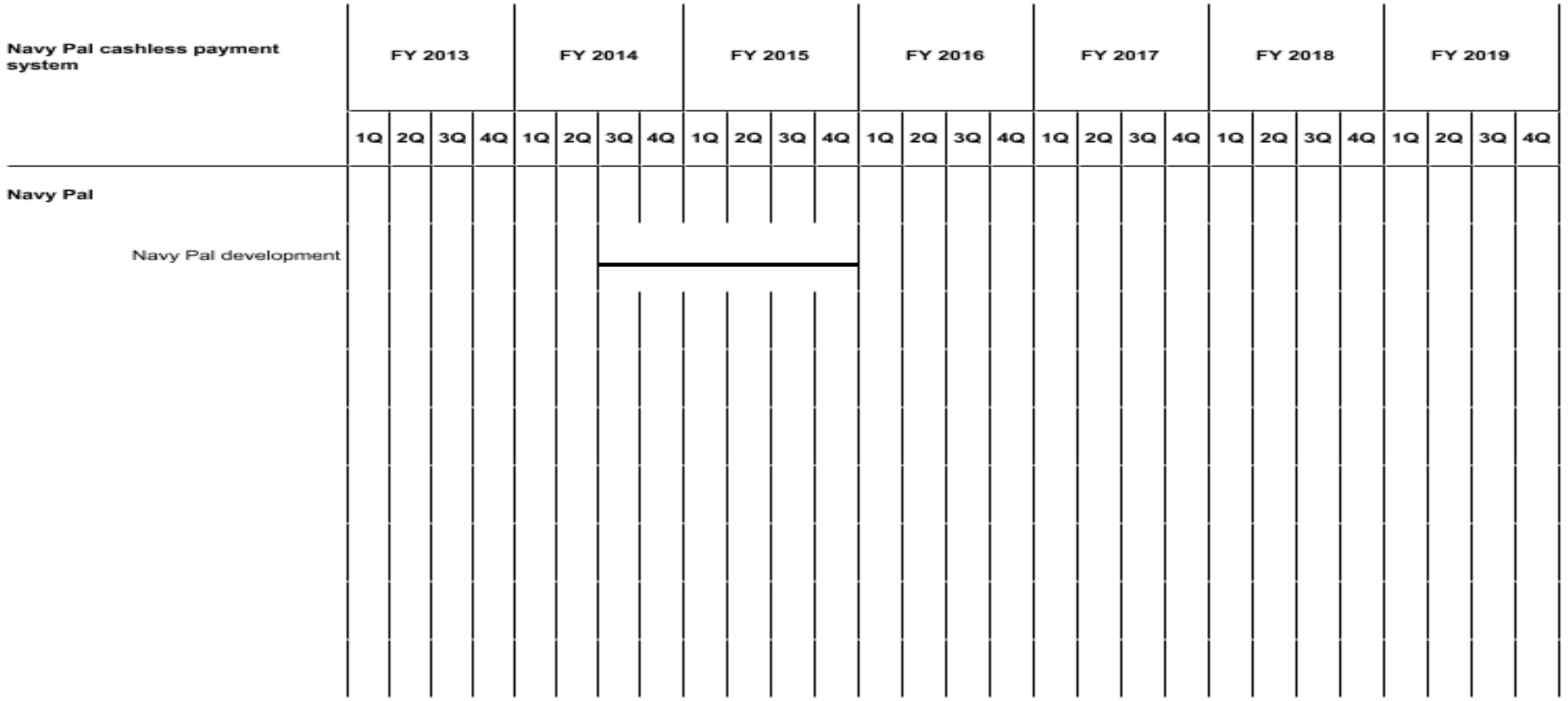

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603746N *I (U)RETRACT MAPLE*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	0.000	290.796	308.131	376.028	-	376.028	304.561	230.713	167.347	103.360	Continuing	Continuing
1906: *Retract Maple*	0.000	290.796	308.131	376.028	-	376.028	304.561	230.713	167.347	103.360	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	341.305	308.131	263.710	-	263.710
Current President's Budget	290.796	308.131	376.028	-	376.028
Total Adjustments	-50.509	-	112.318	-	112.318
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-19.300	-			
• SBIR/STTR Transfer	-4.044	-			
• Program Adjustments	-	-	76.780	-	76.780
• Rate/Misc Adjustments	-	-	35.538	-	35.538
• Congressional General Reductions Adjustments	-27.165	-	-	-	-

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603748N *I (U)LINK PLUMERIA*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	0.000	153.811	121.189	272.096	-	272.096	212.438	300.955	315.749	298.400	Continuing	Continuing
1978: *Link Plumeria*	0.000	153.811	121.189	272.096	-	272.096	212.438	300.955	315.749	298.400	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	181.220	195.189	225.570	-	225.570
Current President's Budget	153.811	121.189	272.096	-	272.096
Total Adjustments	-27.409	-74.000	46.526	-	46.526
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-74.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-9.999	-			
• SBIR/STTR Transfer	-2.284	-			
• Program Adjustments	-	-	13.000	-	13.000
• Rate/Misc Adjustments	-	-	33.526	-	33.526
• Congressional General Reductions Adjustments	-15.126	-	-	-	-

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603751N *I (U)RETRACT ELM*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	115.681	56.358	42.233	-	42.233	44.223	41.403	37.370	32.373	Continuing	Continuing
2003: *Retract Elm*	0.000	115.681	56.358	42.233	-	42.233	44.223	41.403	37.370	32.373	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	174.014	56.358	185.141	-	185.141
Current President's Budget	115.681	56.358	42.233	-	42.233
Total Adjustments	-58.333	-	-142.908	-	-142.908
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-9.999	-			
• SBIR/STTR Transfer	-1.861	-			
• Program Adjustments	-	-	-103.414	-	-103.414
• Rate/Misc Adjustments	-	-	-39.494	-	-39.494
• Congressional Recision Adjustments	-21.000	-	-	-	-
• Congressional General Reductions Adjustments	-13.473	-	-	-	-
• Congressional Directed Reductions Adjustments	-12.000	-	-	-	-

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603764N *I (U)LINK EVERGREEN*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	0.000	61.986	55.378	46.504	-	46.504	47.312	48.116	48.982	0.196	Continuing	Continuing
1972: *Link Evergreen*	0.000	61.986	55.378	46.504	-	46.504	47.312	48.116	48.982	0.196	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	68.654	55.378	46.504	-	46.504
Current President's Budget	61.986	55.378	46.504	-	46.504
Total Adjustments	-6.668	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.944	-			
• Congressional General Reductions Adjustments	-5.724	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603787N *I (U)SPECIAL PROCESSES*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	0.000	43.810	48.842	25.109	-	25.109	18.259	16.911	15.468	15.917	Continuing	Continuing
0000: *UNDIST*	0.000	-	-	0.071	-	0.071	0.038	0.016	0.004	0.001	Continuing	Continuing
0116: *Linear Tank*	0.000	43.810	48.842	25.038	-	25.038	18.221	16.895	15.464	15.916	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	44.487	48.842	51.250	-	51.250
Current President's Budget	43.810	48.842	25.109	-	25.109
Total Adjustments	-0.677	-	-26.141	-	-26.141
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.618	-			
• Program Adjustments	-	-	-28.747	-	-28.747
• Rate/Misc Adjustments	-0.001	-	2.606	-	2.606
• Congressional General Reductions Adjustments	-0.058	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603787N / *(U)SPECIAL PROCESSES*				Project (Number/Name) 0000 / *UNDIST*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0000: *UNDIST*	-	-	-	0.071	-	0.071	0.038	0.016	0.004	0.001	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603787N / *(U)SPECIAL PROCESSES*				Project (Number/Name) 0116 / *Linear Tank*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0116: *Linear Tank*	-	43.810	48.842	25.038	-	25.038	18.221	16.895	15.464	15.916	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603790N *I NATO Research and Deve*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	39.517	8.589	7.502	9.659	-	9.659	10.900	10.196	10.058	10.288	Continuing	Continuing
2293: *NATO Cooperative R & D*	39.517	8.589	7.502	9.659	-	9.659	10.900	10.196	10.058	10.288	Continuing	Continuing

The FY 2015 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.

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 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	9.389	7.509	10.786	-	10.786
Current President's Budget	8.589	7.502	9.659	-	9.659
Total Adjustments	-0.800	-0.007	-1.127	-	-1.127
• Congressional General Reductions	-	-0.007			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.018	-			
• Program Adjustments	-	-	-0.900	-	-0.900
• Rate/Misc Adjustments	-	-	-0.227	-	-0.227
• Congressional General Reductions Adjustments	-0.782	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603790N / *NATO Research and Deve*	Project (Number/Name) 2293 / *NATO Cooperative R & D*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2293: *NATO Cooperative R & D*	39.517	8.589	7.502	9.659	-	9.659	10.900	10.196	10.058	10.288	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: NATO Cooperative R & D	8.589	7.502	9.659
Articles:	-	-	-

FY 2013 Accomplishments:
- Continue to plan and/or support FY13 approved cooperative projects;
- Arctic Ship Design project between the U.S. and Finland.
- Continued support of the Submarine Very Low Frequency project between the U.S. and UK.
- Continued support of the Submarine Electric Actuation project between the U.S. and UK.
- Continued support of 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 FY13/14 approved cooperative projects;
-Future Submarine Sonar Telemetry U.S. and UK.
-Advanced EM Silencing U.S. and UK
-Sub Composite Structures U.S. and UK
-Test, Planning, and Execution (TPEX)U.S. and ML
-Sub Very Low Frequency U.S. and UK
-Prediction and Monitoring of Surface Ship Propulsion System Underwater Acoustic Signature (ProSiMon) U.S. and NL
-Advance Electric Power and Propulsion U.S. and UK
-Advance Material Propeller U.S. and Australia
-Waterside Rapid Deployment U.S., Australia, and Canada

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603790N / *NATO Research and Deve*	**Project (Number/Name)** 2293 / *NATO Cooperative R & D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Weight Critical Structures U.S., UK, and Ireland -Submarine Hydrodynamics U.S. and Australia -High-Speed Multi-Hull Vessel Optimization (HSMVO) U.S. and Japan -Mine Counter-Measures Vessel (MCMV) U.S. and Finland -Large Displacement Unmanned Undersea Vehicles (LD UUV) U.S. and Korea			
FY 2015 Plans: -Continue to plan and/or support FY14 apprvoed cooperative projects. -Advance Electric Power and Propulsion U.S. and UK -Advance Material Propeller U.S. and Australia -Waterside Rapid Deployment U.S., Australia, and Canada -Weight Critical Structures U.S., UK, and Ireland -Submarine Hydrodynamics U.S. and Australia -High-Speed Multi-Hull Vessel Optimization (HSMVO) U.S. and Japan -Mine Counter-Measures Vessel (MCMV) U.S. and Finland -Large Displacement Unmanned Undersea Vehicles (LD UUV) U.S. and Korea -Australia/U.S. Expenditionary Modeling & Simulation Project Arrangement (AUSEMS) U.S. and Australia -Dynamic System Mechanics Advanced Simulastion-Shallow Confined Waters (DYSMAS-SCW) U.S. and Germany -Hull Treatment U.S. and UK			
Accomplishments/Planned Programs Subtotals	8.589	7.502	9.659

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%.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603795N *I Land Attack Tech*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	14.274	-	0.318	-	0.318	0.887	0.591	-	-	-	16.070
2038: *ADVANCED MINOR CALIBER GUN*	0.000	14.274	-	0.318	-	0.318	0.887	0.591	-	-	-	16.070

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The Advanced Minor Caliber Gun will support non-recurring engineering, component integration, and testing efforts required for capability upgrades to the MK38 Mod 2, a minor caliber gun weapon system.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	16.132	5.075	2.046	-	2.046
Current President's Budget	14.274	-	0.318	-	0.318
Total Adjustments	-1.858	-5.075	-1.728	-	-1.728
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-5.075			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.513	-			
• Rate/Misc Adjustments	-	-	-1.728	-	-1.728
• Congressional General Reductions Adjustments	-1.345	-	-	-	-

Change Summary Explanation

Technical: The program received a congressional reduction in FY14 for the delay in awarding the FY13 contract due to the efforts status as a new start under the FY13 continuing resolution laws. In FY15, the program was reduced for contracted services, underexecution, and work capital fund rate adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603795N / *Land Attack Tech*				Project (Number/Name) 2038 / *ADVANCED MINOR CALIBER GUN*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2038: *ADVANCED MINOR CALIBER GUN*	-	14.274	-	0.318	-	0.318	0.887	0.591	-	-	-	16.070
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 capability upgrades to the MK38 Mod 2, a minor caliber gun weapon system. The new configuration (MOD 3) creates a near term improvement to address ship based, close range solutions to defeat the Fast Attack Craft (FAC)/Fast In-Shore Attack Craft (FIAC) threat. 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 2013	FY 2014	FY 2015
Title: Systems Engineering and Testing	14.274	-	0.318
Articles:	-	-	-
FY 2013 Accomplishments: Funding purchased commercially available Non-Developmental Items (NDI) hardware and test units; provided systems engineering, integration engineering, software updates, on-mount testing, safety and technical oversight support for the MK38 MOD 3 capability upgrade development. Funded the initiation of Navy qualification of the Improved MK 38 Machine Gun System kit, and completion of the development of the Coaxial Gun (COAX) interface Technical Data Package (TDP).			
FY 2014 Plans: FY14 funding reduced by congressional direction.			
FY 2015 Plans: Complete final system qualification effort in order to obtain Weapon System Explosive Safety Review Board (WSESRB) deployment concurrence.			
Accomplishments/Planned Programs Subtotals	14.274	-	0.318

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The hardware improvements for MOD 3 will be integrated into new production orders and separate kits for backfit will begin procurement in FY15.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 2038 / *ADVANCED MINOR CALIBER GUN*

E. Performance Metrics

Quarterly program reviews and semi-annual product certification panel reviews.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603851M *I Joint Non-Lethal Weapons Testing*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	455.642	41.191	49.278	40.912	-	40.912	40.753	40.472	41.242	42.114	Continuing	Continuing
2319: *Non-Lethal Weapons*	455.642	41.191	49.278	40.912	-	40.912	40.753	40.472	41.242	42.114	Continuing	Continuing

The FY 2015 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 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603851M *I Joint Non-Lethal Weapons Testing*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	44.994	51.178	61.781	-	61.781
Current President's Budget	41.191	49.278	40.912	-	40.912
Total Adjustments	-3.803	-1.900	-20.869	-	-20.869
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.900			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.351	-			
• SBIR/STTR Transfer	-1.620	-			
• Rate/Misc Adjustments	-	-	-20.869	-	-20.869
• Congressional General Reductions Adjustments	-2.534	-	-	-	-

Change Summary Explanation

The increase 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 decrease from FY14 to FY15 is due to a program adjustment that realigned funds to higher Marine Corps priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603851M / *Joint Non-Lethal Weapons Testing*	Project (Number/Name) 2319 / *Non-Lethal Weapons*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2319: *Non-Lethal Weapons*	455.642	41.191	49.278	40.912	-	40.912	40.753	40.472	41.242	42.114	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: *Modeling and Simulation (M&S) of NLWs.	1.256	2.176	2.515
Articles:	-	-	-
FY 2013 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 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.			
FY 2015 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.	2.250	3.414	3.463
Articles:	-	-	-
FY 2013 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 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603851M / *Joint Non-Lethal Weapons Testing*	**Project (Number/Name)** 2319 / *Non-Lethal Weapons*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2015 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 2013 Accomplishments:*** Continued execution oversight, administration and support of the Joint NLW Program and technologies database. ***FY 2014 Plans:*** Continue execution oversight, administration and support of the Joint NLW Program and technologies database. ***FY 2015 Plans:*** Continue execution oversight, administration and support of the Joint NLW Program and technologies database.	6.180 -	5.652 -	5.681 -
Title: *Program Support of the Joint NLW Program. ***Articles:*** ***FY 2013 Accomplishments:*** Continued 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. Increased funding in this project supports Service pre-milestone A combat development requirements documentation. ***FY 2015 Plans:*** Continue program support efforts for each Service's coordination and participation in the Joint NLW Program. This includes SOCOM and USCG.	2.425 -	4.189 -	3.742 -
Title: *Active Denial Technology (ADT) Transition. ***Articles:*** ***FY 2013 Accomplishments:***	1.045 -	3.657 -	0.364 -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603851M / *Joint Non-Lethal Weapons Testing*	**Project (Number/Name)** 2319 / *Non-Lethal Weapons*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 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. ***FY 2015 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	13.902	14.829	9.411
Articles:	-	-	-
FY 2013 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 funded 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. ***FY 2015 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.	4.508	5.470	4.699
Articles:	-	-	-
FY 2013 Accomplishments: 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 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603851M / *Joint Non-Lethal Weapons Testing*	**Project (Number/Name)** 2319 / *Non-Lethal Weapons*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 2015 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 2013 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 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. ***FY 2015 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.	2.070 -	2.710 -	2.557 -
Title: *Mission Payload Module Non Lethal Weapon System ***Articles:*** ***FY 2013 Accomplishments:*** Continued 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). Finalized system design and conduct pre-developmental test activities to determine system readiness for developmental testing. ***FY 2014 Plans:***	2.134 -	- -	2.502 -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603851M / *Joint Non-Lethal Weapons Testing*	**Project (Number/Name)** 2319 / *Non-Lethal Weapons*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
No FY14 efforts in development due to waiting on FAR mandated audit requirements. ***FY 2015 Plans:*** Finalize system design by completing the Critical Design Review (CDR), and post-CDR assessment. Complete developmental test activities (Developmental Test & Evaluation) and Operational Assessment.			
Title: *Joint Integration Program (JIP). ***Articles:*** ***FY 2013 Accomplishments:*** Continued 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. ***FY 2015 Plans:*** Continue to select and test newly developed commercial products that may meet the Joint Service requirements for specific NL capability set common items.	0.600 -	0.775 -	0.125 -
Title: *Studies and Analysis ***Articles:*** ***FY 2013 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. ***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. ***FY 2015 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.	4.821 -	6.406 -	5.853 -
Accomplishments/Planned Programs Subtotals	41.191	49.278	40.912

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603851M / *Joint Non-Lethal Weapons Testing*	**Project (Number/Name)** 2319 / *Non-Lethal Weapons*

C. Other Program Funding Summary ($ in Millions)

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-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603860N / *JT Precision Approach & Ldg Sys*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	662.723	120.491	156.178	54.896	-	54.896	92.522	76.862	24.925	2.637	Continuing	Continuing
2329: *JPALS*	607.068	77.287	41.992	54.896	-	54.896	92.522	76.862	24.925	2.637	Continuing	Continuing
3228: *JPALS 1B*	55.655	43.204	75.424	-	-	-	-	-	-	-	-	174.283
3354: *JPALS Inc 2*	0.000	-	38.762	-	-	-	-	-	-	-	-	38.762
MDAP/MAIS Code: 238												

The FY 2015 OCO Request will be submitted at a later date.

Note

The JPALS Increments (Inc) 1A and 1B programs are being combined into project 2329 beginning in FY15. Increment 1B (Project 3228) will now only contain FY10 - FY14 funds with FY14 being a year of transition to the JPALS re-plan brought about by the Precision Approach Landing Capability (PALC) Roadmap Study, DoN Resources and Requirements Review Board (R3B) decision dated 03Jul13. JPALS Increment 1B funds in FY15 and out have been realigned IAW approved service priorities and, in part, will fund the PALC Roadmap investments in recapitalization and refurbishment of legacy landing systems. Improvements will be made to JPALS software and avionics to provide manned and unmanned aircraft with autoland capabilities. As a result of these PALC changes, JPALS Inc 2 (Project 3354) has been cancelled.

FY 2014 funding in both Project 3228 and 3354 will be used to finance the single increment of JPALS, with FY 2014 funding carrying over to finance FY 2015 requirements on the single increment of JPALS. The FY15-FY19 budget JPALS budget request has been reduced to properly support the FY15-FY19 JPALS requirements.

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification

The Joint Precision Approach and Landing System (JPALS) is an Acquisition Category 1D program with joint partners for requirements and acquisition including the USAF, USN/ USMC, USA, USCG, and the Federal Aviation Administration (FAA). JPALS is the next generation global positioning system (GPS)-based precision approach and landing system for the DoD and is intended to provide a rapidly deployable, adverse weather, adverse terrain, day/night precision approach and landing capability for fixed and rotary wing manned and unmanned aircraft.

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 FY07. Milestone B was met 14Jul08. At Milestone B, the Milestone Decision Authority separated Increment (Inc) 1 into Inc 1A and Inc 1B. On 19Jan10, the JROC approved Inc 2 for the Land-Based System and designated the Air Force as the lead component for the Land-Based System.

The DoN PALC Roadmap Study documents direction to re-scope JPALS to a single increment. As a result, JPALS Inc 1B was reduced in scope to support the F-35 Lightning II and Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) programs as their primary landing system on aircraft carriers and amphibious

assault ships. Accordingly, improvements will be made to JPALS to provide autoland capability for manned and unmanned aircraft, therefore, investments in aircraft software and avionics will continue, although retrofit of existing aircraft was removed from program requirements. In addition, JPALS Inc 2 was cancelled. The remaining re-scoped JPALS program efforts provide a strong technology basis for evolution should a requirement for JPALS on existing aircraft, fixed air bases, or expeditionary air fields re-emerge in the future.

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 high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	137.369	205.615	196.665	-	196.665
Current President's Budget	120.491	156.178	54.896	-	54.896
Total Adjustments	-16.878	-49.437	-141.769	-	-141.769
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-49.437			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.717	-			
• Program Adjustments	-	-	-141.465	-	-141.465
• Rate/Misc Adjustments	-	-	-0.304	-	-0.304
• Congressional General Reductions Adjustments	-0.161	-	-	-	-
• Congressional Directed Reductions Adjustments	-15.000	-	-	-	-

Change Summary Explanation

Technical:
Not applicable.

Schedule (project 2329):
Schedule has been revised to update program milestones. MS-C moved from first quarter FY2014 to second quarter FY2017 as a result of the Precision Approach and Landing Capability (PALC) Roadmap restructure of JPALS into a single increment and the inclusion of manned and unmanned autoland capabilities. Engineering and Manufacturing Development (EMD) phase extended to third quarter FY2016. Additional System Development and test events were

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603860N *I JT Precision Approach & Ldg Sys*

added to support the revised program phasing and additional development for manned and unmanned autoland capabilities. LRIP contract award moved from third quarter FY2014 to third quarter FY2017. Added schedule elements to this project to depict the de-scope of JPALS to a single project for Increment 1.

Schedule (projects 3228, 3354):
Per above PALC changes, JPALS is now combined into a single project.

Cost (project 2329):
Per 2329 schedule discussion, all of JPALS will be consolidated into Project 2329. FY15 budget profile has been reduced to account for the re-structured JPALS program, brought on by the PALC Roadmap Study. Existing FY14 funding in projects 3228 and 3354 will carry over into FY15; FY 15 funding request (and $141.8M reduction from PB 14) reflects this assumed carryover. During FY 14 execution, funding will be realigned from projects 3228 and 3354 to project 2329.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603860N / *JT Precision Approach & Ldg Sys*	Project (Number/Name) 2329 / *JPALS*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2329: *JPALS*	607.068	77.287	41.992	54.896	-	54.896	92.522	76.862	24.925	2.637	Continuing	Continuing
Quantity of RDT&E Articles	8.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Joint Precision Approach and Landing System (JPALS) provides for development, integration, installation, and test of Sea-Based JPALS on CVN/LHA/LHD-class ships in accordance with the JPALS Capability Development Document (CDD). 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-35B/C, and Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS).

JPALS Engineering Development Model (EDM) test articles have been delivered to support system development and demonstration, and JPALS ship systems will be installed on CVN/LHA/LHD-class ships in support of the F-35B/C and UCLASS shipboard testing.

JPALS will continue to invest in Multi-Platform Avionics (MPA) hardware and software in direct support of autoland capabilities for the F-35B/C and UCLASS.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: JPALS Engineering and Manufacturing Development (EMD)	77.287	41.992	54.896
Articles:	-	-	-
Description: JPALS provides for development, integration, installation, and test of Sea-Based JPALS and for software and algorithm development for Multi-Platform Avionics.			
FY 2013 Accomplishments: Conducted shipboard integration testing and continued system development activities.			
FY 2014 Plans: Continue shipboard integration testing, award EMD extension contract, continue MPA related activities and support F-35 Developmental Testing. FY14 funding in Project 3228 ($75.424M) and Project 3354 ($38.762M) will also be used to finance these efforts.			
FY 2015 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Award Engineering and Manufacturing Development (EMD) Phase II Contract. Perform Preliminary Design Review (PDR) and Critical Design Review (CDR). Begin JSF Integration/Flight Test. Continue software and algorithm improvements to avionics systems.			
Accomplishments/Planned Programs Subtotals	77.287	41.992	54.896

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/2867: *Joint Precision Approach and Landing Systems*	-	-	-	-	-	-	-	60.316	70.965	Continuing	Continuing

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. JPALS reached MS-B on 14 July 2008 and the SDD phase development contract was awarded on 17 July 2008. Tasking consists of sea-based 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. JPALS is being 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 1 provides for development, integration, installation, and test of Sea-Based JPALS to meet Initial Operation Capability (IOC) of CVN/LHA/LHD-class ships in accordance with the JPALS Capability Development Document. Additionally, this requirement provides critical enabling technology for Joint Strike Fighter (JSF) F-35B/C and ship-based Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS).

As a result of the DoN Resource and Requirements Review Board (R3B) approved PALC Roadmap, the JPALS development program has been extended to include design improvements to provide manned and unmanned aircraft with autoland capabilities. As a result, the current Engineering and Manufacturing Development (EMD) contract has been extended to conduct detailed requirements and design trade studies to identify specific system design improvements. This will be followed by a second EMD contract to implement the required autoland system improvements and support F-35B/C and UCLASS shipboard testing prior to conducting a MS-C Low Rate Initial Production (LRIP) review and awarding an LRIP contract.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

E. Performance Metrics

MS B conducted 17 July 2008 and approval granted for program progression to EMD phase. System design improvements for manned and unmanned autoland capabilities will lead to a Preliminary Design Review (PDR) scheduled for second quarter FY2015 and Critical Design Review (CDR) scheduled for fourth quarter FY2015. Milestone C scheduled for second quarter FY2017.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Integration	WR	NAWCAD : Pax River, MD	23.341	1.141	Dec 2012	1.777	Dec 2013	0.334	Dec 2014	-		0.334	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPAF	Raytheon : Fullerton, CA	256.976	39.818	Jan 2013	19.100	Jan 2014	17.000	Jun 2015	-		17.000	Continuing	Continuing	Continuing
Award Fee	C/CPAF	Various : Various	10.068	2.000	Dec 2013	-		-		-		-	-	12.068	12.068
Prior Year Prod Dev costs no longer funded in FYDP	Various	Various : Various	130.650	-		-		-		-		-	-	130.650	-
		Subtotal	421.035	42.959		20.877		17.334		-		17.334	-	-	-

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.
Tech Incentive Demo payout in 2nd or 3rd quarter 2014.
JPALS EMD PT II contract award is projected for third quarter FY15.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering Support	WR	NAWCAD : Pax River, MD	91.747	19.021	Dec 2012	6.966	Dec 2013	16.484	Dec 2014	-		16.484	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NAWCAD : Pax River, MD	14.393	3.980	Dec 2012	2.299	Dec 2013	3.155	Dec 2014	-		3.155	Continuing	Continuing	Continuing
Prior Year Support Costs non longer funded in FYDP	Various	Various : Various	21.514	-		-		-		-		-	-	21.514	-
		Subtotal	127.654	23.001		9.265		19.639		-		19.639	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD : Pax River, MD	34.174	7.180	Dec 2012	1.852	Dec 2013	4.683	Dec 2014	-		4.683	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR : Norfolk, VA	2.099	0.510	Dec 2012	3.666	Dec 2013	3.000	Dec 2014	-		3.000	Continuing	Continuing	Continuing
		Subtotal	36.273	7.690		5.518		7.683		-		7.683	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Pax River, MD	10.209	2.301	Dec 2012	3.982	Dec 2013	6.461	Dec 2014	-		6.461	Continuing	Continuing	Continuing
PM Support-MSS	C/CPFF	Amelex : California, MD	9.189	1.126	Dec 2012	1.955	Dec 2013	2.987	Dec 2014	-		2.987	Continuing	Continuing	Continuing
Travel	WR	NAVAIR : Pax River, MD	2.708	0.210	Dec 2012	0.395	Dec 2013	0.792	Dec 2014	-		0.792	Continuing	Continuing	Continuing
		Subtotal	22.106	3.637		6.332		10.240		-		10.240	-	-	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	607.068	77.287		41.992		54.896		-		54.896	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

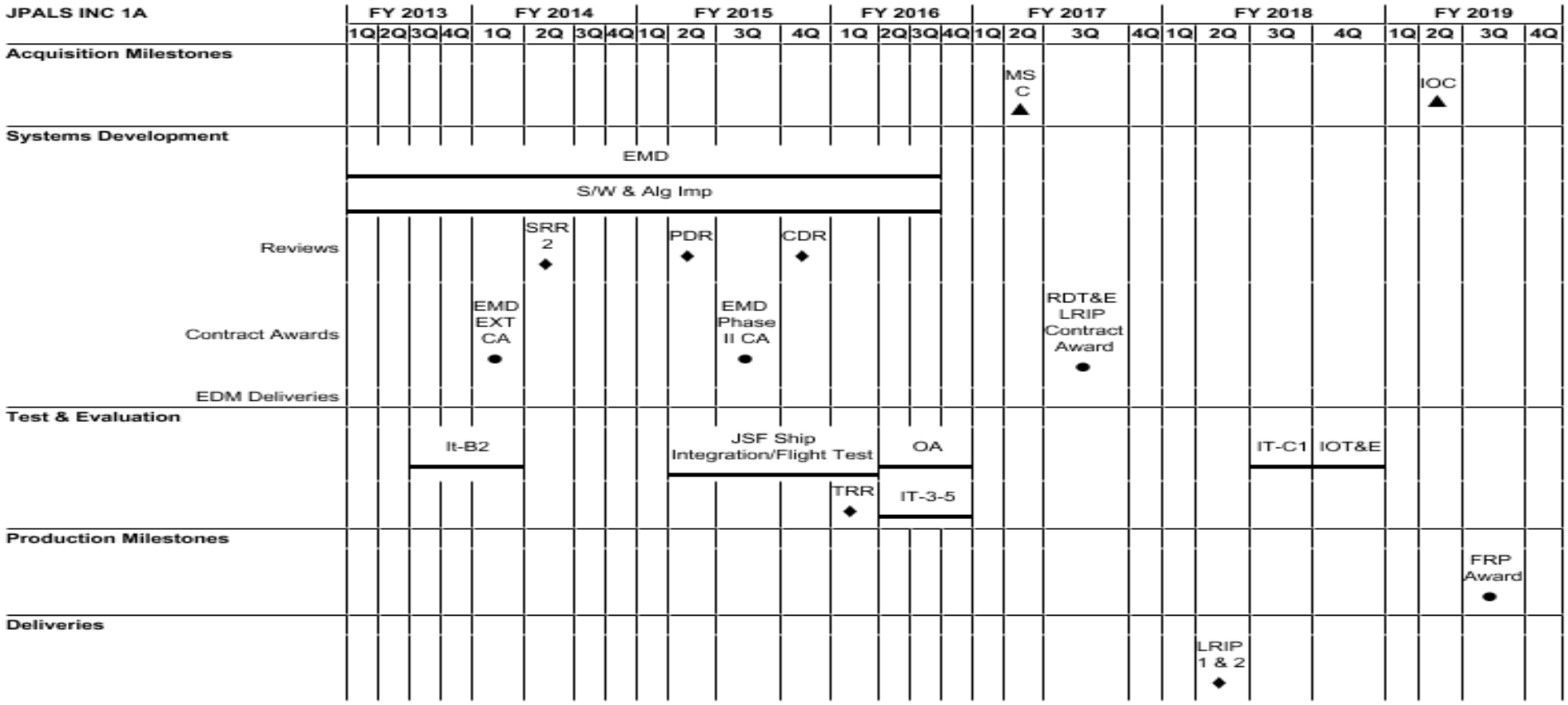

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Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
JPALS INC 1A				
Acquisition Milestones: MS C	2	2017	2	2017
Acquisition Milestones: IOC	2	2019	2	2019
Systems Development: Engineering and Manufacturing Development	1	2013	3	2016
Systems Development: Software and Algorithm Improvements	1	2013	3	2016
Systems Development: Reviews: Critical Design Review	4	2015	4	2015
Systems Development: Reviews: System Readiness Review 2	2	2014	2	2014
Systems Development: Reviews: Preliminary Design Review	2	2015	2	2015
Systems Development: Contract Awards: RDT&E LRIP Contract Award	3	2017	3	2017
Systems Development: Contract Awards: EMD Extension Contract Award	1	2014	1	2014
Systems Development: Contract Awards: EMD Phase II Contract Award	3	2015	3	2015
Test & Evaluation: JSF Ship Integration / Flight Test F35/JSF	2	2015	1	2016
Test & Evaluation: Operational Assessment (OA)	2	2016	4	2016
Test & Evaluation: IT-B2	3	2013	1	2014
Test & Evaluation: IT-C1	3	2018	3	2018
Test & Evaluation: Initial Operational Test and Evaluation (IOT&E)	4	2018	4	2018
Test & Evaluation: Test Readiness Review	1	2016	1	2016
Test & Evaluation: IT-3-5	2	2016	4	2016
Production Milestones: Full Rate Production (FRP) Contract Award	3	2019	3	2019
Deliveries: LRIP 1 & 2	2	2018	2	2018

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603860N / *JT Precision Approach & Ldg Sys*	Project (Number/Name) 3228 / *JPALS 1B*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3228: *JPALS 1B*	55.655	43.204	75.424	-	-	-	-	-	-	-	-	174.283
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

JPALS has been combined into a single increment. This project (3228) will be disestablished beginning FY2015.

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. Beginning in FY 2014, all funding will be used to finance efforts under project 2329.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Follow-on Platform Integration	43.204	75.424	-
Articles:	-	-	-
Description: This effort includes development, integration, testing, and risk reduction activities for F-35 and unmanned air systems. ***FY 2013 Accomplishments:*** Continued 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:*** Funding used to finance efforts discussed in Project 2329 ***FY 2015 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	43.204	75.424	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 3228 / *JPALS 1B*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

JPALS has been combined into a single increment and this project will be canceled beginning FY15 with FY14 funds used to partially finance FY14 JPALS efforts under project 2329.

E. Performance Metrics

JPALS has been combined into a single increment. This project (3228) will be disestablished beginning FY15.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603860N / *JT Precision Approach & Ldg Sys*	Project (Number/Name) 3228 / *JPALS 1B*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Integration-Non Specific	Various	Various : Various	1.731	0.201	Mar 2013	-		-		-		-	-	1.932	-
Aircraft Integration-multi-Platform Avionics	Various	Various : Various	11.611	23.646	Jun 2013	54.762	Dec 2013	-		-		-	-	90.019	-
FY-10 thru FY12 Prior Cost Category	Various	Various : Various	18.532	3.980	Mar 2013	-		-		-		-	-	22.512	-
		Subtotal	31.874	27.827		54.762		-		-		-	-	114.463	-

Remarks

All JPALS funds in this project (3228) will be realigned to project (2329) for execution during FY14.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NAWCAD : Pax River, MD	0.971	0.158	Dec 2012	0.169	Dec 2013	-		-		-	-	1.298	-
Engineering Support	WR	NAWCAD : Pax River, MD	13.531	9.549	Dec 2012	13.966	Dec 2013	-		-		-	-	37.046	-
		Subtotal	14.502	9.707		14.135		-		-		-	-	38.344	-

Remarks

All JPALS funds in this project (3228) will be realigned to project (2329) for execution during FY14.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD : Pax River, MD	0.671	0.271	Dec 2012	1.325	Dec 2013	-		-		-	-	2.267	-
		Subtotal	0.671	0.271		1.325		-		-		-	-	2.267	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603860N / *JT Precision Approach & Ldg Sys*	Project (Number/Name) 3228 / *JPALS 1B*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

All JPALS funds in this project (3228) will be realigned to project (2329) for execution during FY14.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCAD : Pax River, MD	2.622	2.454	Dec 2012	1.769	Dec 2013	-		-		-	-	6.845	-
PM Support	WR	NAWCAD : Pax River, MD	4.806	2.483	Dec 2012	2.844	Dec 2013	-		-		-	-	10.133	-
PM Support-MSS	C/CPFF	Amelex : California, MD	1.180	0.462	Jan 2013	0.589	Dec 2013	-		-		-	-	2.231	2.231
		Subtotal	8.608	5.399		5.202		-		-		-	-	19.209	-

Remarks

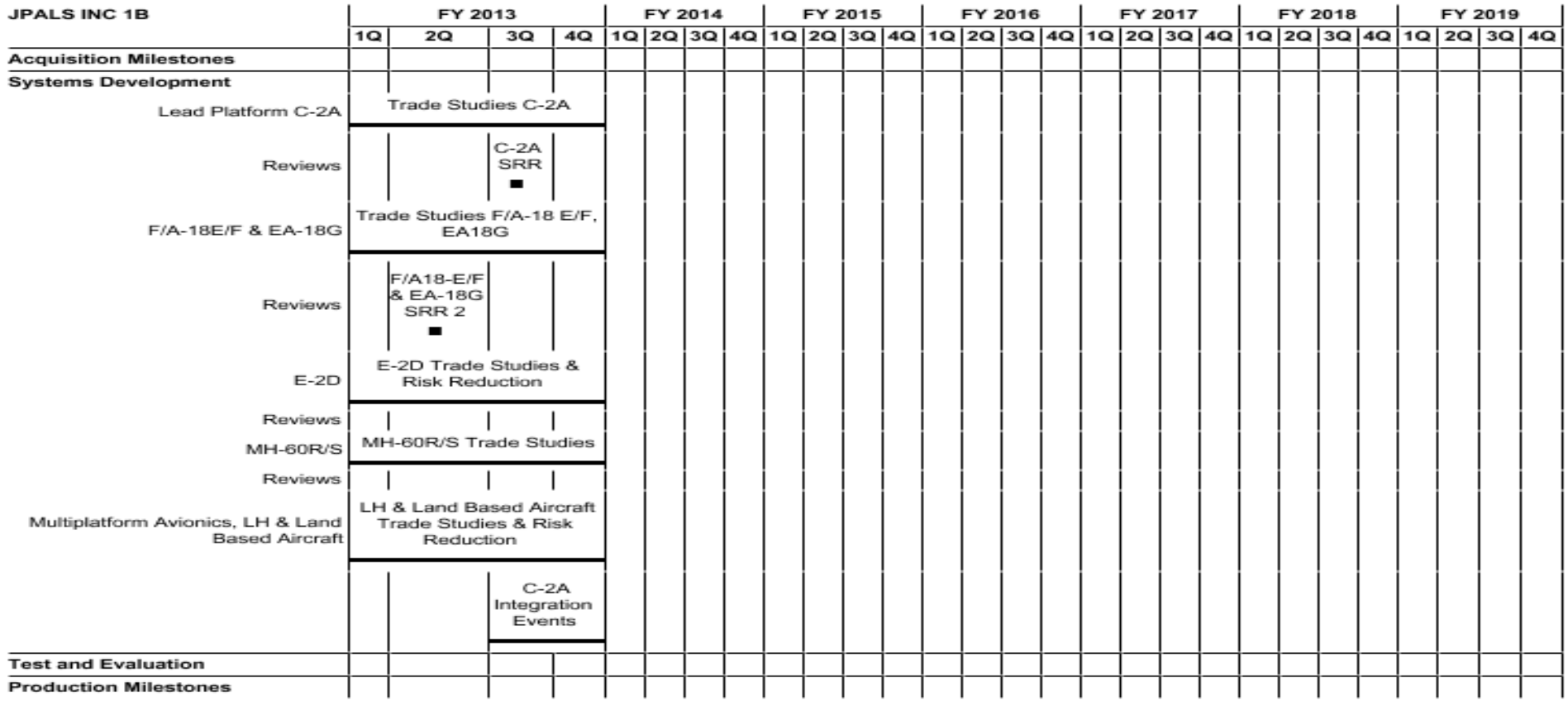
All JPALS funds in this project (3228) will be realigned to project (2329) for execution during FY14.

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	55.655	43.204		75.424		-		-		-	-	174.283	-

Remarks

**FY2014 cost categories reflect FY 2015 forward financing of project 2329 requirements for product development contracts and government labor.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 3228 / *JPALS 1B*



2015PB - 0603860N - 3228 The R4 shedule ends with FY13 and efforts in FY14 and out that were associated with project 3228, have been migrated to display in the JPALS 2329 project.

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 3228 / *JPALS 1B*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
JPALS INC 1B				
Systems Development: Lead Platform C-2A: C-2A Trade Studies and Risk Reduction	1	2013	4	2013
Systems Development: Reviews: C-2A SRR 1	3	2013	3	2013
Systems Development: F/A-18E/F & EA-18G: Trade Studies F/A-18E/F, EA-18G	1	2013	4	2013
Systems Development: Reviews: F/A18-E/F & EA-18G SRR 2	2	2013	2	2013
Systems Development: E-2D: E-2D Trade Studies & Risk Reduction	1	2013	4	2013
Systems Development: MH-60R/S: MH-60R/S Trade Studies	1	2013	4	2013
Systems Development: Multiplatform Avionics, LH & Land Based Aircraft: Multilplatform Avionics (MPA), LH & Land Based Aircraft Trade Studies & Risk Reduction	1	2013	4	2013
Systems Development: Multiplatform Avionics, LH & Land Based Aircraft: C-2A Integration Events MPA	3	2013	4	2013

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603860N / *JT Precision Approach & Ldg Sys*	Project (Number/Name) 3354 / *JPALS Inc 2*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3354: *JPALS Inc 2*	-	-	38.762	-	-	-	-	-	-	-	-	38.762
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Program is cancelled due to Department's Precision Approach Landing Capability (PALC) changes.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: JPALS Increment 2	-	38.762	-
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: Funding used to finance efforts discussed in Project 2329.			
FY 2015 Plans: N/A			
Accomplishments/Planned Programs Subtotals	-	38.762	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A- Program is cancelled due to Department's PALC changes.

E. Performance Metrics

N/A- Program is cancelled due to Department's PALC changes.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603860N / *JT Precision Approach & Ldg Sys*	Project (Number/Name) 3354 / *JPALS Inc 2*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary H/W Development	SS/CPIF	TBD : TBD	0.000	-		9.860	Oct 2013	-		-		-	-	9.860	32.701
Primary H/W Devlopment S/W	SS/CPIF	TBD : TBD	0.000	-		13.997	Oct 2013	-		-		-	-	13.997	55.149
Systems Engineering	WR	NAWCAD : Pax River, MD	0.000	-		4.652	Dec 2013	-		-		-	-	4.652	-
Training Development	WR	NAWCAD : Pax River, MD	0.000	-		0.300	Dec 2013	-		-		-	-	0.300	-
LRIP Contact	SS/CPIF	TBD : TBD	0.000	-		-		-		-		-	-	-	9.633
		Subtotal	0.000	-		28.809		-		-		-	-	28.809	-

Remarks

All JPALS funds in this project (3354) will be realigned to project (2329) for execution during FY14.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NAWCAD : Pax River, MD	0.000	-		1.315	Dec 2013	-		-		-	-	1.315	-
Government Engineering Support	WR	NAWCAD : Pax River, MD	0.000	-		1.174	Dec 2013	-		-		-	-	1.174	-
Tech Data	WR	NAWCAD : Pax River, MD	0.000	-		0.850	Dec 2013	-		-		-	-	0.850	-
Studies and Analyses	Various	Various : Various	0.000	-		0.974	Dec 2013	-		-		-	-	0.974	-
		Subtotal	0.000	-		4.313		-		-		-	-	4.313	-

Remarks

All JPALS funds in this project (3354) will be realigned to project (2329) for execution during FY14.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603860N / *JT Precision Approach & Ldg Sys*	Project (Number/Name) 3354 / *JPALS Inc 2*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development T&E	WR	NAWCAD : Pax River, MD	0.000	-		-		-		-		-	-	-	-
Operational T&E	WR	COMOPTEVFOR : Norfolk, VA	0.000	-		-		-		-		-	-	-	-
Test Assests	WR	NAWCAD : PAX River, MD	0.000	-		-		-		-		-	-	-	-
LRIP Certification	WR	NAWCAD : Pax River, MD	0.000	-		-		-		-		-	-	-	-
		Subtotal	0.000	-		-		-		-		-	-	-	-

Remarks

FY14 Test and Evaluation category funds removed by congressional reduction of $7.437 - JPALS Increment 2 Test and Evaluation ahead of need.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCAD : Pax River, MD	0.000	-		4.290	Dec 2013	-		-		-	-	4.290	-
PM Support MSS	C/CPFF	CTSI : Lexington Park, MD	0.000	-		1.350	Dec 2013	-		-		-	-	1.350	1.350
		Subtotal	0.000	-		5.640		-		-		-	-	5.640	-

Remarks

All JPALS funds in this project (3354) will be realigned to project (2329) for execution during FY14.

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		38.762		-		-		-	-	38.762	-

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603889N *I Counterdrug RDT&E Projects*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.500	-	-	-	-	-	-	-	-	-	0.500
2219: *Counterdrug RDTE Support*	0.000	0.500	-	-	-	-	-	-	-	-	-	0.500

The FY 2015 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 analytical procedures and 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	0.500	-	-	-	-
Total Adjustments	0.500	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.500	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603889N / *Counterdrug RDT&E Projects*	Project (Number/Name) 2219 / *Counterdrug RDTE Support*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2219: *Counterdrug RDTE Support*	-	0.500	-	-	-	-	-	-	-	-	-	0.500
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 analytical procedures and 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 2013	FY 2014	FY 2015
Title: Counterdrug Support	0.500	-	-
Articles:	-	-	-
FY 2013 Accomplishments: - Develop an interface between the DoD Forensic Toxicology Drug Testing Laboratory Information Management System (FTDTL IMS), the DoD laboratory information management system, and Gas Chromatography Mass Spectroscopy and Liquid Chromatography (GCMS/LCMSMS) analytical instruments. - Improve efficiency and forensic integrity of sample accessioning processes through automation. - Develop GCMS analytical procedures that utilize hydrogen vice helium as the carrier gas.			
FY 2014 Plans: N/A			
FY 2015 Plans: N/A			
Accomplishments/Planned Programs Subtotals	0.500	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

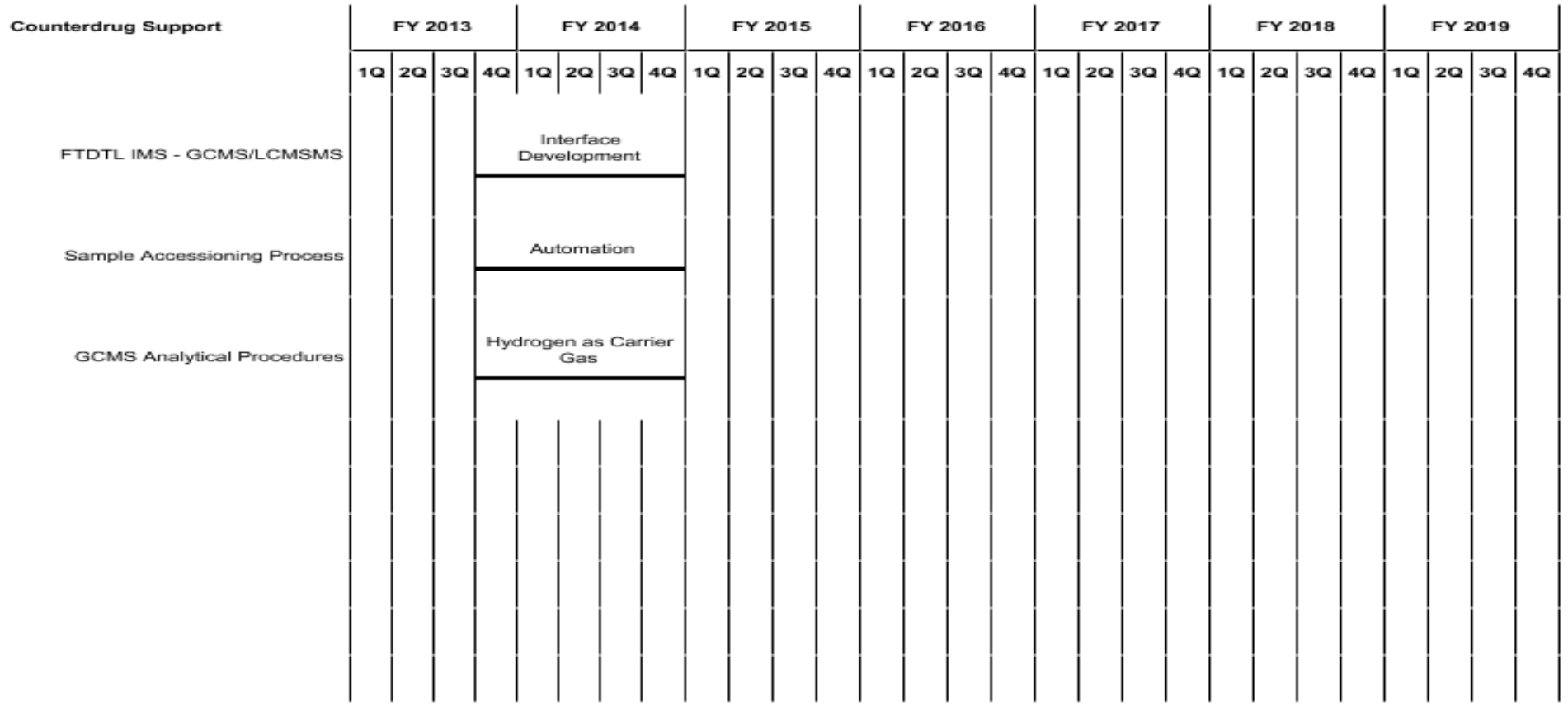
Competitive procurement through RDT&E contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603889N / *Counterdrug RDT&E Projects*	**Project (Number/Name)** 2219 / *Counterdrug RDTE Support*

E. Performance Metrics

The Counter-Narco Terror Program Office (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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603889N / *Counterdrug RDT&E Projects*	**Project (Number/Name)** 2219 / *Counterdrug RDTE Support*



2015OSD - 0603889N - 2219

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603925N *I Directed Energy and Electric Weapon System*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	0.000	-	-	58.696	-	58.696	34.964	16.593	16.897	9.895	Continuing	Continuing
3370: *Railgun*	0.000	-	-	50.005	-	50.005	25.468	7.297	7.401	0.497	Continuing	Continuing
9823: *Lasers for Navy applicat*	0.000	-	-	8.691	-	8.691	9.496	9.296	9.496	9.398	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This program element will transition Directed Energy and Electric Weapon Systems (DE&EWS) technology from Science and Technology (S&T) research through Technology Development into System Development and Demonstration, leading to acquisition initiation for the Surface/Subsurface Navy.

DE&EWS consist of multiple breakthrough technologies, including: laser weapons that provide for speed-of-light engagements at tactically significant ranges (with savings realized by minimizing the use of defensive missiles and projectiles); electromagnetic launch of projectiles that will significantly increase firing ranges, impose greater cost to adversaries of ballistic and air defense missile engagements, and enhance the land attack mission; and fielding of high power radio frequency systems for non-kinetic electronic attack and active denial technology, allowing for non-lethal determination of threat intent beyond small arms fire ranges.

PMS 405 will manage development of DE&EWS that incorporate: Weapons Grade High Energy Lasers, Free Electron Lasers (Megawatt class), Electromagnetic Railgun (EMRG) Weapon Systems, High Power Radio Frequency Weapon/Sensor Systems, and other systems/capabilities.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	58.696	-	58.696
Total Adjustments	-	-	58.696	-	58.696
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	59.364	-	59.364
• Rate/Misc Adjustments	-	-	-0.668	-	-0.668

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603925N *I Directed Energy and Electric Weapon System*

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603925N / *Directed Energy and Electric Weapon System*	Project (Number/Name) 3370 / *Railgun*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3370: *Railgun*	-	-	-	50.005	-	50.005	25.468	7.297	7.401	0.497	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Electromagnetic Railgun (Railgun): Provide ship-based program/technical commonality with the Office of the Secretary of Defense Strategic Capabilities Office (OSD SCO) Land Based Rail Gun (LBRG), PE 0604250D8Z, Project P250 Advanced Innovative Technologies. PE 0603925N will use the LBRG as funding leverage to produce a common Railgun and mount that will be capable for use onboard Navy warships.

Railgun provides increased capability for the following mission sets: Naval Surface Fire Support (NSFS), Integrated Air and Missile Defense (IAMD), Fast Attack Craft and Fast Inshore Attack Craft (FAC/FIAC), and future potential for Anti-Surface Warfare (ASuW). Railgun will launch the Hypervelocity Projectile (HVP), currently in development as a Future Naval Capability (FNC).

Railgun uses electromagnetic energy, vice traditional propellant (powder), to launch projectiles, providing the following advantages: increased range (i.e. 110nm vice 13nm for NSFS); increased ammunition storage capacity; improved ship safety due to decreased explosives safety hazards; decreased costs when compared to current land attack missiles.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Electromagnetic Railgun	-	-	50.005
Articles:	-	-	-

FY 2013 Accomplishments:
N/A

FY 2014 Plans:
Program is a new start for FY15.

FY 2015 Plans:
Engineer/manage commonality with the OSD Experimental Campaign for mount, power, projectile, weapon and combat interface/control; Conduct sensor/shooter engineering trade studies, define interface and control requirements; Design/develop ship-based hardware/software for shipboard gun mount; Design/develop ship-based prime power components/subsystems; Design/develop ship-based pulsed power components/subsystems; Design/develop/certify ship-based battery and charging components/

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 3370 / *Railgun*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
subsystems; Define/design projectile critical components, develop/conduct flight simulations, conduct lethality analyses; Conduct airframe simulations and analyses; Define/develop projectile electronics components/subsystems.			
Accomplishments/Planned Programs Subtotals	-	-	50.005

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Government Field Activities: Technology development and demonstration/test of capabilities for designated Directed Energy and Electric Weapon System Components, subsystems, and system(s). Program Office approved design, development, and demonstration/test efforts.

Non-Government Activities: Technology development and demonstration/test of capabilities for designated Directed Energy and Electric Weapon Systems components, subsystems, and system(s). Program Office approved design, development, and demonstration/test efforts.

E. Performance Metrics

Quarterly Reviews, Monthly Reports, Periodic Design Reviews.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603925N / *Directed Energy and Electric Weapon System*	Project (Number/Name) 9823 / *Lasers for Navy applicat*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
9823: *Lasers for Navy applicat*	-	-	-	8.691	-	8.691	9.496	9.296	9.496	9.398	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Lasers for Navy Applications, Solid State Laser (SSL) Development: A condition of military urgent need for a laser based weapon solution is documented by United States Central Command (USCENTCOM) and Chief of Naval Operations (CNO). The SSL provides a capability to support these gaps with the ability to deter, damage and/or destroy asymmetric threats including rockets, missiles, fast attack craft, and Unmanned Aerial Systems (UASs). A SSL Weapon System, at varying power levels, can deter or blind Intelligence, Surveillance, Reconnaissance (ISR) systems at low powers, as well as, destroy the platforms (UAS, small boat) that carry them. SSL leverages the Office of Naval Research (ONR) efforts on the SSL Quick Reaction Capability (QRC) and SSL Technology Maturation (TM) efforts. SSL will transition this capability from Science and Technology (S&T) development to a Program of Record (PoR).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: New Accomplishment/Planned Program Entry	-	-	8.691
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: Lasers for Navy Applications, Solid State Laser (SSL) Development: Manage/engineer product development of the Low Power Module (LPM) Counter -Electro Optic Infra Red (EO/IR) hardware/software/firmware module and associated test and control equipment to interface with the SSL TM System and other Counter-ISR Systems. At the unclassified level, this module will provide the capability to dazzle ISR sensors at tactically significant ranges.			
Accomplishments/Planned Programs Subtotals	-	-	8.691

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603925N / *Directed Energy and Electric Weapon System*	**Project (Number/Name)** 9823 / *Lasers for Navy applicat*

D. Acquisition Strategy

Annual Task Planning Sheets for Government Field Activities delineating the requisite technology development and test/demonstration capabilities for designated DE&EWS component(s), module(s), subsystem(s), and/or system(s) using Program Office approved design, documentation, and development/test efforts.

Statements of Work for Non-Government Field Activities delineating the requisite technology development and test/demonstration capabilities for designated DE&EWS component(s), module(s), subsystem(s), and/or system(s) using Program Office approved design, documentation, and development/test efforts.

E. Performance Metrics

Quarterly Reviews, Monthly Progress/Status Reports, Scheduled Design/Program Reviews.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604112N *I Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	-	-	43.613	-	43.613	38.373	35.662	34.156	25.650	Continuing	Continuing
2208: *CVN 21*	0.000	-	-	35.392	-	35.392	35.881	35.662	34.156	25.650	Continuing	Continuing
4004: *EMALS*	0.000	-	-	8.221	-	8.221	2.492	-	-	-	-	10.713
MDAP/MAIS Code: **Other MDAP/MAIS Code(s):** 223												

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This Navy program addresses unique technologies on Ford class carriers. 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.

- (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.

This Program Element (PE) and associated projects is a continuation of efforts previously funded under PE 0603512N projects 2208 and 4004 and is not a new start.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0604112N *I Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	43.613	-	43.613
Total Adjustments	-	-	43.613	-	43.613
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	43.701	-	43.701
• Rate/Misc Adjustments	-	-	-0.088	-	-0.088

Change Summary Explanation

Funding: In FY 14 and prior years, projects 2208 and 4004 were funded in PE 0603512N.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	Project (Number/Name) 2208 / *CVN 21*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2208: *CVN 21*	-	-	-	35.392	-	35.392	35.881	35.662	34.156	25.650	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: 223

The FY 2015 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 2013	FY 2014	FY 2015
Title: CVN 78 Class Advanced Technology Design & Development	-	-	18.166
Articles:	-	-	-

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 2013 Accomplishments:
N/A

FY 2014 Plans:
N/A

FY 2015 Plans:
Continue design, development and transition of key technologies to support CVN 21 (CVN 78 Class) KPPs which include

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	**Project (Number/Name)** 2208 / *CVN 21*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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 EMALS into the ship. Continue existing studies and commence new studies required for integrated warfare system and C4I design, integration, test and validation efforts. Continue review P3I technical data packages. Continue CVN 78 class engineering and technical support of aircraft launch and recovery systems. Continue shipbuilder system and cost engineering support to assess ship impacts from selected ECRs and changes to the GFE/CFE equipment split. Assess ship impacts and implement changes to the Class design.			
Title: CVN 21 - Test & Evaluation (T&E)	-	-	17.226
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: Increase the frequency of the PDT&T workshops from semi-annually to tri-annually and continue updating / maintaining the notional PDT&T schedule. Continue the DTWG efforts, focusing on the collection / analysis of the DT metrics. Continue the CITT efforts to coordinate Integrated Testing (IT) to achieve synergies among DT&E, OT&E, and LFT&E as applicable to optimize CVN 78 test-related costs, schedules, and requirements validation; and to maximize the practical use of test results by all participating test communities. Complete DT/IT-3 and commence DT/IT-4, which includes: (1) completing SGRA 14; DBR land-based testing using the production Multi-Function Radar; and DBR to TPX-42 land-based integration testing; (2) conducting CST Phase 2; TPX-42 shipboard testing; OT-B4; Advanced Weapons Elevator (AWE) Hazards of Electromagnetic Radiation to Ordnance (HERO) / Hazard of Electromagnetic Radiation to Personnel (HERP) / Electromagnetic Interference (EMI); and the Combat Systems Trial Rehearsal Review (CSTRR); and (3) continuing spiral development of the VCVN Model.			
Accomplishments/Planned Programs Subtotals	-	-	35.392

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN / 0604567N: *Project Units 3179, 4007*	12.197	15.572	18.867	-	18.867	19.830	21.440	18.682	19.108	Continuing	Continuing
• RDTEN / 0603512N: *Project Units 2208, 4004*	87.573	74.638	-	-	-	-	-	-	-	-	1,709.785

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	**Project (Number/Name)** 2208 / *CVN 21*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• SCN / 2001: *Carrier Replacement Program*	490.960	917.553	1,300.000	-	1,300.000	2,876.183	2,290.837	2,849.342	1,864.514	Continuing	Continuing
• SCN / 5300: *Completion of Prior Year Shipbuilding Programs*	-	588.100	663.000	-	663.000	124.000	-	-	-	-	1,375.100
• RDTEN / 0603570N: *Propulsion Plant Development (PU 2692)*	58.193	57.499	60.459	-	60.459	-	-	-	-	-	1,526.813
• OMN / 1B2B: *CVN 78 Ford Class Training (12BJ0)*	-	-	4.907	-	4.907	12.872	2.396	-	-	-	20.175

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 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	Project (Number/Name) 2208 / *CVN 21*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Design & Development	C/CPAF	HII : VA	0.000	-		-		5.208	Nov 2014	-		5.208	Continuing	Continuing	Continuing
Advanced Design & Development	WR	NSWC CARDEROCK : MD	0.000	-		-		5.000	Oct 2014	-		5.000	Continuing	Continuing	Continuing
Advanced Design & Development	C/CPFF	SAIC: : NM	0.000	-		-		0.101	Dec 2014	-		0.101	Continuing	Continuing	Continuing
Advanced Design & Development	WR	NAWCAD PATUXENT RIVER : MD	0.000	-		-		1.720	Oct 2014	-		1.720	Continuing	Continuing	Continuing
Advanced Design & Development	WR	NSWC DAHLGREN : VA	0.000	-		-		1.622	Oct 2014	-		1.622	Continuing	Continuing	Continuing
Advanced Design & Development	C/CPAF	RAYTHEON : VA	0.000	-		-		2.400	Dec 2014	-		2.400	Continuing	Continuing	Continuing
Advanced Design & Development	C/CPFF	NAVSEA SEAPORT : DC	0.000	-		-		1.786	Dec 2014	-		1.786	Continuing	Continuing	Continuing
Advanced Design & Development	Various	MISCELLANEOUS : VARIOUS	0.000	-		-		0.329	Nov 2014	-		0.329	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		18.166		-		18.166	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	C/CPAF	HII : VA	0.000	-		-		0.790	Nov 2014	-		0.790	Continuing	Continuing	Continuing
Development Test & Evaluation	WR	NAWC AD PATUXENT RIVER : MD	0.000	-		-		3.530	Oct 2014	-		3.530	Continuing	Continuing	Continuing
Development Test & Evaluation	WR	NSWC DAHLGREN : VA	0.000	-		-		1.506	Oct 2014	-		1.506	Continuing	Continuing	Continuing
Development Test & Evaluation	WR	NSWC CARDEROCK : MD	0.000	-		-		4.000	Oct 2014	-		4.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	Project (Number/Name) 2208 / *CVN 21*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	SPAWAR : CA	0.000	-		-		1.500	Nov 2014	-		1.500	Continuing	Continuing	Continuing
Development Test & Evaluation	C/CPAF	RAYTHEON : VA	0.000	-		-		0.374	Dec 2014	-		0.374	Continuing	Continuing	Continuing
Development Test & Evaluation	WR	SSC ATLANTIC : SC	0.000	-		-		0.219	Nov 2014	-		0.219	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR : VA	0.000	-		-		3.997	Dec 2014	-		3.997	Continuing	Continuing	Continuing
Development Test & Evaluation	Various	MISCELLANEOUS : VARIOUS	0.000	-		-		1.310	Nov 2014	-		1.310	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		17.226		-		17.226	-	-	-

	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		35.392		-		35.392	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	**Project (Number/Name)** 2208 / *CVN 21*

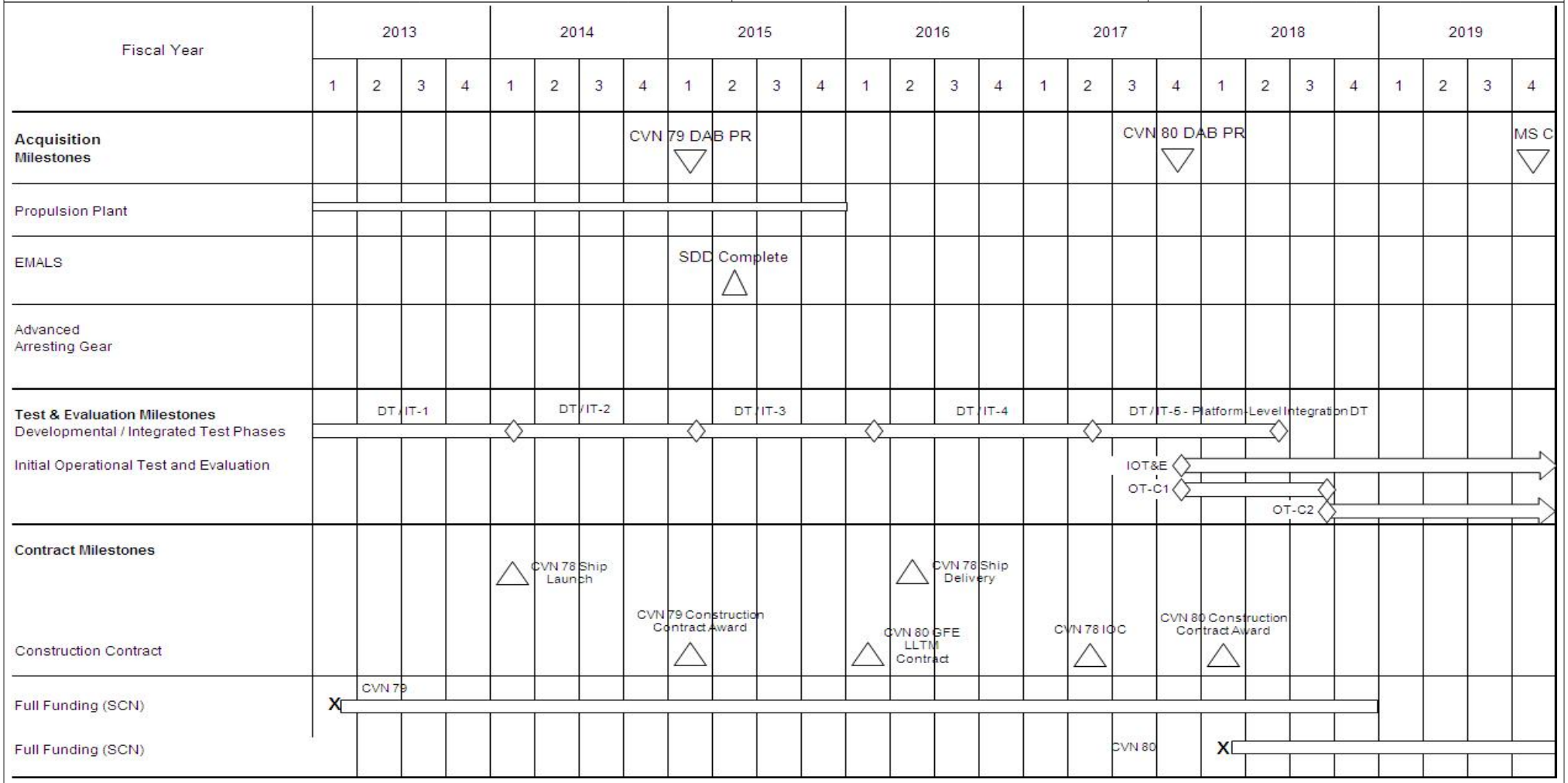


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	**Project (Number/Name)** 2208 / *CVN 21*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2208				
CVN 79 DAB PR	1	2015	1	2015
CVN 80 DAB PR	4	2017	4	2017
Milestone C	4	2019	4	2019
Propulsion Plant	1	2013	4	2015
DT/IT -1 - Development Test / Integrated Test Phase 1	1	2013	1	2014
DT/IT -2	1	2014	1	2015
DT/IT -3	1	2015	1	2016
DT/IT -4	1	2016	2	2017
DT/IT -5 Platform-Level Integration DT Period	2	2017	2	2018
IOT&E - Initial Operational Test & Evaluation	4	2017	4	2019
OT -C1 - Initial Operational Test & Evaluation - Phase C1	4	2017	3	2018
OT -C2	3	2018	4	2019
CVN 78 Ship Launch	1	2014	1	2014
CVN 78 Ship Delivery	2	2016	2	2016
CVN 78 Initial Operational Capability (IOC)	2	2017	2	2017
CVN 79 Construction Contract Award	1	2015	1	2015
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	2019

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	Project (Number/Name) 4004 / *EMALS*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
4004: *EMALS*	-	-	-	8.221	-	8.221	2.492	-	-	-	-	10.713
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: 223

The FY 2015 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 2013	FY 2014	FY 2015
Title: EMALS	-	-	8.221
Articles:	-	-	-

Description: EMALS

FY 2013 Accomplishments:
N/A

FY 2014 Plans:
N/A

FY 2015 Plans:
(1) EMALS SDD - Complete High Cycle Test (HCT) IIIB Extended, Motor / Generator Shock and Trough Fire Testing. Complete planned component environmental qualification (shock, vibration and thermal) testing at various labs throughout the country, HCT Phase III of the EMALS power equipment at the General Atomics Tupelo, MS facility, and Critical Safety Item Accelerated Life laboratory testing.

(2) EMALS Basic Ordering Agreement (BOA) ILS Order - Continue the execution of the EMALS ILS Development Program. Conduct annual logistics reviews, training IPR and O & I level TM IPRs. Based on the development and availability of engineering source data for each of the six EMALS subsystems and allocated resources, 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 and the Navy Formal Training Course.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	**Project (Number/Name)** 4004 / *EMALS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Conduct Pre-Commissioning Unit Training. Complete the M-Demo at the SFD facility. Complete the Shipboard FRD and the Training FRD.			
Accomplishments/Planned Programs Subtotals	-	-	8.221

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEN / 0604567N: *Project Units 3179, 4007*	12.197	15.572	18.867	-	18.867	19.830	21.440	18.682	19.108	Continuing	Continuing
• RDTEN / 0603570N: *Propulsion Plant Development (PU 2692)*	58.193	57.499	60.459	-	60.459	-	-	-	-	-	1,526.813
• SCN / 2001: *Carrier Replacement Program*	490.960	917.553	1,300.000	-	1,300.000	2,876.183	2,290.837	2,849.342	1,864.514	Continuing	Continuing
• SCN / 5300: *Completion of Prior Year Shipbuilding Programs*	-	588.100	663.000	-	663.000	124.000	-	-	-	-	1,375.100
• OMN / 1B2B: *CVN 78 Ford Class Training (12BJ0)*	-	-	4.907	-	4.907	12.872	2.396	-	-	-	20.175
• RDTEN / 0603512N: *Project Units 2208, 4004*	87.573	74.638	-	-	-	-	-	-	-	-	1,709.785

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 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	**Project (Number/Name)** 4004 / *EMALS*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Launch, Recovery & Support	C/CPAF	General Atomics (SDD) : CA	0.000	-		-		4.292	Nov 2014	-		4.292	-	4.292	-
Aircraft Launch, Recovery & Support	C/CPFF	General Atomics (BOA) : CA	0.000	-		-		3.529	Nov 2014	-		3.529	2.492	6.021	-
		Subtotal	0.000	-		-		7.821		-		7.821	2.492	10.313	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Launch, Recovery & Support	WR	NAWC Lakehurst : NJ	0.000	-		-		0.400	Dec 2014	-		0.400	-	0.400	-
		Subtotal	0.000	-		-		0.400		-		0.400	-	0.400	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		8.221		-		8.221	2.492	10.713	-

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Navy		**Date:** March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	**Project (Number/Name)** 4004 / *EMALS*

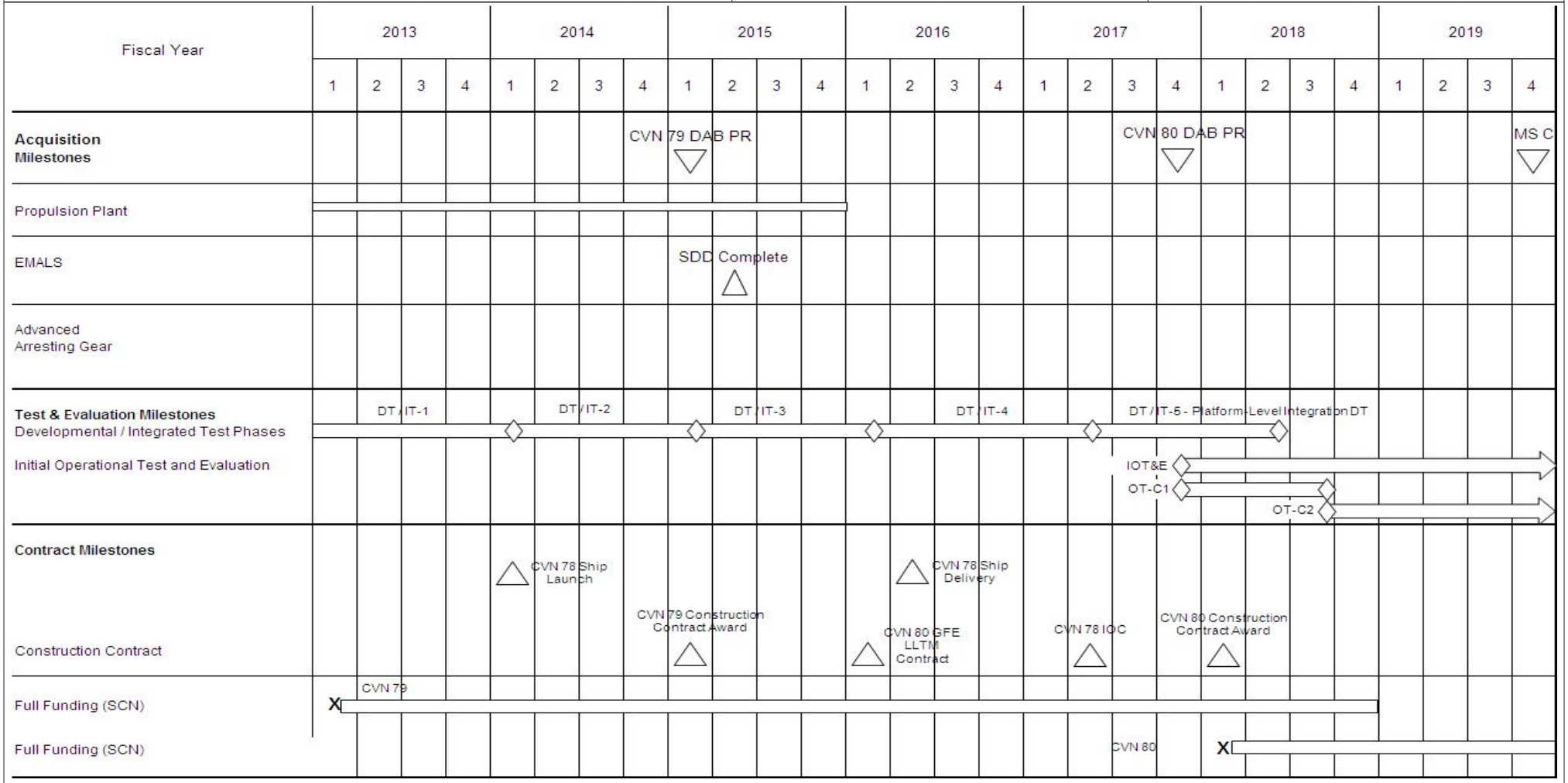


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604112N / *Gerald R Ford Class Nuc Aircraft Carrier CVN 78-80*	**Project (Number/Name)** 4004 / *EMALS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4004				
CVN 79 DAB PR	1	2015	1	2015
CVN 80 DAB PR	4	2017	4	2017
Milestone C	4	2019	4	2019
Propulsion Plant	1	2013	4	2015
DT/IT -1 - Development Test / Integrated Test Phase 1	1	2013	1	2014
DT/IT -2	1	2014	1	2015
DT/IT -3	1	2015	1	2016
DT/IT -4	1	2016	2	2017
DT/IT -5 - Platform-Level Integration DT Period	2	2017	2	2018
IOT&E - Initial Operational Test & Evaluation	4	2017	4	2019
OT -C1 - Initial Operational Test & Evaluation - Phase C1	4	2017	3	2018
OT -C2	3	2018	4	2019
CVN 78 Ship Launch	1	2014	1	2014
CVN 78 Ship Delivery	2	2016	2	2016
CVN 78 Initial Operational Capability (IOC)	2	2017	2	2017
CVN 79 Construction Contract Award	1	2015	1	2015
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	2019

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604122N *I Remote Minehunting System (RMS)*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	-	-	21.110	-	21.110	15.923	15.964	8.360	8.571	Continuing	Continuing
0260: *Remote Minehunting Systems*	0.000	-	-	21.110	-	21.110	15.923	15.964	8.360	8.571	Continuing	Continuing

MDAP/MAIS Code:
Other MDAP/MAIS Code(s): 286

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The AN/WLD-1(V)2 Remote Minehunting System (RMS) is a mine reconnaissance system designed for the detection, classification, identification, and localization of bottom and moored mines in shallow and deep water. The RMS will provide the Navy the capability to keep ships and sailors out of the minefield. The RMS is deployed from the Littoral Combat Ship (LCS) as part of the ships' Mine Countermeasure (MCM) Mission Package (MP). The RMS is a fully integrated system consisting of a semi-submersible Remote Multi-Mission Vehicle (RMMV) towing a variable depth sensor, the AN/AQS-20A. The RMMV is a high-endurance, semi-autonomous, low-observable, unmanned, diesel-powered vehicle, operated
and maintained from the LCS. Line-of-sight (LOS) and over-the-horizon (OTH) data links provide real time vehicle command and control and mine reconnaissance sensor data transmission to/from LCS.

Not a new start. ACAT 1D Transparency requirement realigned program funding from Project Element 0603502N beginning in FY15.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	21.110	-	21.110
Total Adjustments	-	-	21.110	-	21.110
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	-	-	21.110	-	21.110

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604122N *I Remote Minehunting System (RMS)*

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604122N / *Remote Minehunting System (RMS)*	Project (Number/Name) 0260 / *Remote Minehunting Systems*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0260: *Remote Minehunting Systems*	-	-	-	21.110	-	21.110	15.923	15.964	8.360	8.571	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

MDAP/MAIS Code: 286

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The AN/WLD-1(V)2 Remote Minehunting System (RMS) is a mine reconnaissance system designed for the detection, classification, identification, and localization of bottom and moored mines in shallow and deep water. The RMS will provide the Navy the capability to keep ships and sailors out of the minefield. The RMS is deployed from the Littoral Combat Ship (LCS) as part of the ships' Mine Countermeasure (MCM) Mission Package (MP). The RMS is a fully integrated system consisting of a semi-submersible Remote Multi-Mission Vehicle (RMMV) towing a variable depth sensor, the AN/AQS-20A. The RMMV is a high-endurance, semi-autonomous, low-observable, unmanned, diesel-powered vehicle, operated
and maintained from the LCS. Line-of-sight (LOS) and over-the-horizon (OTH) data links provide real time vehicle command and control and mine reconnaissance sensor data transmission to/from LCS.

The first Low Rate Initial Production (LRIP) units (LRIP 1) were used during the RMMV Reliability Growth Program (RGP) version 4.2 (v4.2) configuration and will be upgraded to the v6.0 configuration to support LCS integration. In FY15 a new start RMMV Competitive (LRIP 2) contract will be awarded to procure the next LRIPs and a RMMV integration/maintenance contract. Additionally, the development of RMMV v6.0 will support integration of the RMMV into LCS MCM MP and testing in FY15.

The Initial Operational Capability (IOC) has shifted to 2nd quarter FY16 to align with the LCS MCM MP IOC and will use LRIP 1 units. Primary activities in FY15 include completion of v6.0 upgrades and support for the LCS MCM MP Technical Evaluation (TECHEVAL) and conduct of LCS MCM MP Initial Operational Test and Evaluation (IOT&E).

Additionally, the Program will implement hardware and software Engineering Change Proposals (ECPs) for LCS Freedom Class integration and upgrade training assets in support of Ready For Training (RFT) in FY16.

Not a new start. ACAT 1D Transparency requirement realigned program funding from Project Element 0603502N beginning in FY15.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Product Development	-	-	15.572
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604122N / *Remote Minehunting System (RMS)*	**Project (Number/Name)** 0260 / *Remote Minehunting Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- Cited in PE 0603502N ***FY 2014 Plans:*** - Cited in PE 0603502N ***FY 2015 Plans:*** - Implement hardware/software improvements identified during RMS Developmental Test (DT). - Prepare vehicles for LCS MCM MP test events. - Complete RMMV v6.0 Physical Configuration Audit (PCA), TDP, and Interactive Electronic Technical Manual (IETM). - Incorporate v6.0 Engineering Change Proposals (ECPs) on additional v4.2 RMMVs for delivery to the LCS MCM MP. - Incorporate RMMV v6.0 ECPs on RMMV training assets to support Ready For Training (RFT) in FY16. - Design and implement hardware/software changes to support integration of RMMV with LCS discovered during LCS MCM MP IOT&E. - Award a RMMV LRIP 1 Integration/Maintenance contract. - Implement Operational Availability (Ao) hardware/software improvements.			
Title: Support	-	-	2.550
Articles:	-	-	-
FY 2013 Accomplishments: - Cited in PE 0603502N ***FY 2014 Plans:*** - Cited in PE 0603502N ***FY 2015 Plans:*** - Provide support for RMMV v6.0 PCA, TDP, and IETM. - Provide engineering, logistics, and programmatic support for v6.0 efforts. - Provide engineering, logistics, and programmatic support for RMMV Integration/Maintenance contract. - Conduct quality assurance audits at contractor facility. - Provide on-site engineering support for RMMVs at contractor facility. - Conduct RMMV RFI Inspections.			
Title: Test and Evaluation (T&E)	-	-	2.300
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604122N / *Remote Minehunting System (RMS)*	**Project (Number/Name)** 0260 / *Remote Minehunting Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** - Prepare for and support LCS MCM MP TECHEVAL. - Prepare for and support LCS MCM MP IOT&E.			
Title: Management	-	-	0.688
Articles:	-	-	-
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** - Provide program management and oversight of RMMV v6.0 upgrades. - Award LRIP 1 RMMV Integration/Maintenance contract. - Award LRIP 2 contract. - Provide program management support for and oversight of LRIP 1 Integration/Maintenance contract.			
Accomplishments/Planned Programs Subtotals	-	-	21.110

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/1605: *Remote Minehunting System*	-	-	42.276	-	42.276	70.976	67.471	67.708	68.343	432.174	748.948
• RDT&E/0603502N: *Remote Minehunting System*	37.069	31.837	-	-	-	-	-	-	-	-	522.226

Remarks

FYDP funding includes: funding for the RMMV units, RMMV Cradle Pallet Assembly, and production engineering support. The 1605 OPN line item is to award the RMS Competitive LRIP 2/Full Rate Production (FRP) contract in FY15.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604122N / *Remote Minehunting System (RMS)*	**Project (Number/Name)** 0260 / *Remote Minehunting Systems*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost

The LRIP 2/FRP procurement profile is quantity (2) in FY15 and (4) in each ensuing FY through FY25 and (2) in FY26. The first (10) units are LRIPs and the remaining are FRP units.

D. Acquisition Strategy

In FY15, an LRIP 1 Integration/Maintenance Contract will be awarded to support the integration and maintenance activities of LRIP 1 systems on LCS Freedom Variant, incorporate Ao improvements, and address obsolescence changes. Award the RMS Competitive LRIP 2/FRP contract in FY15. A Full Rate Production Decision Review (FRPDR) in FY17.

E. Performance Metrics

- Award LRIP 2 contract with Options for Full Rate Production (FY15)
- Support LCS MCM MP IOT&E (FY15)
- Initial Operational Capability (FY16)
- Complete RMS IOT&E based on LRIP 2 (early FY17)
- FRPDR (FY17)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604122N / *Remote Minehunting System (RMS)*	Project (Number/Name) 0260 / *Remote Minehunting Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development & Integration	SS/CPFF	LOCKHEED MARTIN : West Palm Beach, FL	0.000	-		-		13.894	Oct 2014	-		13.894	Continuing	Continuing	Continuing
SBIR Transition	SS/CPFF	BOSTON ENGINEERING : Waltham, MA	0.000	-		-		0.678	Oct 2014	-		0.678	-	0.678	-
Hardware Improvements/ Integration	SS/CPIF	LOCKHEED MARTIN : West Palm Beach, FL	0.000	-		-		1.000	Oct 2014	-		1.000	-	1.000	-
		Subtotal	0.000	-		-		15.572		-		15.572	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering/ILS	WR	NSWC/PCD : Panama City, FL	0.000	-		-		1.467	Oct 2014	-		1.467	Continuing	Continuing	Continuing
Engineering Support	WR	NUWC/NPT : Newport, RI	0.000	-		-		0.511	Oct 2014	-		0.511	Continuing	Continuing	Continuing
Engineering Support	WR	NUWC.KPT : Keyport, WA	0.000	-		-		0.264	Oct 2014	-		0.264	Continuing	Continuing	Continuing
Engineering Support	WR	PORTSMOUTH NSY : Portsmouth, NH	0.000	-		-		0.308	Oct 2014	-		0.308	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		2.550		-		2.550	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LCS MCM MP Test Events	WR	NSWC/PCD : Panama City, FL	0.000	-		-		1.537	Oct 2014	-		1.537	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604122N / *Remote Minehunting System (RMS)*	**Project (Number/Name)** 0260 / *Remote Minehunting Systems*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LCS MCM MP Test Events	SS/CPFF	LOCKHEED MARTIN : West Palm Beach, FL	0.000	-		-		0.763	Oct 2014	-		0.763	-	0.763	-
		Subtotal	0.000	-		-		2.300		-		2.300	-	-	-

Remarks

LCS MCM MP Test Events will require contractor to groom vehicles prior to testing.

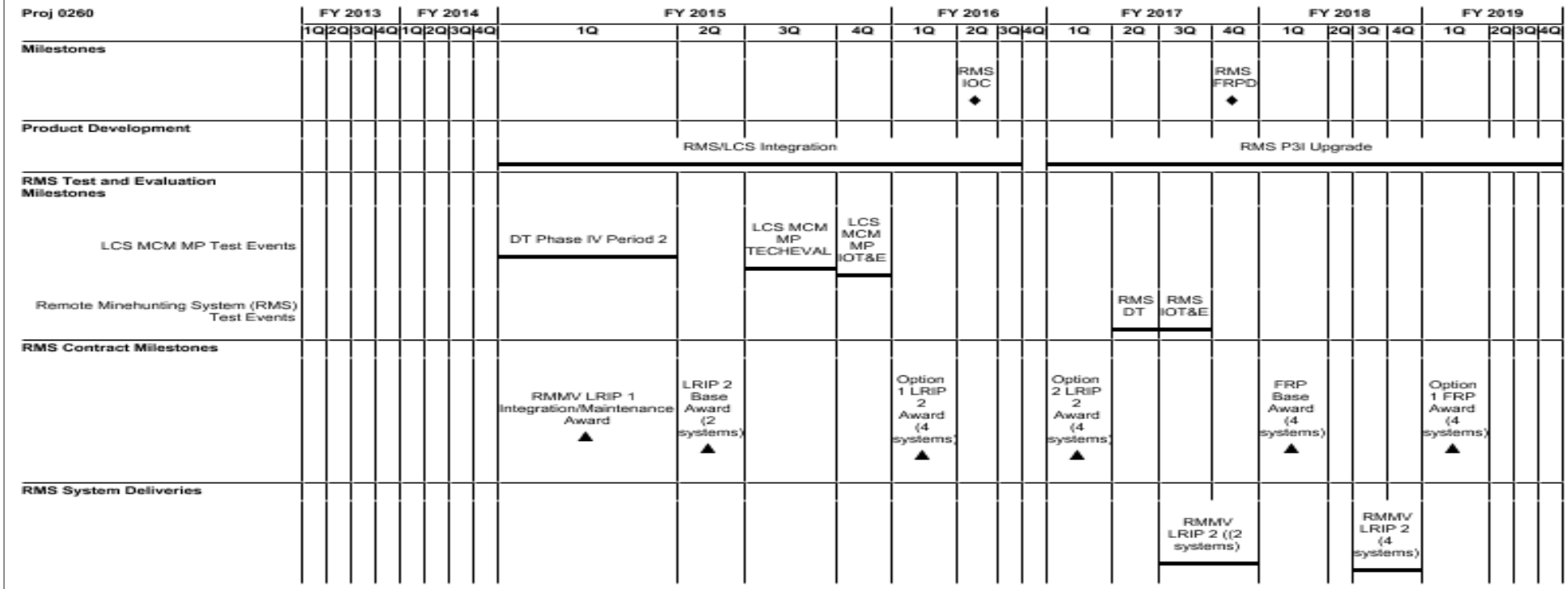
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Pogram Management Support	C/CPFF	TBD : TBD	0.000	-		-		0.647	Oct 2014	-		0.647	Continuing	Continuing	Continuing
Travel	WR	NAVSEA : WNY, DC	0.000	-		-		0.041	Oct 2014	-		0.041	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		0.688		-		0.688	-	-	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		21.110		-		21.110	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604122N / *Remote Minehunting System (RMS)*	**Project (Number/Name)** 0260 / *Remote Minehunting Systems*



2015PB - 0604122N - 0260

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604122N / *Remote Minehunting System (RMS)*	**Project (Number/Name)** 0260 / *Remote Minehunting Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0260				
Milestones: Initial Operating Capability (IOC)	2	2016	2	2016
Milestones: Full Rate Production Decision	4	2017	4	2017
Product Development: RMS/LCS Integration	1	2015	3	2016
Product Development: RMS P3I Upgrade (Ao Improvements & Parts Obsolescence)	1	2017	4	2019
RMS Test and Evaluation Milestones: LCS MCM MP Test Events: DT Phase IV Period 2	1	2015	1	2015
RMS Test and Evaluation Milestones: LCS MCM MP Test Events: LCS MCM MP TECHEVAL	3	2015	3	2015
RMS Test and Evaluation Milestones: LCS MCM MP Test Events: LCS MCM MP IOT&E	4	2015	4	2015
RMS Test and Evaluation Milestones: Remote Minehunting System (RMS) Test Events: RMS Developmental Testing (DT)	2	2017	2	2017
RMS Test and Evaluation Milestones: Remote Minehunting System (RMS) Test Events: RMS IOT&E	3	2017	3	2017
RMS Contract Milestones: Base LRIP 2 Award (2 systems)	2	2015	2	2015
RMS Contract Milestones: Option 1 LRIP 2 Award (4 systems)	1	2016	1	2016
RMS Contract Milestones: Option 2 LRIP 2 Award (4 systems)	1	2017	1	2017
RMS Contract Milestones: Base FRP Award (4 systems)	1	2018	1	2018
RMS Contract Milestones: Option 1 FRP Award (4 systems)	1	2019	1	2019
RMS Contract Milestones: RMMV LRIP 1 Integration/Maintenance (Legacy Configuration) Award	1	2015	1	2015
RMS System Deliveries: 2 LRIPs	3	2017	4	2017
RMS System Deliveries: 4 LRIPs	3	2018	4	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604272N *I Tact Air Dir Infrared CM (TADIRCM)*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	119.945	66.196	33.906	5.657	-	5.657	43.440	42.210	38.580	39.365	169.438	558.737
3302: *JATAS*	119.945	62.185	30.584	0.101	-	0.101	-	-	-	-	-	212.815
3304: *CIRCM*	0.000	4.011	3.322	5.556	-	5.556	43.440	42.210	38.580	39.365	169.438	345.922

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

NOTE: The Cost to Complete on Exhibit R2 and R2a for project unit 3304 should be $186.548M. R-3 Exhibit reflects the correct Cost to Complete and Total Cost.

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 for Aircraft Self-Protection Equipement (ASE) Suite Integration. 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 that began 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	73.934	37.227	38.092	-	38.092
Current President's Budget	66.196	33.906	5.657	-	5.657
Total Adjustments	-7.738	-3.321	-32.435	-	-32.435
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.321			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.790	-			
• Program Adjustments	-	-	-0.339	-	-0.339
• Rate/Misc Adjustments	-	-	-32.096	-	-32.096
• Congressional General Reductions Adjustments	-5.948	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604272N *I Tact Air Dir Infrared CM (TADIRCM)*

Change Summary Explanation

Technical: Not Applicable.

3302 JATAS Funding and Schedule: The program ends in FY 2014 in accordance with the Acquisition Decision Memorandum (ADM). Remaining funds in FY 2015 will be realigned to CIRCM (PU 3304). All tasks after FY 2014 were removed from the schedule profile.

3304 CIRCM Schedule: A-Kit qualifications for CIRCM H-1 IOT&E changed from 3rd Qtr FY 2017 through 1st Qtr FY 2018 to 3rd Qtr FY 2018 through 1st Qtr FY 2019. B-Kit qualifications for CIRCM H-1 IOT&E changed from 2nd Qtr FY 2018 through 4th Qtr FY 2018 to 2nd Qtr FY 2018 through 4th Qtr FY 2019. All other tasks are on schedule and to be completed by the Army.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604272N / *Tact Air Dir Infrared CM (TADIRCM)*	Project (Number/Name) 3302 / *JATAS*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3302: *JATAS*	119.945	62.185	30.584	0.101	-	0.101	-	-	-	-	-	212.815
Quantity of RDT&E Articles	0.000	8.000	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Joint and Allied Threat Awareness System (JATAS AN/AAR-59) EMD	54.185	29.090	-
Articles:	-	-	-
Description: Continue Engineering and Manufacturing Development (EMD) phase and provide required program support for EMD phase. ***FY 2013 Accomplishments:*** Conducted Government Test Readiness Review and Maintenance Demonstration. ***FY 2014 Plans:*** Begin Initial Test and Evaluation (IT&E). ***FY 2015 Plans:*** N/A			
Title: Joint and Allied Threat Awareness System (JATAS AN/AAR-59) Integration	8.000	1.494	0.101
Articles:	8.000	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604272N / *Tact Air Dir Infrared CM (TADIRCM)*	**Project (Number/Name)** 3302 / *JATAS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Description: Provide platform integration support and JATAS A-kit development. ***FY 2013 Accomplishments:*** Completed development of A-kits to support Initial Test & Evaluation (IT&E) in FY14. ***FY 2014 Plans:*** Begin IT&E. ***FY 2015 Plans:*** The program ends in FY 2014 in accordance with the Acquisition Decision Memorandum (ADM). Remaining funds in FY 2015 will be realigned to CIRCM (PU 3304).			
Accomplishments/Planned Programs Subtotals	62.185	30.584	0.101

C. Other Program Funding Summary ($ in Millions)

N/A

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 was developed into 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 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 Development phase contract was awarded in FY2009 and the EMD contract was awarded in 4th Quarter FY2011. 8 test articles were developed for various test events in FY 2013.

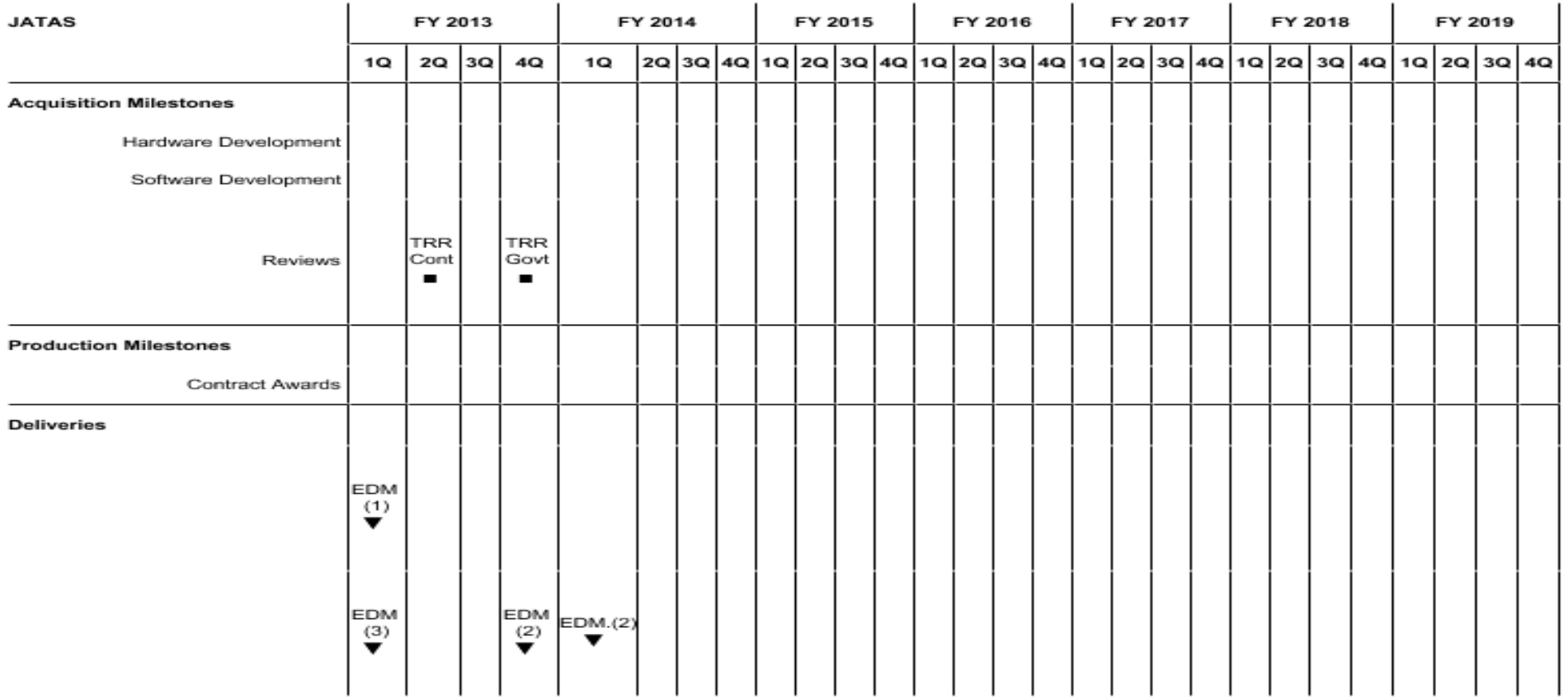
E. Performance Metrics

JATAS EMD contract awarded in fourth quarter FY 2011.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604272N / *Tact Air Dir Infrared CM (TADIRCM)*	**Project (Number/Name)** 3302 / *JATAS*

JATAS Integrated Baseline Review (IBR) was approved 2nd Quarter FY 2012.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604272N / *Tact Air Dir Infrared CM (TADIRCM)*	**Project (Number/Name)** 3302 / *JATAS*



2015PB - 0604272N - 3302

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604272N / *Tact Air Dir Infrared CM (TADIRCM)*	Project (Number/Name) 3304 / *CIRCM*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3304: *CIRCM*	-	4.011	3.322	5.556	-	5.556	43.440	42.210	38.580	39.365	169.438	345.922
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Common Infrared Countermeasures (CIRCM) was a new start for the Navy. 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 ID 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 2013	FY 2014	FY 2015
Title: CIRCM Technology Development (TD)	4.011	3.322	5.556
Articles:	-	-	-
FY 2013 Accomplishments: Support TD phase and program support for CIRCM.			
FY 2014 Plans: Continue to Support TD phase and program support for CIRCM.			
FY 2015 Plans: Achieve MS-B; Engineering Manufacturing Development contract award.			
Accomplishments/Planned Programs Subtotals	4.011	3.322	5.556

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

CIRCM was a New Start for the Navy. 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 is conducting a 21 month competitive prototyping TD phase with two contractors. During this time the contractors will develop twelve test articles for various test events with emphasis placed on reliability in FY 2016. Contractor(s) will concurrently develop preliminary designs for the CIRCM system; conduct Systems Requirements Review, System Functional Review, and Preliminary Design

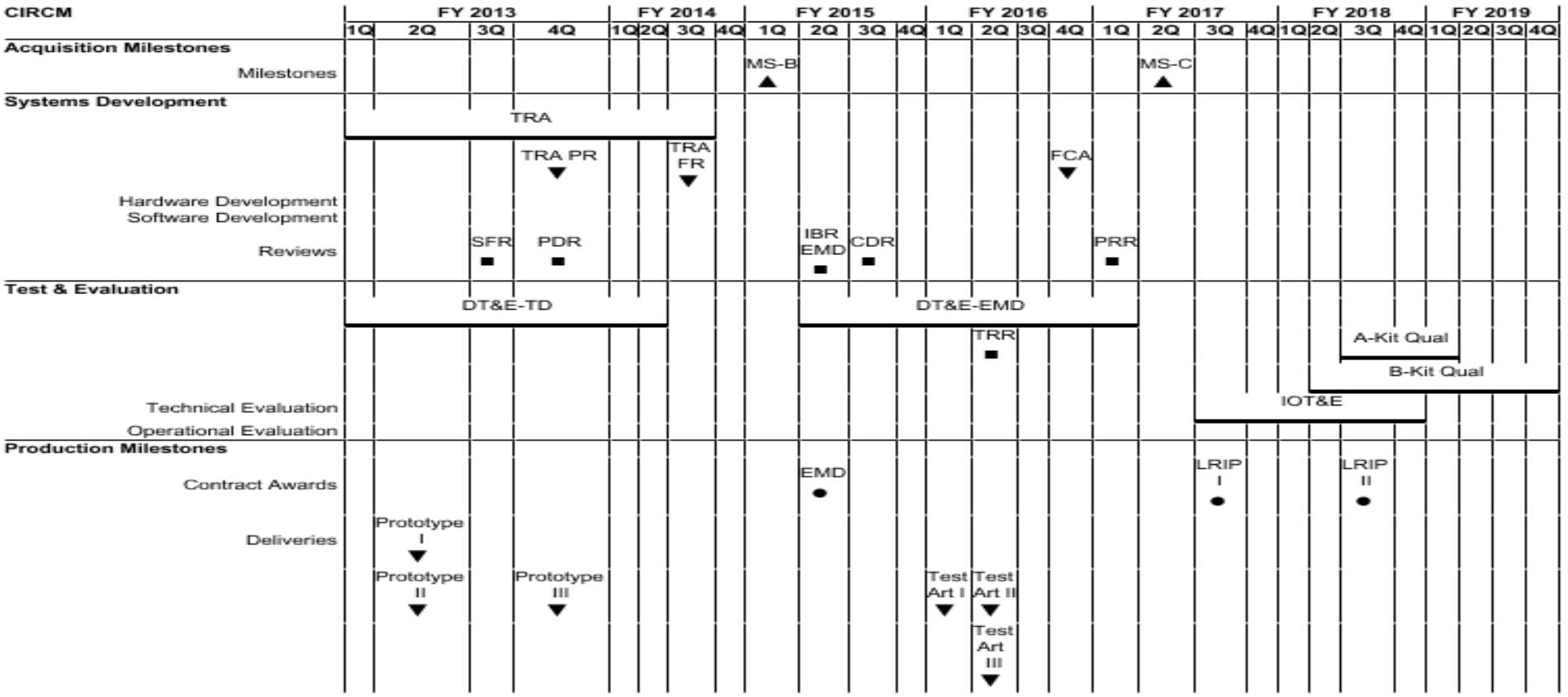
Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604272N / *Tact Air Dir Infrared CM (TADIRCM)*	**Project (Number/Name)** 3304 / *CIRCM*

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604272N / *Tact Air Dir Infrared CM (TADIRCM)*	**Project (Number/Name)** 3304 / *CIRCM*



2015PB - 0604272N - 3304

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604279N *I (U)ASE Self Protection Optimization*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	11.896	0.725	0.169	8.033	-	8.033	7.951	6.200	3.600	7.945	Continuing	Continuing
3308: *Technology Development*	0.817	0.507	0.080	2.394	-	2.394	2.454	2.584	2.679	7.038	Continuing	Continuing
3309: *Assault Survivability Optimization*	11.079	0.218	0.089	5.639	-	5.639	5.497	3.616	0.921	0.907	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	0.711	0.169	0.706	-	0.706
Current President's Budget	0.725	0.169	8.033	-	8.033
Total Adjustments	0.014	-	7.327	-	7.327
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.073	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	7.730	-	7.730
• Rate/Misc Adjustments	-	-	-0.403	-	-0.403
• Congressional General Reductions Adjustments	-0.059	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604279N *I (U)ASE Self Protection Optimization*

Schedule: Project 3308 Technology Development. R-4 schedule exhibit has been incorporated.
Schedule: Project 3309 Assualt Survivability Optimization. R-4 schedule exhibit has been incorporated.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604279N / *(U)ASE Self Protection Optimization*	Project (Number/Name) 3308 / *Technology Development*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3308: *Technology Development*	0.817	0.507	0.080	2.394	-	2.394	2.454	2.584	2.679	7.038	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 Strike platforms 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 platforms and evaluate new Radio Frequency Countermeasure and Infra Red Countermeasure technologies.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Technology Development	0.507	0.080	2.394
Articles:	-	-	-
FY 2013 Accomplishments: Continued studies and vulnerability analysis for EW programs.			
FY 2014 Plans: Continue EW vulnerability studies/analysis, product development and test conducted for Strike aircraft across the Future Years Defense Program (FYDP).			
FY 2015 Plans: Continue EW vulnerability studies/analysis, product development and test conducted for Strike aircraft across the FYDP.			
Accomplishments/Planned Programs Subtotals	0.507	0.080	2.394

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

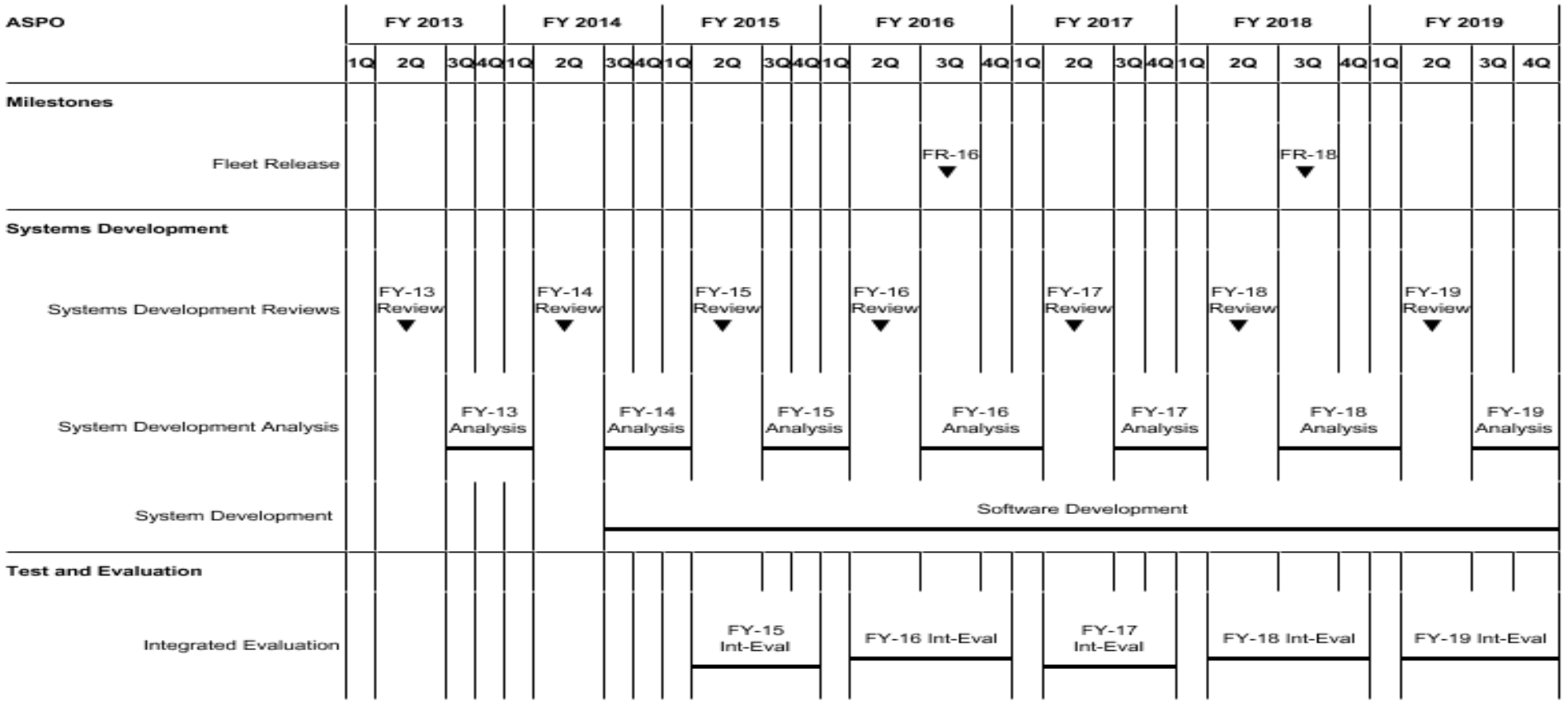
EW vulnerability studies/analysis, product development and test conducted for Strike aircraft across the FYDP.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604279N / *(U)ASE Self Protection Optimization*	**Project (Number/Name)** 3308 / *Technology Development*

E. Performance Metrics

EW vulnerability studies/analysis, product development and test conducted for Strike aircraft across the FYDP.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604279N / *(U)ASE Self Protection Optimization*	**Project (Number/Name)** 3308 / *Technology Development*



2015DON - 0604279N - 3308

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604279N / *(U)ASE Self Protection Optimization*	Project (Number/Name) 3309 / *Assault Survivability Optimization*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3309: *Assault Survivability Optimization*	11.079	0.218	0.089	5.639	-	5.639	5.497	3.616	0.921	0.907	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This project funds the development, testing, and rapid fielding of advanced countermeasures and enhanced employment techniques needed to support current and future operations for United States Navy and the United States Marine Corps aircraft. Incorporates capability advancements in Aircraft Survivability Equipment (ASE) and expendable countermeasures to develop and deploy countermeasure responses resulting in increased platform survivability. Resources will be applied to the following areas: 1. Studies and evaluations of current countermeasure and ASE capabilities and limitations, 2. Development and demonstration of advanced countermeasure, 3. Testing and evaluation of advanced countermeasures, 4. Development of system software for the testing and deployment of advanced countermeasure techniques, and 5. Development of and upgrades to modeling tools and specialized equipment required to conduct evaluation of advanced countermeasures.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Studies & Analysis	0.218	0.089	5.639
Articles:	-	-	-
FY 2013 Accomplishments: Continued studies and analysis for assault aircraft programs.			
FY 2014 Plans: Continue studies and analysis for assault aircraft programs.			
FY 2015 Plans: Begin development and testing for Advanced Countermeasures.			
Accomplishments/Planned Programs Subtotals	0.218	0.089	5.639

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604279N / *(U)ASE Self Protection Optimization*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*

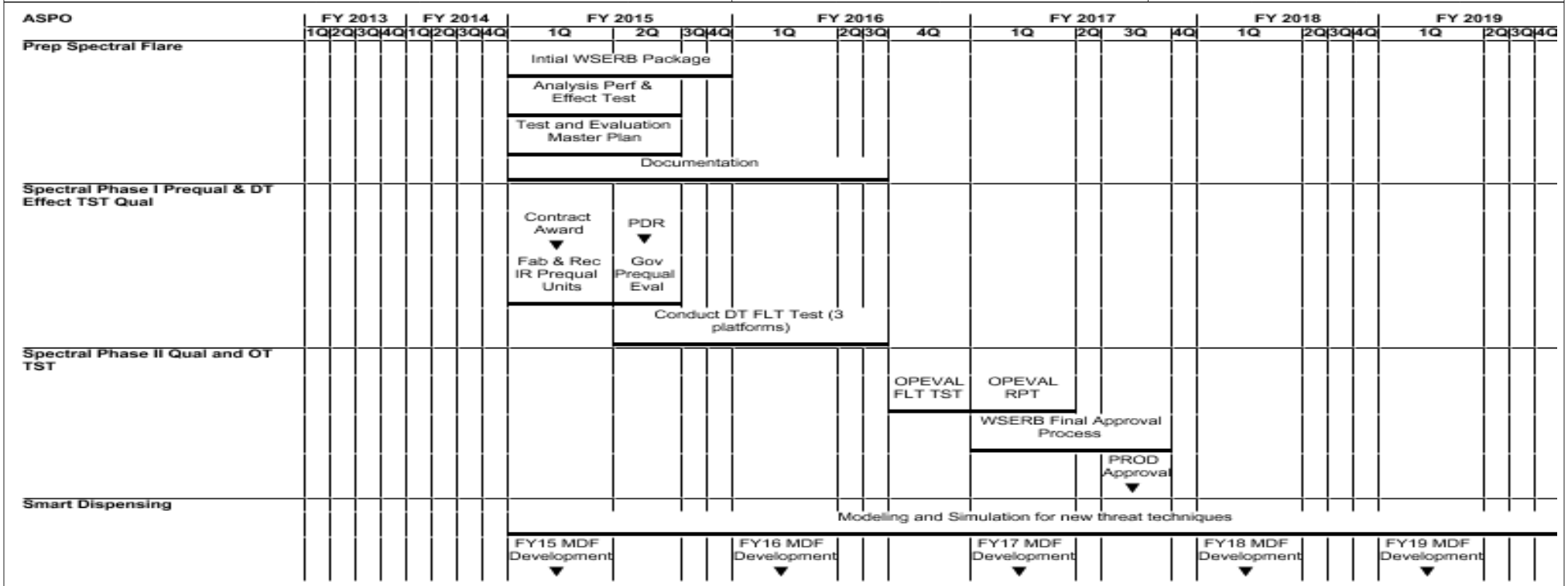
D. Acquisition Strategy

Continue to leverage improvements in ASE to enhance platform survivability on United States Navy and the United States Marine Corp platforms through more effective dispense techniques. Invest in enhancements to modeling and simulation tools to better evaluate effectiveness. Upgrade test and evaluation equipment to incorporate current and future threats. Develop and demonstrate advanced concept countermeasures for future threats.

E. Performance Metrics

Continuation of studies and analyses efforts related to assault aircraft platforms across Future Years Defense Program.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604279N / *(U)ASE Self Protection Optimization*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*



2015DON - 0604279N - 3309

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604454N / *LX (R)*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	-	-	36.859	-	36.859	56.901	32.824	12.813	9.806	Continuing	Continuing
2474: *LX(R) Design & Total Ship Integration*	0.000	-	-	36.859	-	36.859	56.901	32.824	12.813	9.806	Continuing	Continuing
MDAP/MAIS Code: 461												

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

2474 - LX(R) 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 all Gate and Milestone (MS) documentation, Capabilities Development Documentation (CDD), Indicative/Preliminary/Contract Design (ID/PD/CD), and development of all logistics and Test & Evaluation documentation. Program is on track to support FY26 retirement of LSDs.

FY12-FY14 LX(R) efforts previously budgeted in PE 0603564N.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	36.859	-	36.859
Total Adjustments	-	-	36.859	-	36.859
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	-	-	36.859	-	36.859

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604454N / *LX (R)*	Project (Number/Name) 2474 / *LX(R) Design & Total Ship Integration*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2474: *LX(R) Design & Total Ship Integration*	-	-	-	36.859	-	36.859	56.901	32.824	12.813	9.806	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

2474 - LX(R) 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 all Gate and Milestone (MS) documentation, Capabilities Development Documentation (CDD), Indicative/Preliminary/Contract Design (ID/PD/CD), and development of all logistics and Test & Evaluation documentation. Program is on track to support FY26 retirement of LSDs. Previously, LX(R) efforts, in FY12-FY14, were budgeted in PE 0603564N.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: LX(R) DESIGN/TOTAL SHIP INTEGRATION	-	-	36.859
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: The primary focus in FY15 is to conduct the Preliminary Design of the selected ship alternative(s). This includes participation by shipbuilders, ship design agents, Naval Warfare Centers, PEO C4I, PEO IWS, NAVAIR, Marine Corps, and others. Continue work on Gate and MS documentation. Continue work on CDD and submit for Joint Requirements Oversight Council (JROC) approval. Continue development of all acquisition documents.			
Accomplishments/Planned Programs Subtotals	-	-	36.859

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• SCN/3010: *Amphibious Ship Replacement*	-	-	-	-	-	-	-	-	174.000	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604454N / *LX (R)*	**Project (Number/Name)** 2474 / *LX(R) Design & Total Ship Integration*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost

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 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604454N / *LX (R)*	Project (Number/Name) 2474 / *LX(R) Design & Total Ship Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Design/Systems Integration	C/CPIF	CSC, Alion, TBD** : Washington, DC	0.000	-		-		14.292	Dec 2014	-		14.292	Continuing	Continuing	Continuing
Design/Systems Integration	WR	NSWC Carderock : NSWC Beth, MD	0.000	-		-		4.635	Nov 2014	-		4.635	Continuing	Continuing	Continuing
Design/Systems Integration	WR	NSWC Dahlgren : Dahlgren, VA	0.000	-		-		2.391	Nov 2014	-		2.391	Continuing	Continuing	Continuing
Design/Systems Integration	WR	PEO C4I, PEO IWS : Washington, DC	0.000	-		-		1.988	Nov 2014	-		1.988	Continuing	Continuing	Continuing
Design/Systems Integration	WR	NAWC Lakehurst : Lakehurst, NJ	0.000	-		-		0.311	Nov 2014	-		0.311	Continuing	Continuing	Continuing
Design/Systems Integration	WR	NSLC Mechanicsburg : Mechanicsburg, PA	0.000	-		-		0.502	Nov 2014	-		0.502	Continuing	Continuing	Continuing
Design/Systems Integration	WR	NSWC, Port Hueneme : Port Hueneme, CA	0.000	-		-		0.496	Nov 2014	-		0.496	Continuing	Continuing	Continuing
Design/Systems Integration	C/CPFF	HII, General Dynamics : Various	0.000	-		-		12.244	Dec 2014	-		12.244	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		36.859		-		36.859	-	-	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		36.859		-		36.859	-	-	-

Remarks

**PMS 317 expects a new support services contract will be in place prior to FY15.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604454N / *LX (R)*	**Project (Number/Name)** 2474 / *LX(R) Design & Total Ship Integration*

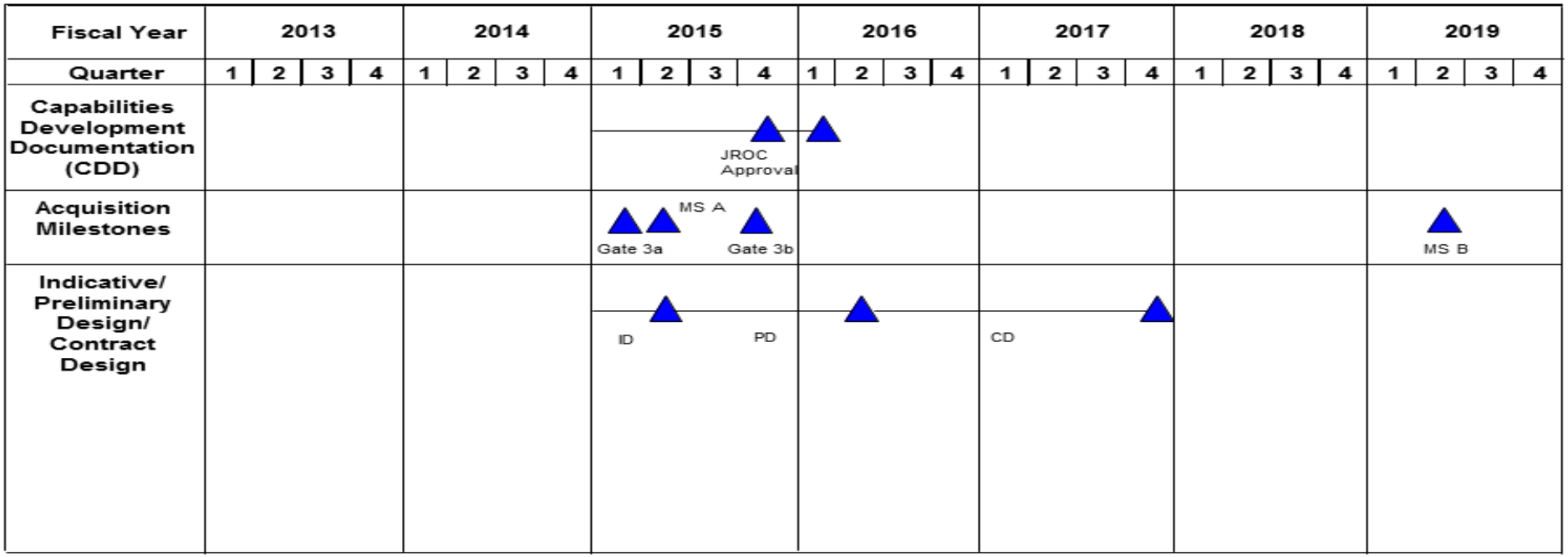


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604454N / *LX (R)*	**Project (Number/Name)** 2474 / *LX(R) Design & Total Ship Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2474				
Capabilities Development Documentation (CDD)	1	2015	1	2016
Joint Requirements Oversight Council (JROC) CDD Approval	4	2015	1	2016
Gate 3a	1	2015	1	2015
Milestone A	2	2015	2	2015
Milestone B	2	2019	2	2019
Indicative/Preliminary Design/Contract Design	1	2015	4	2017
Gate 3b	4	2015	4	2015

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604653N *I JT Cntr Radio Controlled IED Elec War (JCREW)*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	172.141	42.421	15.874	15.227	-	15.227	4.790	4.900	4.963	5.146	Continuing	Continuing
3177: *Joint Counter Radio-Controlled IED Elec Warfare*	172.141	42.421	15.874	15.227	-	15.227	4.790	4.900	4.963	5.146	Continuing	Continuing

The FY 2015 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. 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	71.300	20.874	15.006	-	15.006
Current President's Budget	42.421	15.874	15.227	-	15.227
Total Adjustments	-28.879	-5.000	0.221	-	0.221
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-5.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.143	-			
• Program Adjustments	-	-	-0.200	-	-0.200
• Rate/Misc Adjustments	-	-	0.421	-	0.421
• Congressional General Reductions Adjustments	-4.372	-	-	-	-
• Congressional Directed Reductions Adjustments	-24.364	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604653N / *JT Cntr Radio Controlled IED Elec War (JCREW)*	Project (Number/Name) 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3177: *Joint Counter Radio-Controlled IED Elec Warfare*	172.141	42.421	15.874	15.227	-	15.227	4.790	4.900	4.963	5.146	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Joint Counter Radio-Controlled IED Elec Warfare	42.421	15.874	15.227
Articles:	-	-	-
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.			
FY 2013 Accomplishments: Initiated fabrication of EDMs of Mounted, Fixed Site, and Dismounted systems and conducted contractor demonstration testing. Initiated document preparations in support of an FY14 Milestone C.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604653N / *JT Cntr Radio Controlled IED Elec War (JCREW)*	**Project (Number/Name)** 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
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. Initiate productionization effort to prepare for LRIP. ***FY 2015 Plans:*** Conduct Initial Operational Test and Evaluation (IOT&E) and complete productionization Engineering Change Proposal (ECP).			
Accomplishments/Planned Programs Subtotals	42.421	15.874	15.227

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

SDD Phase: Two contractors to CDR - Single contractor CDR to MS C. Sole Source LRIP to support DT, IOT&E, 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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604653N / *JT Cntr Radio Controlled IED Elec War (JCREW)*	**Project (Number/Name)** 3177 / *Joint Counter Radio-Controlled IED Elec Warfare*

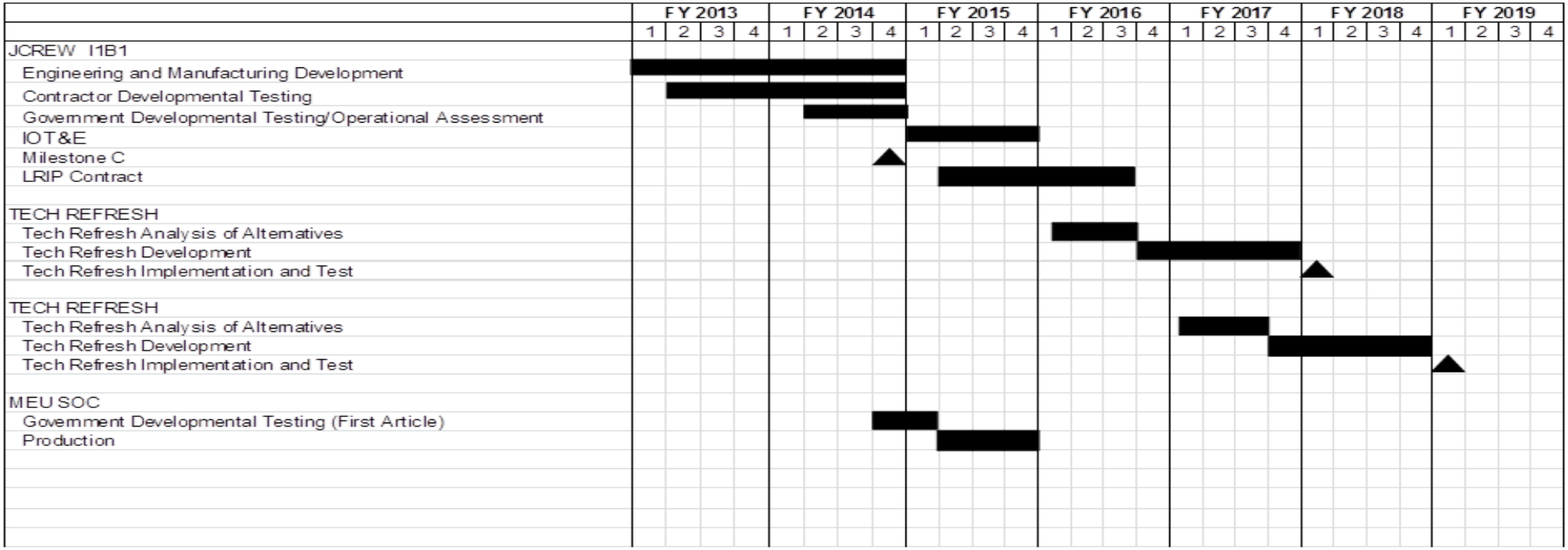


Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604659N *I (U)Precision Strike Weapons Development Program*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	32.768	5.166	2.257	-	-	-	-	-	-	-	-	40.191
3214: *Fuze Development Program*	32.768	5.166	2.257	-	-	-	-	-	-	-	-	40.191

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	5.654	2.257	-	-	-
Current President's Budget	5.166	2.257	-	-	-
Total Adjustments	-0.488	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.018	-			
• Rate/Misc Adjustments	0.001	-	-	-	-
• Congressional General Reductions Adjustments	-0.471	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604659N / *(U)Precision Strike Weapons Development Program*	Project (Number/Name) 3214 / *Fuze Development Program*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3214: *Fuze Development Program*	32.768	5.166	2.257	-	-	-	-	-	-	-	-	40.191
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: Hard Target Void Sensing Fuze (HTVSF) Hardware Development	5.166	2.257	-
Articles:	3.000	3.000	-
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 2013 Accomplishments: Continued F/A-18 E/F integration, mission planning software and procured additional EMD test assets to conduct testing.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604659N / *(U)Precision Strike Weapons Development Program*	**Project (Number/Name)** 3214 / *Fuze Development Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Complete F/A-18 E/F integration, complete mission planning software, achieve Milestone C and Award Low-Rate Initial Production contract. ***FY 2015 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	5.166	2.257	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• PANMC/01450: *General Purpose Bombs*	-	2.000	4.300	-	4.300	4.386	-	-	-	-	10.686
• RDTE/ PE 064635F: *Air Force (SDD)*	9.423	21.175	7.808	-	7.808	2.218	-	-	-	-	97.591
• Proc/PE 020803: *Air Force*	0.130	19.280	38.500	-	38.500	39.510	41.700	-	-	-	139.120

Remarks

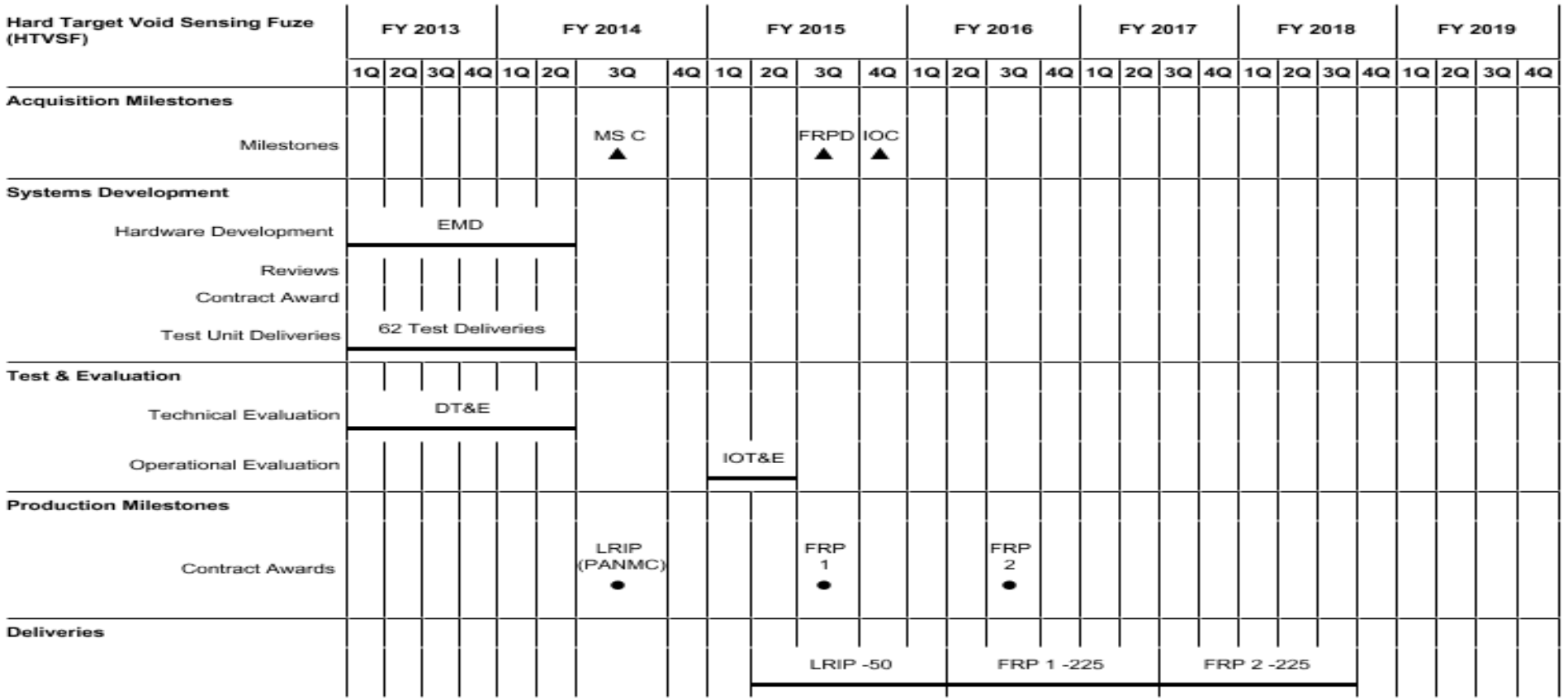
D. Acquisition Strategy

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-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604659N / *(U)Precision Strike Weapons Development Program*	**Project (Number/Name)** 3214 / *Fuze Development Program*



2015OSD - 0604659N - 3214

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	223.485	26.279	31.256	22.393	-	22.393	27.558	27.543	28.502	29.240	Continuing	Continuing
0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*	29.779	0.687	0.779	0.737	-	0.737	0.747	0.761	0.776	0.792	Continuing	Continuing
2144: *Space & Elec Warfare Engineering*	172.159	8.259	8.041	7.543	-	7.543	7.547	7.659	7.846	8.025	Continuing	Continuing
2356: *Maritime Concept Generation & Development*	0.000	4.941	10.194	7.190	-	7.190	8.458	8.738	8.888	9.057	Continuing	Continuing
3319: *Fleet Experimentation*	21.547	12.392	12.242	6.923	-	6.923	10.806	10.385	10.992	11.366	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This Program Element (PE) contains four projects: Maritime Concept Generation and Development (CGCD), Fleet Experimentation , Allied/Coalition Interoperability and Information Dominance (ACIID), and Space and Electronic Warfare (SEW) Engineering.

The CGCD project (2356) focuses on the generation, development and validation of warfighting concepts, Concept of Operations (CONOPS) and doctrine in order to eliminate war fighting gaps. The CGCD project also includes, for FY14 and FY15, funding for the CNO's Rapid Innovation Cell (CRIC), a small group of disruptive thinkers managed by the Navy Warfare Development Command (NWDC) to identify and quickly test in an operational environment, innovative ideas and technologies that are outside the traditional development and acquisition processes. NWDC also manages the Fleet Experimentation program (formerly Sea Trial) under the guidance of Commander USFF and COMPACFLT.

The FLEX project (3319) (formerly Sea Trial) develops new or improved warfighter capabilities through the experimentation of high payoff initiatives, technologies and concepts, Fleet Concepts of Operations (CONOPS), doctrine, and new tactics, techniques and procedures (TTP). The objective of FLEX is to produce recommended changes in doctrine, organization, training, materiel, leadership development, personnel, facilities, and policy (DOTMLPF-P) actions, with an emphasis on non-materiel solutions. Focusing on war fighting capability improvement through experimentation aimed at delivering potential solutions in support of current Operations Plans (OPLANs), FLEX spans both operational and tactical levels of warfare and reaches across the full range of military operations to enhance war fighting capabilities or fill current or future capability gaps.

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604707N *I SEW Architecture/Eng Support*

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, 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	31.549	38.327	39.218	-	39.218
Current President's Budget	26.279	31.256	22.393	-	22.393
Total Adjustments	-5.270	-7.071	-16.825	-	-16.825
• Congressional General Reductions	-	-0.071			
• Congressional Directed Reductions	-	-7.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.452	-			
• SBIR/STTR Transfer	-0.737	-			
• Program Adjustments	-	-	-0.345	-	-0.345
• Rate/Misc Adjustments	0.001	-	-16.480	-	-16.480
• Congressional General Reductions Adjustments	-2.386	-	-	-	-
• Congressional Directed Reductions Adjustments	-2.600	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*				Project (Number/Name) 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*	29.779	0.687	0.779	0.737	-	0.737	0.747	0.761	0.776	0.792	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 Information Warfare (IW) (to include Command, Control, Communications, Computers; Intelligence, Surveillance and Reconnaissance (C4ISR); Electronic Warfare (EW); and Cyber Warfare), 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 IW equipment. 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 (SOA) within the limitations of High Frequency (HF), Ultra-High Frequency (UHF) 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 (ADNS) 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 (ALE) 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 2013**	**FY 2014**	**FY 2015**
Title: Advanced Relay Capabilities	0.687	0.779	0.737
Articles:	-	-	-
FY 2013 Accomplishments: -Continued the development and refinement of advanced relay and communication capabilities that promote interoperability with AUSCANNZUKUS, NATO and other Allied/Coalition forces and support A2AD and NOWS. Solutions addressed higher bandwidth technologies, such as wide-band HF, High Data Rate UHF and 3G/4G wireless.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Secure coalition routing architectures incorporating High Assurance Internet Protocol Encryptor (HAIPE) devices that support tactical networking and Anti-Access Area Denial (A2AD) were 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 was to maximize interoperability and network efficiency using multiple, dissimilar bearers and integrate these advanced solutions into an A2AD/Network Operations Without Shore (NOWS) Allied/Coalition tactical networking environment that would also include tactical data links, such as Link-22. -Progressed the 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). -Venues of opportunity, such as Trident Warrior (now known as Fleet Experimentation (FLEX)), 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 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 High Frequency (HF), High Data Rate Ultra-High Frequency (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 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 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 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 2015 Plans: -Continue the development and refinement of advanced networking and communication capabilities that promote Allied interoperability and support Anti-Access Area Denial (A2AD) and Network Operations Without Shore (NOWS). Solutions will			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
address higher bandwidth technologies across the Radio Frequency (RF) and Optical spectrum, such as wide-band High Frequency (HF), High Data Rate Ultra-High Frequency (UHF) and other high-data rate wireless technologies. -Develop and assess secure and interoperable multibearer routing, distributed application and service architectures and advanced Information Assurance and Computer Network Defense (IA/CND) solutions that support tactical networking and A2AD requirements. The overarching 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 can also include tactical data links, such as Link-22. -Assess Information Warfare interoperability gaps with Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS) nations, to include Intelligence, Surveillance and Reconnaissance (ISR), Position, Navigation and Timing (PNT), Electronic Warfare (EW) and Cyber, in appropriate venues. This will include assured PNT and Unmanned aerial vehicle (UAV) interoperability and IA/CND Blue/Red Teaming in Satellite Communications (SATCOM)-denied environments. -Continue to progress the standardization and operationalization of North Atlantic Treaty Organization (NATO) 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 Information-system 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 AUSCANNZUKUS and other Allied/Coalition partners.			
Accomplishments/Planned Programs Subtotals	0.687	0.779	0.737

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 (USN) interoperability with allied and coalition forces to achieve the Chief of Naval Operations (CNO) 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 Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS), North Atlantic Treaty Organization (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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*

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 (A2AD), Network Operations Without Shore (NOWS), Maritime Domain Awareness (MDA) and other aspects of Information Dominance (ID). 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-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*				Project (Number/Name) 2144 / *Space & Elec Warfare Engineering*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2144: *Space & Elec Warfare Engineering*	172.159	8.259	8.041	7.543	-	7.543	7.547	7.659	7.846	8.025	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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)
- Migration roadmaps to the target architectures

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- 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 (SETRs) 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 SETRs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: C4ISR Systems Engineering	3.035	3.252	3.066
Articles:	-	-	-
FY 2013 Accomplishments: -Continued Navy Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) and Information Dominance (ID) 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 ID capability. -Continued to establish, develop, and validate interoperability requirements: Performed 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 (SOAs) 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.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Performed System of Systems (SoS) and platform technical evaluations to integrate the alignment with the N2/N6 ID 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, IA Strategies, Acquisition Strategies, etc.) for Office of the Chief of Naval Operations (CNO), Assistant Secretary of the Navy for Research, Development and Acquisition (ASN(RDA)), and the Program Executive Offices (PEOs), 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 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. -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. -Continued 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. -Continued to conduct Command, Control, Communications, Computers, Intelligence (C4I) Certifications through design and testing analysis ensuring C4I delivery to the platform (shore, surface ship, submarine) was 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 (ID) 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 ID 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 (IA), data strategy, architecture, modeling, Open Architecture, Configuration Management (CM), Service Oriented Architecture (SOA) development, Anti-tamper, etc.) ensuring interoperability compliance to statutory and regulatory directives and guidance.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Continue to ensure continuous improvement of SETR Checklists by incorporating the latest policy, guidance, standards, and specifications. -Continue to perform System of Systems (SoS) and platform technical evaluations to integrate the alignment with the N2/N6 Information Dominance (ID) 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 (CNO), Assistant Secretary of the Navy for Research, Development and Acquisition (ASN(RDA)), and the Program Executive Offices (PEOs), 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 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, 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.			
FY 2015 Plans: -Continue C4ISR and ID 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 ID capability.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-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 (IA), data strategy, architecture, modeling, Open Architecture, Configuration Management (CM), Service Oriented Architecture (SOA) development, Anti-tamper, etc.) ensuring interoperability compliance to statutory and regulatory directives and guidance. -Continue to ensure continuous improvement of Systems Engineering Technical Review (SETR) Checklists by incorporating the latest policy, guidance, standards, and specifications. -Continue to perform System of Systems (SoS) and platform technical evaluations to integrate the alignment with the N2/N6 Information Dominance (ID) vision and identify performance, interoperability, 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, Enterprise Architectures & Strategies, Information Assurance Strategies, Acquisition Strategies, etc.) for Office of the Chief of Naval Operations (CNO), Assistant Secretary of the Navy for Research, Development and Acquisition (ASN(RDA)), and the Program Executive Offices (PEOs), 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 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, 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. -Continue to 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 eXploration, eXperimentation, eXamination, eXercise (CWIX) (Formerly known as CWID)	1.367	0.971	0.878
Articles:	-	-	-

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: -Developed coalition and interagency interoperability and information sharing through coalition engagement, technology, demonstrations, and assessments leading to improvements of Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems within the Navy and in conjunction with Joint Services and Coalition efforts. -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 Navy Program Managers (i.e. Program Executive Office Command, Control, Communications, Computers, Intelligence (PEO 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. -Validated technology selection, experimental objective design, and experiment execution to influence and direct design efforts, to satisfy some warfighter 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). -Established operationally relevant classified laboratory environments for joint/coalition war fighter technology experiments, while real-world field environments were 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 Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems. Integrate directly with Navy Program Managers (i.e. Program			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Executive Office Command, Control, Communications, Computers, Intelligence (PEO C4I) 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. ***FY 2015 Plans:*** -Develop 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) Mission Partner Environment (MPE) efforts in order to develop operationally relevant experiments and assessments focused on Navy mission enhancement in a Coalition environment. -Continue development of a Navy experimentation environment that can be leveraged to provide Navy focused Assurance and Validation support to the CIAV community. -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. -Enhance integration and engagement with Pacific Rim Coalition partners by leveraging existing experimentation and exercise venues (such as Rim of the Pacific (RIMPAC), Cooperation Afloat Readiness and Training (CARAT), Foal Eagle, and Cobra Gold) in order to develop operationally relevant experiments focused on enhancing Navy missions. -Demonstrate and evaluate 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 Acquisition Programs (i.e. PEO C4I and the Component/ Combatant Commanders at the Technical Director 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	1.080	1.061	1.000
Articles:	-	-	-
FY 2013 Accomplishments: -Began transition of system engineering capability into a System of Systems (SoS) engineering view.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Implemented SoS integration certification in support of platform level design. -Developed and conducted 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. ***FY 2015 Plans:*** -Continue to refine the I&I SETR checklist in support of ASN(RDA). -Continue to conduct I&I SETR events to validate and refine I&I checklist items. -Continue to review all Navy ITPR for developing systems to ensure adherence to Navy 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. -Provide Command, Control, Communications, Computers, Intelligence (C4I) and Information Assurance Certifications (Naval Warfare Systems Certification (NWSCP)) and Department of Defense Information Assurance Certification and Accreditation Process (DIACAP)).			
Title: Systems Engineering Standards and Processes	2.777	2.757	2.599
Articles:	-	-	-
FY 2013 Accomplishments: -Developed processes to integrate System of Systems (SoS) engineering technical assessments to identify cross system dependencies. -Incorporated lessons learned from prior year system engineering efforts to ensure multi-systems processes were intuitive and met 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.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-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. -Develop Continental United States (CONUS)/Outside Continental United States (OCONUS) cloud-based capabilities. ***FY 2015 Plans:*** -Continue to develop/refine processes to integrate SoS engineering technical assessments to identify cross system dependencies and potential interoperability and integration issues. -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. -Continue efforts to 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 Information Technology (IT) and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) requirements and interface specifications and standards. -Develop Information Assurance (IA) requirements and interface specifications and standards. -Develop/refine processes for Information Technology (IT) and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Technical Authority (TA) implementation. -Develop/refine processes for Information Assurance (IA) TA implementation. -Establish an online repository of Systems of Systems (SoS) IT and IA Engineering Policies, Requirements, Standards, and Best Practices to facilitate consistent SoS Engineering across all Navy activities. -Update the future Navy cloud architecture to inform Navy acquisition programs on cloud technologies.			
Accomplishments/Planned Programs Subtotals	8.259	8.041	7.543

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

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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 eXploration, eXperimentation, eXamination, eXercise (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 (DISA), National Security Agency (NSA), 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.

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COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2356: *Maritime Concept Generation & Development*	-	4.941	10.194	7.190	-	7.190	8.458	8.738	8.888	9.057	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

Beginning in FY 2013 this project replaced Project 2357 (Maritime Battle Center), which more accurately reflectes the current mission of Navy Warfare Development Command (NWDC) experimentation.

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, U.S. Fleet Forces. 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 2013	FY 2014	FY 2015
Title: Maritime Concept Generation and Development	4.941	10.194	7.190
Articles:	-	-	-
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 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.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
The decrease in funding from FY2014 to FY2015 is the result of the Department of Navy re-prioritization due to budget constraints. ***FY 2013 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 13, currently being developed. - Initiated and executed experiments in support of the CNO-directed Concept Generation and Concept Development effort. ***FY 2014 Plans:*** - Continue all efforts of FY13. - Support the USFF/CPF approved FLEX execution plan for FY14. - Execute the CNO Rapid Innovation Cell (CRIC) projects. ***FY 2015 Plans:***			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- Continue all efforts of FY14.			
Accomplishments/Planned Programs Subtotals	4.941	10.194	7.190

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

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-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604707N / *SEW Architecture/Eng Support*	Project (Number/Name) 3319 / *Fleet Experimentation*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3319: *Fleet Experimentation*	21.547	12.392	12.242	6.923	-	6.923	10.806	10.385	10.992	11.366	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The Fleet Experimentation (FLEX) (formerly Sea Trial) program develops new or improved warfighter capabilities through the experimentation of high payoff initiatives, technologies and concepts, Fleet Concepts of Operations (CONOPS), doctrine, and new tactics, techniques and procedures (TTP). The objective of FLEX is to produce recommended changes in doctrine, organization, training, materiel, leadership development, personnel, facilities, and policy (DOTMLPF-P) actions, with an emphasis on non-materiel solutions. Focusing on war fighting capability improvement through experimentation aimed at delivering potential solutions in support of current Operations Plans (OPLANs), FLEX spans both operational and tactical levels of warfare and reaches across the full range of military operations to enhance war fighting capabilities or fill current or future capability gaps. FLEX is dedicated to providing solutions to these near term (within the Fiscal Year Defense Plan) prioritized war fighting gaps as defined by the Commander, U.S. Fleet Forces (CUSFF)/Commander, Pacific Fleet (CPF) Fleet Experimentation annual guidance. With recommendations from Commander, Navy Warfare Development Command (NWDC), experimentation campaigns are approved by CUSFF/CPF each year thus establishing the annual experimentation execution plan.

Fleet experimentation runs the gamut from campaigns workshops and seminars to limited objective/technical experiments, to advanced war fighting experiments. The campaigns involve all facets of experimentation including design, planning, systems engineering and integration, execution, data collection, analysis, assessment, and the delivery of tangible products for the fleet. While Navy-centric, FLEX efforts include joint and coalition partners when appropriate.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Fleet Experimentation	12.392	12.242	6.923
Articles:	-	-	-
Description: The Fleet Experimentation (FLEX) (formerly Sea Trial) program develops new or improved warfighter capabilities through the experimentation of high payoff initiatives, technologies and concepts, Fleet Concepts of Operations (CONOPS), doctrine, and new tactics, techniques and procedures (TTP). Funding for FY15 was reduced as a result of the Department of the Navy re-prioritization due to budget constraints. ***FY 2013 Accomplishments:*** - Initiated and completed experiments in support of the CNO-directed Concept Generation and Concept Development program. - Initiated and completed experiments tasked by U.S. Fleet Forces in support of Fleet Experimentation. ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- Continue all efforts of FY13. - Continue to conduct operational experiments, evaluate and validate emerging technologies, Navy/Fleet Concepts of Operations (CONOPS), doctrine, and new tactics, techniques, and procedures (TTP) with the objective to address and mitigate significant identified warfighter capability gaps as defined by the Commander, U.S. Fleet Forces (CUSFF)/Commander, Pacific Fleet (CPF) Guidance. ***FY 2015 Plans:*** - Continue all efforts of FY14.			
Accomplishments/Planned Programs Subtotals	12.392	12.242	6.923

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

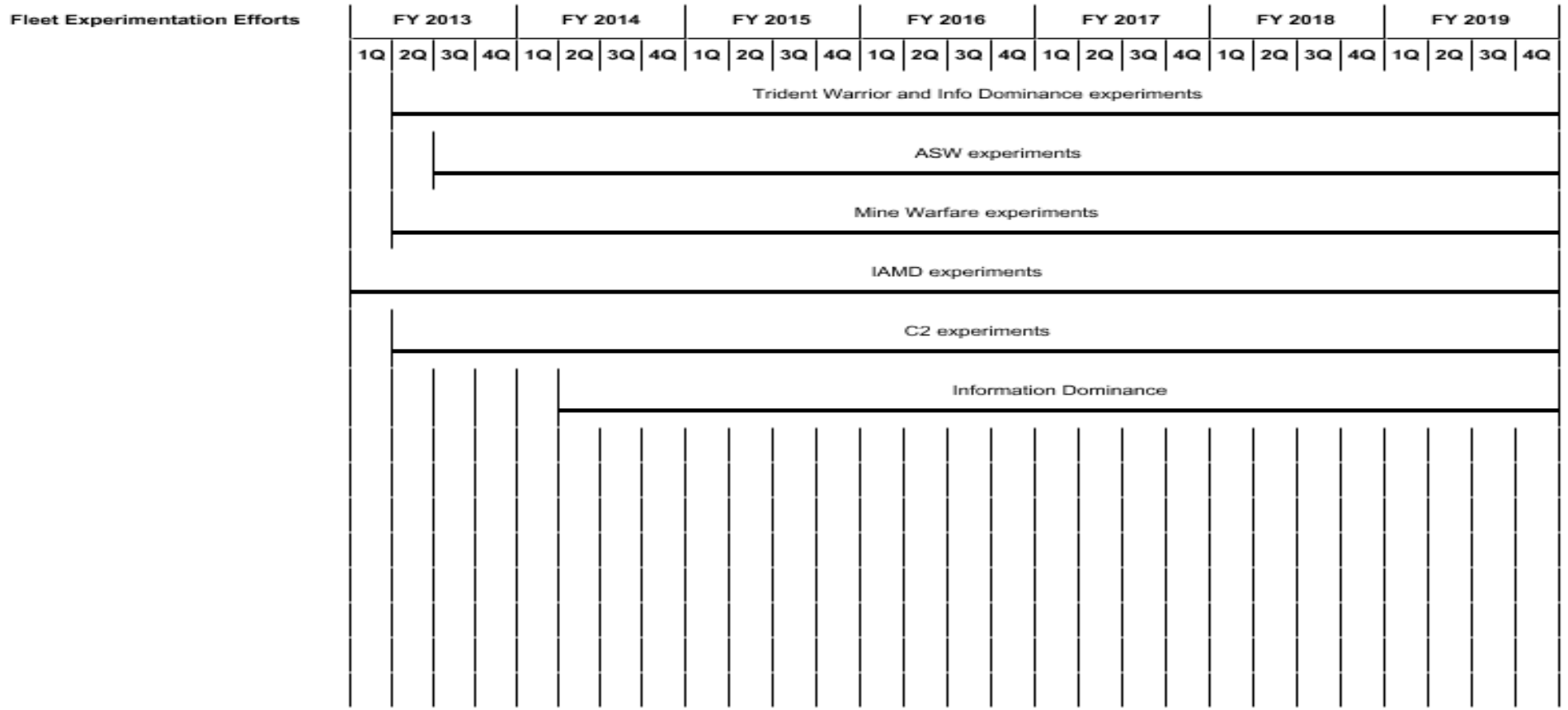
D. Acquisition Strategy

This funding is used for between 30 and 40 experimental initiatives annually, focused on addressing fleet identified capability gaps. The majority of this funding is used to acquire intellectual capital in emerging technical areas through contracts providing engineering expertise, experiment design, execution and analysis support, and also used to buy some engineering and integration costs associated with certain experiments.

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 concepts, technologies, and doctrine.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604707N / *SEW Architecture/Eng Support*	**Project (Number/Name)** 3319 / *Fleet Experimentation*



2015OSD - 0604707N - 3319

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604786N *I (U)Offensive Anti-Surface Warfare Weapon Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	77.609	90.985	202.939	-	202.939	287.991	234.965	151.754	124.462	Continuing	Continuing
3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*	0.000	77.609	90.985	201.939	-	201.939	287.991	234.965	151.754	124.462	Continuing	Continuing
3343: *Offensive Anti-Surface Warfare (OASuW) Weapon Increment II*	0.000	-	-	1.000	-	1.000	-	-	-	-	-	1.000
MDAP/MAIS Code: P449												

The FY 2015 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 and assigned as BA 04: Advanced Component Development and Prototypes.

A. Mission Description and Budget Item Justification

OASuW will be an offensive weapon system 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.

OASuW (Increment I)
The Department will transition the Defense Advanced Research Projects Agency (DARPA) / Office of Naval Research (ONR) Long Range Anti-Ship Missile (LRASM) demonstration design into a fielded weapon system to provide an early air-launched operational Offensive Anti-Surface Warfare capability using an accelerated acquisition approach.

OASuW (Increment II)

Funding supports Analysis of Alternatives (AoA) updates to assess fully capable OASuW/Increment II material solution(s) geared to the advanced 2024 threat. Surface and air-launched material solutions will be assessed. Study results to inform development efforts in FY16 and beyond.

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 2015 Navy	Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604786N *I (U)Offensive Anti-Surface Warfare Weapon Dev*

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	86.801	135.985	230.997	-	230.997
Current President's Budget	77.609	90.985	202.939	-	202.939
Total Adjustments	-9.192	-45.000	-28.058	-	-28.058
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-45.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.956	-			
• Program Adjustments	-	-	-1.142	-	-1.142
• Rate/Misc Adjustments	0.001	-	-26.916	-	-26.916
• Congressional General Reductions Adjustments	-7.237	-	-	-	-

Change Summary Explanation

Technical: Funding was provided for an OASuW weapon system that can be air and/or surface launched in the maritime battle space environment. Department requirements have been redefined for the OASuW program across the Future Year Defense Plan (FYDP) in order to address an urgent need for an air launched anti-surface warfare capability.

Schedule: Updated to address accelerated acquisition approach to meet the urgent need for an air launched anti-surface warfare capability.
Milestone A removed from 1st Qtr 2015 and replaced by Knowledge Points and EOCs added across the FYDP.
Technology Development phase added from 3rd Qtr 2013 to 4th Qtr 2016.
Engineering & Manufacturing Development (EMD) moved from 3rd Qtr 2015 - 4th QTR 2017 to 1st Qtr 2016 - 4th Qtr 2019.
System Readiness Review (SRR) replaced by System Functional Review (SFR).
Production Design Review (PDR) moved from 3rd Qtr 2015 to 1st Qtr 2015.
Critical Design Review (CDR) moved from 4th Qtr 2016 to 4th Qtr 2015.
Technical Readiness Review (TRR) added to 2nd Qtr 2016.
Production Readiness Review (PRR) added to 4th Qtr 2017.
Operational Testing (OT) moved from 1st Qtr 2019 - 4th Qtr 2019 to 3rd Qtr 2018 - 2nd Qtr 2019.
Captive Carriage Test Assets added to 2018.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	Project (Number/Name) 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3337: *Offensive Anti-Surface Warfare (OASuW) Weapon*	-	77.609	90.985	201.939	-	201.939	287.991	234.965	151.754	124.462	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	16.000	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

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 early operational air launched capability in 2018 on Air Force platforms & 2019 on Navy platforms. LRASM is intended to provide the next generation of ASuW capabilities addressing the most urgent air-launched requirement, significantly reducing Joint Force warfighting risks, and positioning the Department to address evolving surface warfare threats.

The effort is currently executing technology maturation of the demonstrated LRASM design in order to support weapon system fielding and integration. Upon completion of these efforts, the Milestone Decision Authority will determine the program's entry phase of the acquisition cycle and baseline parameters.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: OASuW Development Program	77.609	90.985	201.939
Articles:	-	-	-

FY 2013 Accomplishments:

Conducted concept refinement, technology maturation, and risk reduction efforts leveraging the DARPA/ONR LRASM demonstration program. Established a government program team to manage and support program efforts including pre-MDAP activities.

FY 2014 Plans:

Complete technology maturation and risk reduction activities to transition the LRASM demonstration program. This transition includes a Request for Proposal and contract award for activities to complete a preliminary program review in early FY15 to support further sensor and avionics hardware development and fabrication of hardware for the subsystem and system qualification, integration and test.

FY 2015 Plans:

Primary efforts include weapon system design maturation to support subsystem design reviews culminating in a system level critical design review (CDR) in 4QFY15. Additional activities include identification and design of weapon system test sets required

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
in support of subsystem and system level testing, and initial integration design/development on the USAF and USN launch platforms, which include mission planning development and environmental qualification.			
Accomplishments/Planned Programs Subtotals	77.609	90.985	201.939

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• WPN/2291: *LRASM*	-	-	-	-	-	-	90.000	120.000	120.000	-	330.000

Remarks

D. Acquisition Strategy

The OASuW will use an accelerated acquisition approach with streamlined governance. The LRASM Deployment Office (LDO), a cooperatively led DARPA/Navy office, will manage the technology maturation, integration and fielding.

E. Performance Metrics

The OASuW program will be managed through a series of Knowledge Point reviews conducted with the Service Acquisition Executive, ASN(RDA).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPFF	Lockheed Martin Missile and Fire Control : Orlando, FL	0.000	46.700	Aug 2013	59.619	Mar 2014	143.849	Jan 2015	-		143.849	481.296	731.464	732.464
Product Development	C/CPFF	Boeing : St. Louis, MO	0.000	1.739	Jun 2013	2.834	Jul 2014	4.327	Feb 2015	-		4.327	8.888	17.788	17.788
		Subtotal	0.000	48.439		62.453		148.176		-		148.176	490.184	749.252	750.252

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Support	WR	NAWC AD : Patuxent River,MD	0.000	2.998	Nov 2012	3.318	Nov 2013	5.308	Nov 2014	-		5.308	Continuing	Continuing	Continuing
Government Support	WR	NAWC WD : China Lake, CA	0.000	5.458	Nov 2012	4.945	Nov 2013	6.653	Nov 2014	-		6.653	Continuing	Continuing	Continuing
Government Support	WR	NSWC : Various	0.000	2.411	Nov 2012	0.930	Nov 2013	0.967	Nov 2014	-		0.967	Continuing	Continuing	Continuing
Development Support	C/FFP	NSMA : Navy Sys Mgt Act, VA	0.000	1.239	Nov 2012	4.771	Jan 2014	5.161	Jan 2015	-		5.161	Continuing	Continuing	Continuing
Development Support	MIPR	USAF : Various	0.000	-		4.541	Nov 2013	14.637	Nov 2014	-		14.637	Continuing	Continuing	Continuing
Development Support	MIPR	USA : WSMR, NM	0.000	2.800	Jul 2013	-		-		-		-	-	2.800	-
Integrated Logistics Support	WR	NAWC AD : Patuxent River, MD	0.000	-		0.465	Nov 2013	0.484	Nov 2014	-		0.484	Continuing	Continuing	Continuing
Contractor Support	Various	Various : Various	0.000	10.050	Nov 2012	1.923	Nov 2013	3.439	Nov 2014	-		3.439	Continuing	Continuing	Continuing
		Subtotal	0.000	24.956		20.893		36.649		-		36.649	-	-	-

Remarks

Various NSWC activities: Indian Head, Earle, Dahlgren, Corona, Point Hueneme.
Various USAF activities: Eglin, Tinker
Various Contractor Support contracts: NAWCAD, NAWCWD, JHU.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	Project (Number/Name) 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NAWC WD : China Lake, CA	0.000	2.375	Nov 2012	2.964	Nov 2013	11.379	Nov 2014	-		11.379	Continuing	Continuing	Continuing
Development Support	WR	NAWC AD : Patuxent River, MD	0.000	-		0.524	Nov 2013	1.315	Nov 2014	-		1.315	Continuing	Continuing	Continuing
		Subtotal	0.000	2.375		3.488		12.694		-		12.694	-	-	-

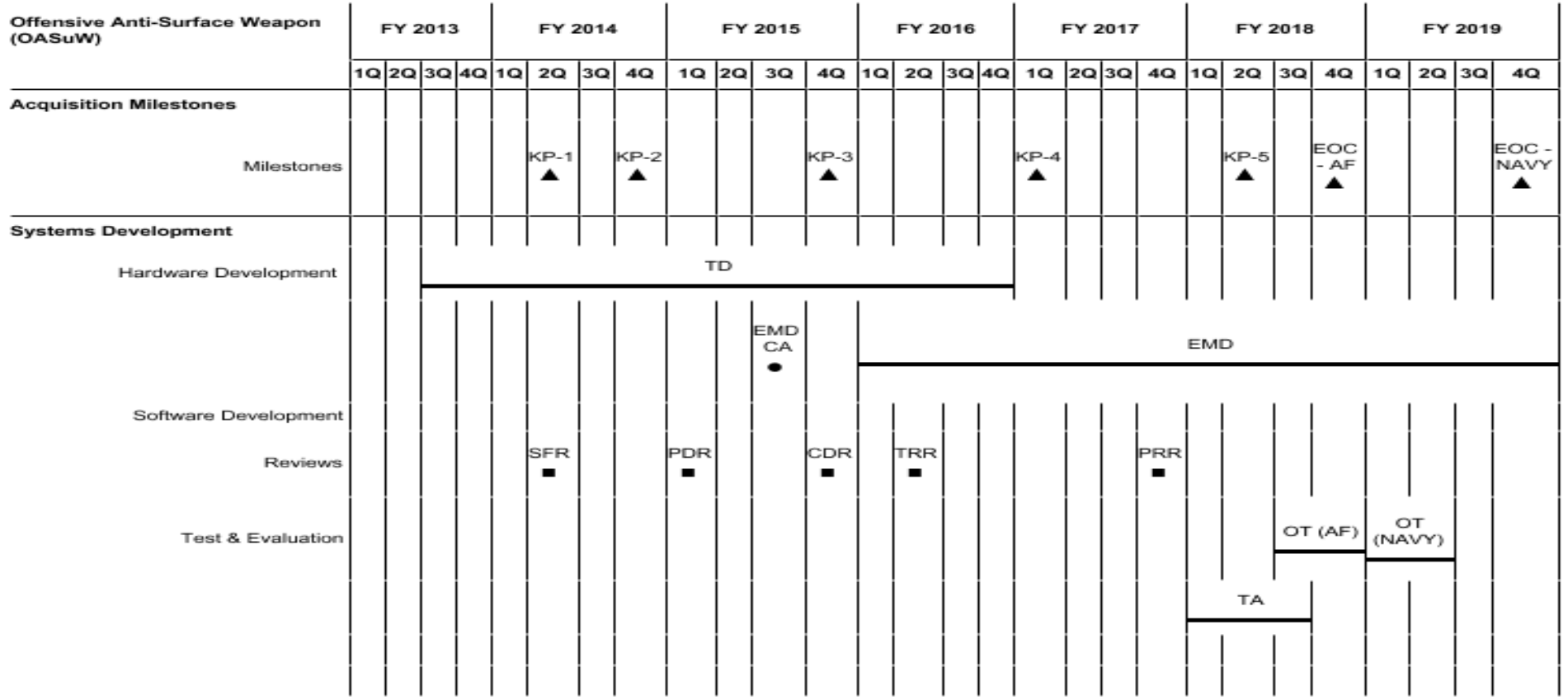
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Support	WR	NAWC AD : Patuxent River, MD	0.000	1.177	Nov 2012	2.324	Dec 2013	2.418	Dec 2014	-		2.418	Continuing	Continuing	Continuing
Project Management Support	C/CPFF	NAWC AD : Patuxent River, MD	0.000	0.362	Dec 2012	1.627	Dec 2013	1.693	Dec 2014	-		1.693	Continuing	Continuing	Continuing
Travel	Various	NAWC AD : Patuxent River, MD	0.000	0.300	Oct 2012	0.200	Oct 2013	0.309	Oct 2014	-		0.309	Continuing	Continuing	Continuing
		Subtotal	0.000	1.839		4.151		4.420		-		4.420	-	-	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	77.609		90.985		201.939		-		201.939	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3337 / *Offensive Anti-Surface Warfare (OASuW) Weapon*



2015PB - 0604786N - 3337 Schedule changes reflect program decisions based on current direction.

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 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: Knowledge Point 1	2	2014	2	2014
Acquisition Milestones: Milestones: Knowledge Point 2	4	2014	4	2014
Acquisition Milestones: Milestones: Knowledge Point 3	4	2015	4	2015
Acquisition Milestones: Milestones: Knowledge Point 4	1	2017	1	2017
Acquisition Milestones: Milestones: Knowledge Point 5	2	2018	2	2018
Acquisition Milestones: Milestones: Early Operational Capability (EOC) Air Force	4	2018	4	2018
Acquisition Milestones: Milestones: Early Operational Capability (EOC) Navy	4	2019	4	2019
Systems Development: Hardware Development: Technology Development Phase	3	2013	4	2016
Systems Development: Hardware Development: Engineering & Manufacturing Development Contract Award	3	2015	3	2015
Systems Development: Hardware Development: Engineering & Manufacturing Development	1	2016	4	2019
Systems Development: Reviews: System Functional Review	2	2014	2	2014
Systems Development: Reviews: Production Design Review	1	2015	1	2015
Systems Development: Reviews: Critical Design Review	4	2015	4	2015
Systems Development: Reviews: Technical Readiness Review	2	2016	2	2016
Systems Development: Reviews: Production Readiness Review	4	2017	4	2017
Systems Development: Test & Evaluation: Operational Testing (AF)	3	2018	4	2018
Systems Development: Test & Evaluation: Operational Testing (Navy)	1	2019	2	2019
Systems Development: Test & Evaluation: Captive Carriage Test Asset Deliveries	1	2018	3	2018

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	Project (Number/Name) 3343 / *Offensive Anti-Surface Warfare (OASuW) Weapon Increment II*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3343: *Offensive Anti-Surface Warfare (OASuW) Weapon Increment II*	-	-	-	1.000	-	1.000	-	-	-	-	-	1.000
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Update of AoA for OASuW capabilities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Analysis of Alternatives	-	-	1.000
Articles:	-	-	-
FY 2013 Accomplishments: N/A			
FY 2014 Plans: N/A			
FY 2015 Plans: Funding supports AoA efforts for a surface/air-launched OASuW material solution(s) geared to the advanced 2024 threat.			
Accomplishments/Planned Programs Subtotals	-	-	1.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

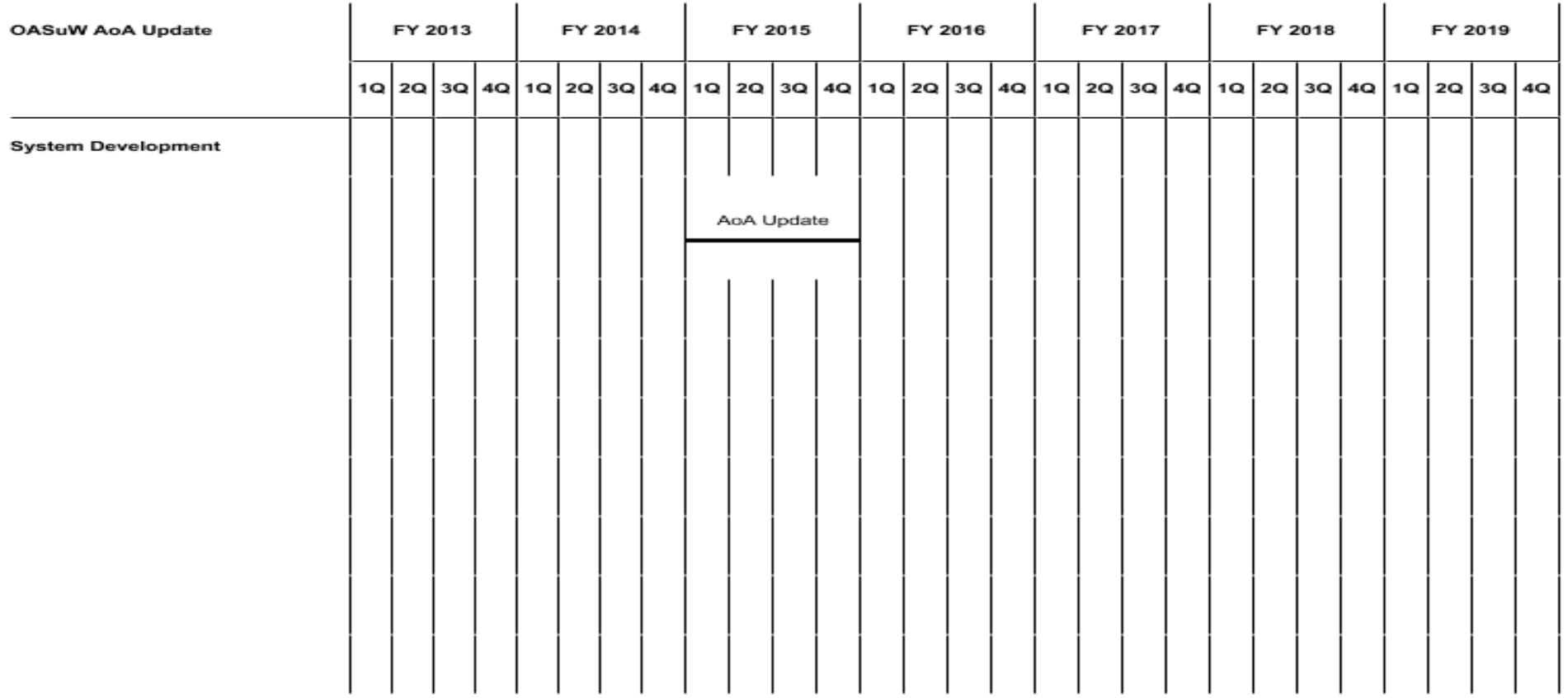
D. Acquisition Strategy

N/A

E. Performance Metrics

Completion of AoA update.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0604786N / *(U)Offensive Anti-Surface Warfare Weapon Dev*	**Project (Number/Name)** 3343 / *Offensive Anti-Surface Warfare (OASuW) Weapon Increment II*



2015PB - 0604786N - 3343

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0605812M *I (U)Joint Light Tactical Vehicle(JLTV) EMD*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	35.563	50.362	11.450	-	11.450	34.325	23.672	2.199	2.081	Continuing	Continuing
3209: *Joint Light Tactical Vehicle*	0.000	35.563	50.362	11.450	-	11.450	34.325	23.672	2.199	2.081	Continuing	Continuing
MDAP/MAIS Code: 279												

The FY 2015 OCO Request will be submitted at a later date.

Note

The FY 2011 NDAA directed the Services to separate the Joint Light Tactical Vehicle (JLTV) program into distinct PEs to provide Congress with increased transparency and allow for more effective oversight. Transition of funding from PE 0603635M to the new JLTV PE 0605812M was effective beginning in FY 2013.

Hardware requirements for EMD include vehicles, trailers, ballistic hulls, and kits (including armor). The U.S. Marine Corps share of the prototypes were awarded in FY 2012 and were fabricated and delivered in FY 2013.

A. Mission Description and Budget Item Justification

Funding supports the development and testing of the Joint Light Tactical Vehicle (JLTV) Family of Vehicles (FoV). JLTV is a joint program between the U.S. Army and the U.S. Marine Corps, of which the U.S. Army has the lead. The goal of JLTV 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 legacy HMWMV fleet, minimizing ownership costs by maximizing commonality, fuel efficiency, and reliability. The 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.

Major FY 2015 budget activities include the completion of three Engineering and Manufacturing Development (EMD) contracts, ballistic testing, completion of limited user testing (LUT), and analysis of live fire and operational test reports in preparation for Milestone C. FY 2015 also includes efforts associated with the contract award for live fire test assets, source selection evaluation activities, completion of Milestone C documentation in preparation for the Defense Acquisition Board, and program management support.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0605812M *I (U)Joint Light Tactical Vehicle(JLTV) EMD*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	44.500	50.362	16.606	-	16.606
Current President's Budget	35.563	50.362	11.450	-	11.450
Total Adjustments	-8.937	-	-5.156	-	-5.156
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.578	-			
• SBIR/STTR Transfer	-1.390	-			
• Rate/Misc Adjustments	0.001	-	-5.156	-	-5.156
• Congressional General Reductions Adjustments	-3.217	-	-	-	-
• Congressional Directed Reductions Adjustments	-5.909	-	-	-	-

Change Summary Explanation

Funding decreased from FY 2014 to FY 2015, due to the transition of the program from the EMD phase to Low Rate Initial Production (LRIP).

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0605812M / *(U)Joint Light Tactical Vehicle(JLTV) EMD*	Project (Number/Name) 3209 / *Joint Light Tactical Vehicle*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3209: *Joint Light Tactical Vehicle*	-	35.563	50.362	11.450	-	11.450	34.325	23.672	2.199	2.081	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	8.000	-	8.000	9.000	-	1.000	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

The FY 2011 NDAA directed the Services to separate the Joint Light Tactical Vehicle (JLTV) program into distinct PEs to provide Congress with increased transparency and allow for more effective oversight. Transition of funding from PE 0603635M to the new JLTV PE 0605812M was effective beginning in FY 2013.

Hardware requirements for EMD include vehicles, trailers, ballistic hulls, and kits (including armor). The U.S. Marine Corps share of the prototypes were awarded in FY 2012 and were fabricated and delivered in FY 2013.

A. Mission Description and Budget Item Justification

Funding supports the development and testing of the Joint Light Tactical Vehicle (JLTV) Family of Vehicles (FoV). JLTV is a joint program between the U.S. Army and the U.S. Marine Corps, of which the U.S. Army has the lead. The goal of JLTV 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 legacy HMWMV fleet, minimizing ownership costs by maximizing commonality, fuel efficiency, and reliability. The 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.

Major FY 2015 budget activities include the completion of three Engineering and Manufacturing Development (EMD) contracts, ballistic testing, completion of limited user testing (LUT), and analysis of live fire and operational test reports in preparation for Milestone C. FY 2015 also includes efforts associated with the contract award for live fire test assets, source selection evaluation activities, completion of Milestone C documentation in preparation for the Defense Acquisition Board, and program management support.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Primary and Ancillary Hardware Development - AM General	-	5.591	-
Articles:	-	-	-
FY 2013 Accomplishments: Initiated EMD contractor shakedown testing, delivery of ballistic cabs and rolling chassis, delivery of EMD prototypes, and vendor test support, as well as vendor and government systems engineering, of which the first year was funded by U.S. Army. Test events included ballistic cab and chassis, performance, and reliability.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0605812M / *(U)Joint Light Tactical Vehicle(JLTV) EMD*	**Project (Number/Name)** 3209 / *Joint Light Tactical Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue participation in government testing and vendor systems engineering. Test events included performance, reliability, live fire, roof crush, and corrosion. ***FY 2015 Plans:*** N/A			
Title: Primary and Ancillary Hardward Development - Lockheed Martin	15.423	5.591	-
Articles:	-	-	-
FY 2013 Accomplishments: Initiated 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 included ballistic cab and chassis, performance, and reliability. ***FY 2014 Plans:*** Continue participation in government testing and vendor systems engineering. Test events included performance, reliability, live fire, roof crush, and corrosion. ***FY 2015 Plans:*** N/A			
Title: Primary and Ancillary Hardware Development - Oshkosh	4.467	5.591	-
Articles:	-	-	-
FY 2013 Accomplishments: Initiated 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 included ballistic cab and chassis, performance, and reliability. ***FY 2014 Plans:*** Continue participation in government testing and vendor systems engineering. Test events included performance, reliability, live fire, roof crush, and corrosion. ***FY 2015 Plans:*** N/A			
Title: Live Fire Test Assets	-	-	3.785
Articles:	-	-	8.000
Description: Contract and support for development and fabrication of live fire test vehicles.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0605812M / *(U)Joint Light Tactical Vehicle(JLTV) EMD*	**Project (Number/Name)** 3209 / *Joint Light Tactical Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** Funding provides for contract award of live fire test assets that will be destroyed during ballistic testing.			
Title: Product Development Systems Engineering	0.745	0.458	0.300
Articles:	-	-	-
FY 2013 Accomplishments: Initiated the systems engineering evaluation of human systems integration and force protection integration of the three EMD vendor designs. ***FY 2014 Plans:*** Continue the systems engineering evaluation of human systems integration of the three EMD vendor designs. ***FY 2015 Plans:*** Continue the systems engineering evaluation of human systems integration of the three EMD vendor designs.			
Title: ILS and Facilities Documentation/Analysis and Support Engineering	0.964	0.903	0.635
Articles:	-	-	-
FY 2013 Accomplishments: Initiated the development of logistical documentation, managed the transfer of GFE from the government to the EMD vendors, and conducted oversight of programmatic and EMD issues related to logistics. ***FY 2014 Plans:*** Continue logistics support (i.e. training) for the limited user testing (LUT), development of logistics documentation, GFE management, and oversight of programmatic and contractual issues related to logistics. ***FY 2015 Plans:*** Continue logistics support (i.e. training), development of logistics documentation, and oversight of programmatic and contractual issues related to logistics.			
Title: Test and Evaluation Events and Analysis	9.360	25.934	1.451
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0605812M / *(U)Joint Light Tactical Vehicle(JLTV) EMD*	**Project (Number/Name)** 3209 / *Joint Light Tactical Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Initiated the EMD test program, to include the testing of armor coupons, rolling chassis, ballistic hulls and EMD prototypes. EMD prototype testing included Automatic Fire Extinguisher System (AFES), ballistic, corrosion, performance, and RAM testing. ***FY 2014 Plans:*** Continue EMD prototype testing to include (but not limited to) AFES, ballistic, corrosion, performance, and RAM testing. Initiated LUT testing upon the completion of the previous test events. ***FY 2015 Plans:*** Complete the LUT testing and finalize the EMD test reports in support of MS C and the LRIP source selection.			
Title: Program Management Support	4.604	6.294	5.279
Articles:	-	-	-
FY 2013 Accomplishments: Continued support of EMD phase program operations and planning activities for MS C. Key events included the continuation of EMD contract performance and testing. ***FY 2014 Plans:*** Continue support of EMD phase program operations, including the ramp-up of onsite test representatives that supported EMD phase testing. Key events included the continued monitoring of the contract performance of the EMD vendors, as well as preparation of analysis and documentation in support of MS C in 4Q FY 2015. ***FY 2015 Plans:*** Continue support of EMD phase program operations and planning activities for MS C and LRIP. Key events include the closeout of the EMD contracts, as well as preparation of analysis and documentation in support of MS C in 4Q FY 2015, and the subsequent LRIP source selection.			
Accomplishments/Planned Programs Subtotals	35.563	50.362	11.450

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTEA/VU9: *0605812A-JLTV*	59.205	84.185	45.718	-	45.718	32.724	25.758	3.237	3.107	Continuing	Continuing
• OPA: *D15603*	-	-	164.615	-	164.615	310.820	603.738	843.944	1,101.770	Continuing	Continuing
• PMC/5095: *0206211M- JLTV*	-	-	7.500	-	7.500	76.560	143.062	520.468	618.216	1,298.017	2,663.823

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0605812M / *(U)Joint Light Tactical Vehicle(JLTV) EMD*	**Project (Number/Name)** 3209 / *Joint Light Tactical Vehicle*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost

Remarks

Joint Program LRIP award planned for 4Q FY 2015.

D. Acquisition Strategy

Joint Light Tactical Vehicles (JLTV) is a Joint Services Program with the U.S. Army and Marine Corps as the two main components. The U.S. Army is the JLTV service lead. In addition, the Navy anticipates procuring JLTV vehicles upon successful Full Rate Production (FRP) decision.

The program will use an evolutionary approach to deliver capabilities in increments based on program priorities. All technologies entering the current Engineering and Manufacturing Development (EMD) phase were Technology Readiness Level (TRL) 6 or higher to achieve Capabilities Development Document (CDD) requirements.

The program revised the acquisition strategy in the first quarter of FY 2012, addressing better buying power initiatives, and reduced the program schedule by fifteen (15) months to enable a 33-month Non-Development Item approach for EMD, with Milestone B approved on 9 August 2012. The program anticipates Milestone C decision in July 2015.

Through a full and open competition, the program awarded three fixed price contracts for EMD phase on 22 August 2012 to AM General, Lockheed Martin, and Oshkosh Corporations.

Increment I will produce two Mission Role Variant (MRV) configurations (Combat Tactical Vehicle (CTV) and Combat Support Vehicle (CSV)) with mission packages (General Purpose, Heavy Guns Carrier, Close Combat Weapons Carrier, and Utility/Shelter Carrier). EMD vendors fabricated a total of 66 vehicles (22 test assets per vendor) representing mission packages for both MRVs, which the Government will fully test during EMD.

Vehicles were delivered in the fourth quarter of FY 2013 to begin the fourteen (14) month government performance and reliability testing, which will focus on demonstrating Key Performance Parameters/Key System Attributes (KPP/KSA) and safety requirements. Test strategy represents a mix of vendor risk reduction testing and formal government testing.

Market research has not identified a qualified non-EMD vendor. Unless subsequent market research identifies a qualified non-EMD vendor capable of delivering the required capabilities, there will be a down-select from among the EMD contractors for award of the Production and Deployment (PD) phase contract. The down-select will result in awarding a single fixed-price contract in FY 2015 with R&D funded test vehicles, consisting of three years of procurement funded Low-Rate Initial Production (LRIP) with an option of five years of FRP starting in FY 2018. The PD phase contract will also include interim contractor logistics support (ICLS) and one or more options for the procurement of the JLTV Technical Data Package (TDP).

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0605812M / *(U)Joint Light Tactical Vehicle(JLTV) EMD*	**Project (Number/Name)** 3209 / *Joint Light Tactical Vehicle*

E. Performance Metrics

Milestone Reviews

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0605812M / *(U)Joint Light Tactical Vehicle(JLTV) EMD*	**Project (Number/Name)** 3209 / *Joint Light Tactical Vehicle*

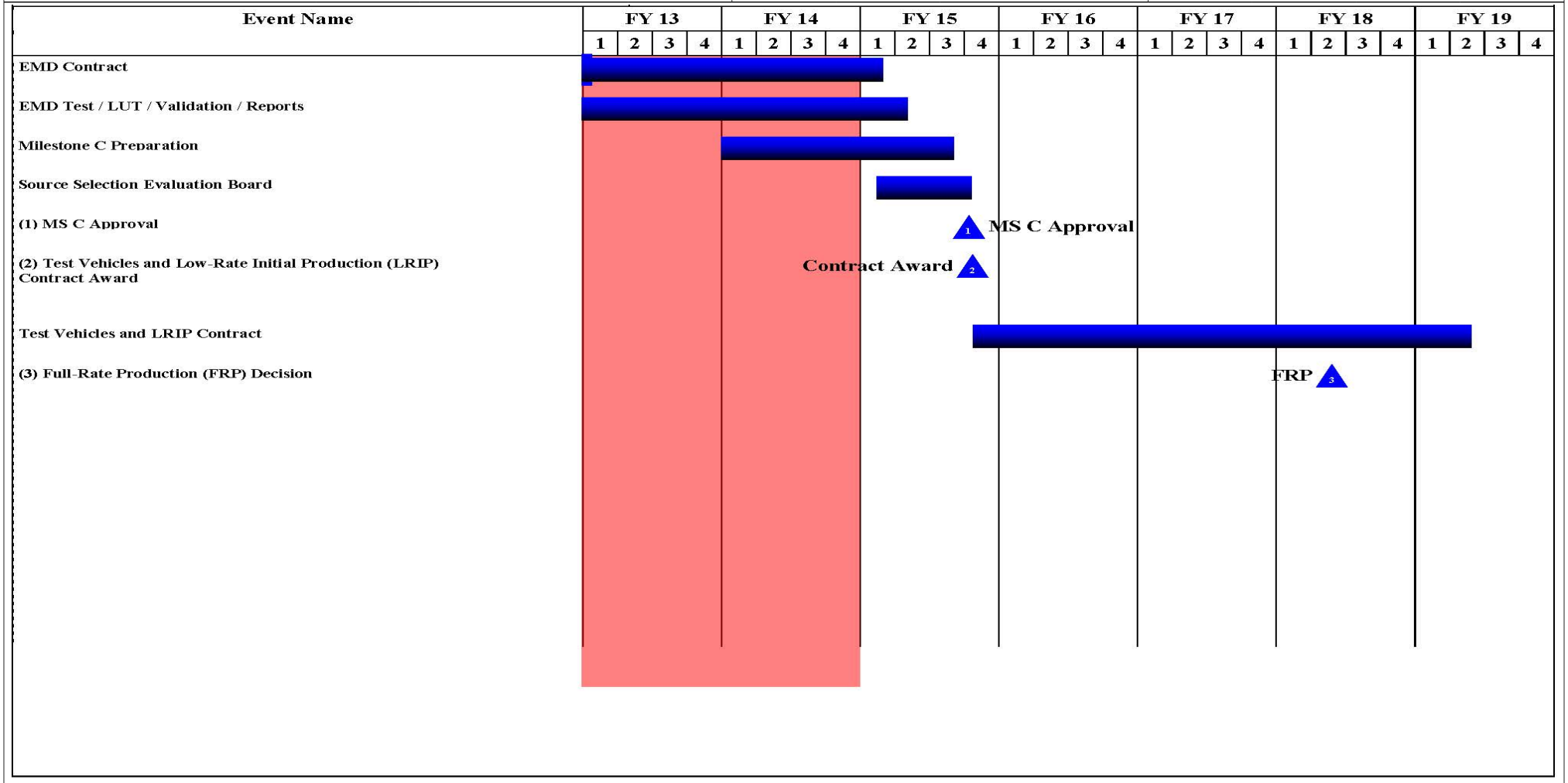


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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0303354N *I ASW Systems Development - MIP*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	3.228	12.077	4.908	6.495	-	6.495	9.907	9.621	8.438	9.117	Continuing	Continuing
0490: *Airborne Acoustic Intelligence (AAI)*	3.228	12.077	4.908	6.495	-	6.495	9.907	9.621	8.438	9.117	Continuing	Continuing

The FY 2015 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 advanced antisubmarine warfare capabilities through rapid development of new technology and prototype mechanisms for the collection of antisubmarine warfare (ASW) related intelligence. This includes full spectrum intelligence collections and cataloging of current targets of interest. The program develops and swiftly deploys disruptive innovation to counter emerging threats in order to maintain the United States' current undersea warfare superiority. AAI employs the capability to quickly reconstruct and analyze passive and active measurements of submarine vulnerabilities providing actionable intelligence to fleet commanders. The AAI data collection program provides full spectrum intelligence data essential for the design and development of advanced sensors, weapon systems, environmental models, and tactical decision aids. AAI collection systems are installed and employed on uniquely configured aircraft, specially configured ground support facilities, ships, and other assets as required for the collection, processing, exfiltration, and dissemination of undersea intelligence. AAI includes recording systems, advanced detection and tracking systems, specially designed sensors, advanced processing systems and techniques, and specially derived tactics.

This is a Military Intelligence Program (MIP).

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 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0303354N *I ASW Systems Development - MIP*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	13.172	8.448	9.603	-	9.603
Current President's Budget	12.077	4.908	6.495	-	6.495
Total Adjustments	-1.095	-3.540	-3.108	-	-3.108
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.540			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	-0.063	-	-0.063
• Rate/Misc Adjustments	-	-	-3.045	-	-3.045
• Congressional General Reductions Adjustments	-1.095	-	-	-	-

Change Summary Explanation

Technical: Not Applicable

Schedule: Added delivery of new Airborne Avionics capabilities in 1Q/15.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0303354N / *ASW Systems Development - MIP*	Project (Number/Name) 0490 / *Airborne Acoustic Intelligence (AAI)*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
0490: *Airborne Acoustic Intelligence (AAI)*	3.228	12.077	4.908	6.495	-	6.495	9.907	9.621	8.438	9.117	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 advanced antisubmarine warfare capabilities through rapid development of new technology and prototype mechanisms for the collection of antisubmarine warfare (ASW) related intelligence. This includes full spectrum intelligence collections and cataloging of current targets of interest. The program develops and swiftly deploys disruptive innovation to counter emerging threats in order to maintain the United States' current undersea warfare superiority. AAI employs the capability to quickly reconstruct and analyze passive and active measurements of submarine vulnerabilities providing actionable intelligence to fleet commanders. The AAI data collection program provides full spectrum intelligence data essential for the design and development of advanced sensors, weapon systems, environmental models, and tactical decision aids. AAI collection systems are installed and employed on uniquely configured aircraft, specially configured ground support facilities, ships, and other assets as required for the collection, processing, exfiltration, and dissemination of undersea intelligence. AAI includes recording systems, advanced detection and tracking systems, specially designed sensors, advanced processing systems and techniques, and specially derived tactics.

This is a Military Intelligence Program (MIP).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Systems Engineering / Aircraft Mods Active Acoustic Program	1.412	0.569	0.767
Articles:	-	-	-
FY 2013 Accomplishments: Upgraded post mission processors for Calibrated Acoustic Intelligence (ACINT). Enhanced P-8A aircraft calibration units. Provided engineering support of the Active Target Strength sensor program.			
FY 2014 Plans: Post mission processor upgrades for Calibrated ACINT. P-8A aircraft calibration unit enhancements. Engineering support of the Active Target Strength sensor program.			
FY 2015 Plans: Engineering to support full spectrum intelligence collections. Post mission processor upgrades for Calibrated ACINT. Airborne avionics unit development and enhancements.			
Title: Data Collection and Analysis	0.430	0.600	1.626

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0303354N / *ASW Systems Development - MIP*	**Project (Number/Name)** 0490 / *Airborne Acoustic Intelligence (AAI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Articles:	-	-	-
FY 2013 Accomplishments: Supported data collection at Operational Wings. Collected high interest acoustic and non-acoustic data in support of Measurement and Signature Intelligence/Office of Naval Intelligence (MASINT/ONI) threat assessment requirements. Reduction, Analysis and Fleet Rapid Feedback. Conducted airborne special operations support. Provided 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. ***FY 2015 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	0.415	0.200	0.638
Articles:	-	-	-
FY 2013 Accomplishments: Provided Active Measurement Validation of targets of interest. Provided the acoustic analysis of echo characterization (which included: signal excess measurements, peak frequency, trend analysis and pulse duration measurements) and target strength. ***FY 2014 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 2015 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.			
Title: Product Development	9.820	3.539	3.464
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0303354N / *ASW Systems Development - MIP*	**Project (Number/Name)** 0490 / *Airborne Acoustic Intelligence (AAI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Initiated Active Target Strength Sensor development program. ***FY 2014 Plans:*** Continue Active Target Strength Sensor development program. ***FY 2015 Plans:*** Continue Active Target Strength Sensor development program.			
Accomplishments/Planned Programs Subtotals	12.077	4.908	6.495

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

Military Intelligence Program (MIP).

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0303354N / *ASW Systems Development - MIP*	**Project (Number/Name)** 0490 / *Airborne Acoustic Intelligence (AAI)*

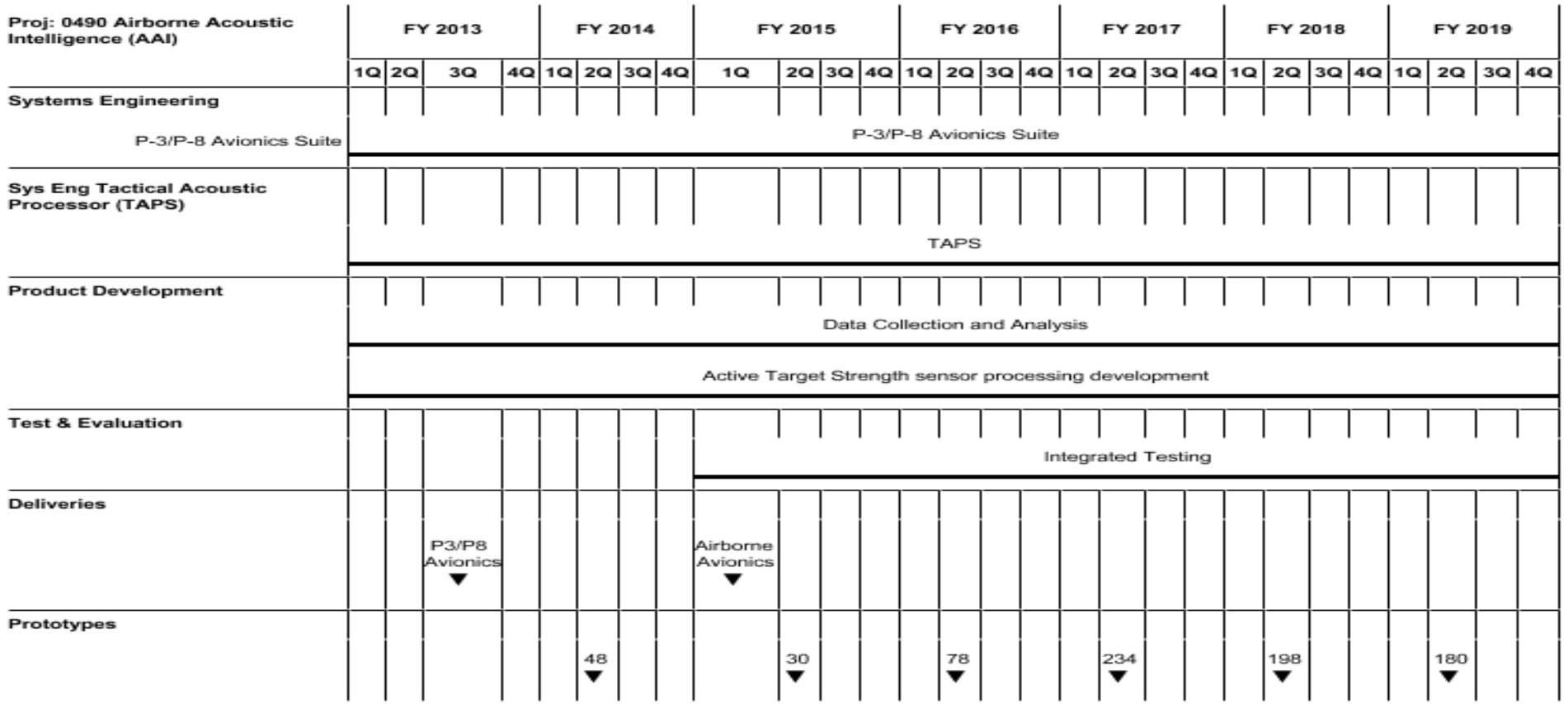

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0304270N *I Electronic Warfare Development - MIP*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	0.625	2.841	0.153	0.332	-	0.332	0.575	0.467	0.467	0.479	Continuing	Continuing
2260: *Specific Emitter ID*	0.625	2.841	0.153	0.332	-	0.332	0.575	0.467	0.467	0.479	Continuing	Continuing

The FY 2015 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	0.643	0.153	0.819	-	0.819
Current President's Budget	2.841	0.153	0.332	-	0.332
Total Adjustments	2.198	-	-0.487	-	-0.487
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.250	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	-	-	-0.487	-	-0.487
• Congressional General Reductions Adjustments	-0.052	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0304270N / *Electronic Warfare Development - MIP*	Project (Number/Name) 2260 / *Specific Emitter ID*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2260: *Specific Emitter ID*	0.625	2.841	0.153	0.332	-	0.332	0.575	0.467	0.467	0.479	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 2013	FY 2014	FY 2015
Title: SENSOR FUSION	0.885	0.048	0.100
Articles:	-	-	-
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.			
FY 2013 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 2014 Plans: - Continue all efforts of FY 2013.			
FY 2015 Plans: - Continue all efforts of FY 2014.			
Title: SYSTEM AUTOMATION	0.971	0.052	0.132
Articles:	-	-	-
Description: This effort supports development of an autonomous surveillance system capable of providing emitter signal information to a central location.			
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0304270N / *Electronic Warfare Development - MIP*	**Project (Number/Name)** 2260 / *Specific Emitter ID*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
- 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 2014 Plans:*** - Continue all efforts of FY 2013. - Continue task to develop an unmanned, autonomous, remote collection and surveillance system. ***FY 2015 Plans:*** - Continue all efforts of FY 2014.			
Title: TECHNOLOGY REFRESH & COMMUNICATION ENHANCEMENT	0.985	0.053	0.100
Articles:	-	-	-
Description: This effort improves SEI system performance, real-time communication and tactical use of SEI which will be expanded with next generation SEI technology. ***FY 2013 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 2014 Plans:*** - Continue all efforts of FY 2013. ***FY 2015 Plans:*** - Continue all efforts of FY 2014.			
Accomplishments/Planned Programs Subtotals	2.841	0.153	0.332

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0304270N / *Electronic Warfare Development - MIP*	**Project (Number/Name)** 2260 / *Specific Emitter ID*

E. Performance Metrics

MIP Program.